"26557"

+C622.05
M6
1870 v.32

California State Library

Presented by

0 2007 1200399 1
California State Library

Date received

No. 26557

EXTRACT

From an Act prescribing Rules for the Government of the State Library, passed March 8th, 1861.

Section 11. The Librarian shall cause to be kept a register of all books issued and returned; and all books taken by the members of the Legislature, or its officers, shall be returned at the close of the session. If any person injure or fail to return any book taken from the Library, he shall forfeit and pay to the Librarian, for the benefit of the Library, three times the value thereof; and before the Controller shall issue his warrant in favor of any member or officer of the Legislature, or of this State, for his per diem, allowance, or salary, he shall be satisfied that such member or officer has returned all books taken out of the Library by him, and has settled all accounts for injuring such books or otherwise.

Sec. 15. Books may be taken from the Library by the members of the Legislature and its officers during the session of the same, and at any time by the Governor and the officers of the Executive Department of this State who are required to keep their offices at the seat of government, the Justices of the Supreme Court, the Attorney-General and the Trustees of the Library.

CALIFORNI LIBR

JAN. 1, 1870—Price Reduced to $4, and name of paper abbreviated to "Scientific Press."

Mining and Scientific Press Patent Circular.

To Inventors
ON THE
Pacific Coast.

Messrs. DEWEY & CO.

Take occasion to call your attention to the following rules, regulations and suggestions relative to the obtaining of LETTERS PATENT of the United States:

Established in 1860.

Our business has been long and successfully practiced, and we are thoroughly responsible for the confidence and valuable trusts placed in our charge. Our advice can always be relied upon as correct.

The principal portion of the patent business of this coast has been done, and is still being done, through our agency. We are familiar with and have full records of all former cases, and can more correctly judge of the value and patentability of inventions discovered here, than any other agents.

Steps Necessary to Procure a Patent.

The FIRST thing required is a model, if your invention can be represented by one. It is not only immediately necessary in preparing the papers, but the law demands that the inventor shall, in all cases, furnish a model, which must not exceed twelve inches in any of its dimensions. A model of less size will answer when more convenient. It should be neatly made, of hard wood or metal, or both, and varnished or painted; the name of the inventor and the name of the article should be engraved or painted on it in a permanent manner.

When the invention consists of an improvement on some known machine, a full working model of the whole will not be necessary. It should be sufficiently perfect, however, to show, with clearness, the nature and operation of the invention, and the relation of the new to the old parts of the machine.

As soon as the model is ready, it should be carefully boxed and shipped by express, or otherwise, to our address, namely: DEWEY & CO., *Mining and Scientific Press, San Francisco.* Prepay expenses and send express receipt to us by mail.

A full description must also be sent with the model, embodying all the ideas and claims of the inventor respecting the improvement, describing the various parts and their operation.

Simultaneously with the model, the inventor should send us the first instalment of the Government fee, fifteen dollars. The money may be forwarded either by express with the model, or by registered letter, post office order, or by draft on San Francisco, payable to our order. Always send a letter with the model, and with the remittance, stating the name and address of the sender. On receipt of the model and Government first fee of $15 in currency, the case is duly registered on our books, and the application proceeded with as fast as possible. When the documents are ready we send them to the inventor by mail, for his examination, signature and acknowledgement before a Notary Public or Justice of the Peace, with a letter of instruction, etc. Our fee for preparing the case is then due and will be called for. The case will then be presented to the Patent Office, and as soon as the patent is ordered to be issued the Government last fee of $20 in currency will be required. The law states that every patent shall be dated as of a day not later than six months after the time at which it was passed and allowed, and notice thereof sent to the applicant or his agent. And if the final fee for such patent be not paid within the said six months, the patent shall be withheld, and at the expiration of two years the invention therein described shall become public property as against the applicant therefor.

When the invention consists of a new article of manufacture, a medicine, or a new composition, samples of the separate ingredients, sufficient to make the experiment, (unless they are of a common and well known character), and also of the manufactured article itself must be furnished, with full description of the entire preparation.

For Processes, frequently no model or drawings are necessary. In such case the applicant has only to send us an exact description, and what it is desirable to claim.

For Designs no models are necessary. Duplicate drawings are required, and the specifications and other papers should be made up with care and accuracy. In some instances two photographs, with the negatives, answer well instead of drawings.

Inventors who do business with us will be notified of the state of their application in the Patent Office, when it is possible for us to do so. We do not require the personal attendance of the inventor, unless the invention is one of great complication, usually the business can be well done by correspondence.

The usual time required to secure a patent, when the case is conducted at our agency, is from one to two months. We sometimes get them through in two weeks. In rare cases, however, owing to delay on the part of Government officials, the period is sometimes extended for months. We make a special point to advance our cases as rapidly as possible, and have been successful in obtaining patents for this coast more surely and speedily than any other agency in the United States.

Letters Patent and Who Can Obtain them.

A patent is an open letter, embodying all the language of an inventor or his agent, contained in the specification, without alteration, and is granted to citizens of the United States, or Foreigners, male or females, (including minors), and is signed by the Secretary of the Interior and the Commissioner of Patents, with the seal of the Patent Office affixed. Its jurisdiction is for the whole United States, for the term of seventeen years.

Citizens of Canada and Nova Scotia have to pay a fee of $500 for patents in the U. S., owing to discriminations made against Americans.

What Claims can be Patented?

A knowledge of Ancient and Modern Mechanics and familiarity with American and Foreign patent issues and rejections, enables us to determine in a measure in all cases what can be patented, and how much can be claimed as new and novel, and be covered by Letters Patent. This is one of the most difficult questions encountered by both old and new inventors—one in which an experienced counsel is of great service.

A majority of the Patents issued during the past eight years to Pacific Coast inventors have been secured through our Agency; consequently we can more readily and correctly advise new applicants than any other agent.

Important Advantages.

Some of the advantages to be obtained by patronizing us may be enumerated as follows:

Inventors on this coast having their applications for patents made out through our agency, can sign their papers at once, and thus secure their rights *much sooner* than by trusting the same to distant agencies, situated at New York or Washington.

Many inventions on this coast are for objects and purposes but little understood by parties at Washington or other parts of the East. Our mining machinery, processes and operations are best understood by those familiar with their use. A personal verbal explanation is oftentimes of important service, and enables us to be more successful than agents generally.

Remittances of money made by individual inventors to the Government sometimes miscarry, and it has frequently happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

By an able and faithful representative of our firm in Washington, our clients' applications are guarded against indifferent examination, unfair treatment in any contingency, and hazardous delays.

Patents for inventors on this coast are actually secured cheaper through our agency than any other, however flattering may be the inducements offered at the commencement by others.

Extensive practice gives us great facilities, securing regularity in the transaction of our business, which extends to EVERY COUNTRY IN THE WORLD where patent laws exist.

We assist in bringing valuable inventions to the general notice of the public throughout the Pacific Coast by illustration or description in the columns of the MINING AND SCIENTIFIC PRESS.

Confidential Advice.

Those who have made inventions and desire to consult with us respecting the same, are cordially invited to do so. We shall be happy to see them in person at our office, or to advise them by mail. In all cases they may expect from us an honest opinion. For these consultations, opinion and advice we make no charge. A pen-and-ink sketch and description of the invention should be sent together with a stamp for return postage. Write plain, do not use pencil or pale ink; be brief.

Remember all business committed to our care, and all consultations, are kept by us secret and strictly confidential. Our permanent business interests demand, as it were, a sacred compliance with our obligations as solicitors, and in reference to our strict fidelity in this respect we refer to one and all of the thousands of inventors and patentees on this coast who have patronized us.

Expense of Applying for Patent.

The Government fee, on filing an application for a patent in the United States, is fifteen dollars; and if the patent is allowed, twenty dollars additional is required. If rejected, the first fee of fifteen dollars is all that is demanded.

To the foregoing official fees must be added fees for preparing the various documents and expense of drawings. Our charge for preparing the documents for a case, presenting it to the Government, and attending to all business connected with it, is $25 and upward. For cases demanding extra work and attention, only a reasonable fee in accordance with the services required, to do full justice to the case, will be charged.

Following is the list of Government fees, payable in currency:

On every caveat	$10
On every application for a patent, for seventeen years	15
On every application for a design, for 3 y'rs and 6 mos	10
On every application for a design, for seven years	15
On every application for a design, for fourteen years	30
On issuing each original patent	20
On filing a disclaimer	10
On every application for a re-issue	30
On every additional patent granted on a re-issue	30
On every application for an extension	50
On the grant of every extension	50
On appeal to the Examiners-in-Chief	10
On appeal to the Commissioner from Examiners-in-chief	20
On every appeal to the Judges of Circuit Court, D. C.	25

By Telegraph.

In cases of immediate importance we can have their progress reported by telegraph, so that applicants know immediately the result of the examination and decision of the Patent Office. We also make examinations by telegraph regarding the patentability of inventions; examine patent assignments on record at Washington; obtain copies of patents or claims, and also derive other information desired instantly from the Patent Office.

Reasons for Success.

We would especially call the attention of the inventive public to the fact that our Patent Agency is taking out a larger number of Patents than any other agency west of the Mississippi River. We do our work promptly and thoroughly, and refer to our standing amongst inventors as an evidence of our success in our special department. Our work is all done inside of our office, BY COMPETENT AND RELIABLE PERSONS, who have been for years interested and associated with us. We therefore are not compelled (like many agencies) to trust valuable and important inventions promiscuously to outsiders, to have part of the case prepared, but inventors can depend that, from the time their cases are first placed in our office, they are kept with proper secrecy until full rights are secured in the Patent Office in Washington. This is an important point in the proper prosecution of Patent business. It is a notorious fact that some prominent agencies trust a considerable portion of their cases to apprentices and amateurs. A deficiency or want of attention to the small affairs of any kind of business will often prove as harmful as a flagrant violation of the most important rules which govern and control it.

Mechanical Movements from Dewey & Co's Pamphlet Circular.

PLATE I.

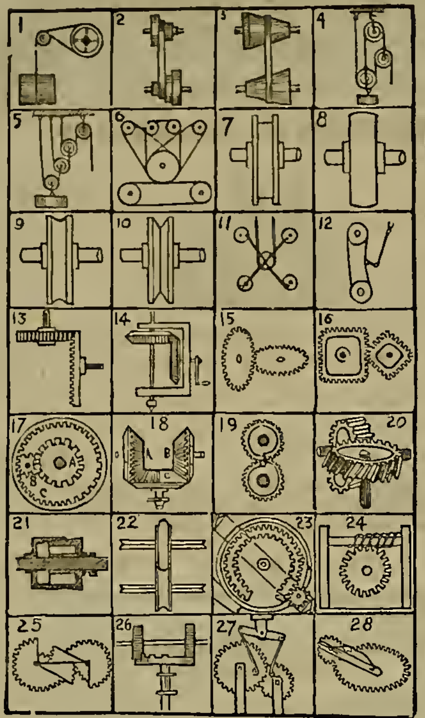
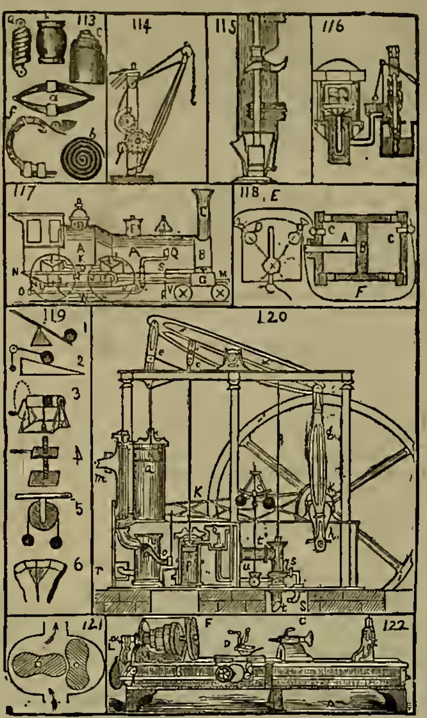


PLATE V.



The explanations of the above and many other illustrations is contained in our Free Circular, which will be sent free on receipt of postage stamp.

To Eastern Inventors.

Our close proximity to British Columbia, Mexico, Central and South American States, Australia and the Islands, enables us to obtain Letters Patent for you with much less *delay* and expense than they can be secured through any other agency in the United States.

Melbourne, in Australia, is a city of larger proportions that San Francisco, besides the adjacent colonies are of great commercial and mineral importance. Inventions of all kinds, but especially those relating to the saving of gold and silver, if secured in Australia, will often prove of great value. We have competent agents there, and can promise that the business will be attended to with fidelity and dispatch.

Self-Evident Facts.

Having had large experience, and gratifying success with the great variety of cases emanating on this coast, we feel confident of our abilities to assist inventors in patenting their inventions, saving them from vexatious delays, and from receiving worthless papers by reason of imperfect preparation of their claims before being sent to the Patent Office.

In early days but little preparation was needed, or but ordinary skill required to obtain a patent; but now, by reason of the multiplicity of inventions, and the numerous Acts of Congress, found necessary to protect the inventor while the patent lasts, and to do justice to the people after it expires, the utmost care and skill are requisite in managing cases and obtaining a patent that will be of real value to the Patentee, and stand the test of passing through the legal ordeal of an infringement suit.

The general practice of the Patent Office regarding the examination or issue of Letters Patent for inventions has not been materially changed for many years, yet there have been amendments added to the laws of 1861, 1863, and 1866, and which it is necessary for all parties managing an application to be conversant with. Old inventors invariably advise the employment of none but agents of *responsibility* and *experience*. As agents with such qualifications, we solicit honest patronage.

Interferences.

INTERFERING APPLICATIONS are conducted with spirit and ability on the most favorable terms, by DEWEY & CO. It sometimes happens that an applicant finds his invention has been patented by another, but more recent discoverer. In such cases the prior discoverer can obtain full right to the invention if he can produce tangible evidence of priority.

When patentees are threatened with interference they should consult able and responsible agents before they either allow themselves to be hacked down from their rights, or trespass upon the rights of others. We will always counsel and advise in such cases upon the most reasonable terms—often saving clients heavy damages and exorbitant fees.

Advancing Cases.

If any case placed in our hands meets with rejection, we do not wait to write and inform the inventor of this fact, (as is the case with most agents,) but our representative at Washington proceeds at once to examine the stated objections, and if it be not a just and unavoidable decision, the claims of the inventor will be presistently argued before the Examiner, and if possible the decision reversed.

Inventors on the Pacific Coast, located at great distance from the Patent Office, of all others, should be careful to avoid inexperienced, dishonest, or otherwise unreliable and irresponsible agents.

Inventors having models in our possession must send written orders when they desire any particular friend to see them.

DEWEY & CO., Publishers,
And Proprietors Mining and Scientific Press
414 CLAY STREET.

◆

Subscribe for the
Mining and Scientific Press.
PUBLISHED EVERY SATURDAY,
At No. 414 Clay Street, San Francisco.

If you are an Inventor, Patentee, Miner, Farmer, Manufacturer, Mechanic, or a progressive Student or Artisan in any Industrial or Professional Calling in the Pacific States or Territories, you are doing yourself irreparable injustice, if not already a subscriber and reader of the MINING AND SCIENTIFIC PRESS.

It contains hints and information enough to repay the subscription price many times in a single month.

Its columns are filled with instructive reading in plain, comprehensible and attractive form to minds of ordinary intelligence.

It contains 16 pages and 64 columns of the size of Harpers's Weekly, and is the best printed and most valuable paper on the western half of the continent. All claims of patents issued to inventors on this coast are reported. Illustrations of new machinery are given each week. Descriptions of new inventions and discoveries, throughout the world, are given, with fresh and comprehensive information of scientific developments and mechanical and industrial progress, which cannot be obtained from books, or readily found gathered in so convenient a form elsewhere. Subscribe now, and you will not regret it. Price $5 per annum.

DEWEY & CO.,
U. S. and Foreign Patent Agents.

TURN OVER

Mining and Scientific Press Circular, 1869.

DEWEY & Co.

American and Foreign

Patent Agents.

No. 414 Clay Street,

SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.

DEWEY & CO.,
Mining and Scientific Press,
San Francisco.

CIRCULARS FREE.

Assignments.

We make out assignments in the most substantial legal and improved forms, record the same in the Patent Office at Washington, and return the papers to the assignee, at a total cost of $5.

Assignments of extra length or of a special character, will be made out and recorded on the most favorable terms.

Assignments already made will be examined and opinions rendered regarding their validity, and the assignments recorded, when desired, for a moderate fee.

Unsuccessful Applicants.

Inventors who have rejected cases, prepared either by themselves, or for them by other agents, and desire to ascertain their prospects of success by further efforts, are invited to avail themselves of our unsurpassed facilities in securing favorable results. We have been successful in securing Letters Patent in many such cases. Our terms are very moderate.

Our long experience as editors and publishers M. & S. P. guarantees our familiarity with most of the subjects of patents on this coast, and insures inventors a more ready understanding of their cases than they can secure from any other quarter.

It is not the duty of any government official in or out of the Patent Office to prepare patent papers, or make models. These must be provided by the applicant or his attorney, according to law, *otherwise his claim will not be considered.*

Our Office.

The office of the MINING AND SCIENTIFIC PRESS is located in the second story at No. 414 *Clay* street, north side, just below Sansome. Here we have spacious accommodations, with our patent rooms, editorial room counting room, and news paper printing office — all conveniently arranged and connected, and our facilities for dispatching business correctly and economically, better than ever before. Don't forget the number —414 Clay street, below Sansome

Home Counsel.

We are frequently consulted by persons who have rejected cases which they sent months previous through distant agencies—(hastily paying their first and last government fees, expressage, and extraordinary charges of agents)—when we could have shown in the start precisely similar drawings and descriptions in the Patent Office Reports in our office, thus saving such applicants their useless expenditure of money and their long suspense.

We invite the acquaintance of all parties connected with inventions and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasers of patented articles, can often receive free advice of importance to them, from a short call at our office.

In Our Library

We have the only complete set of U. S. Patent Office Reports (from 1844) on this coast; a full record of all patents issued since 1790; Record of British patents from 1801, and full files of scientific papers containing illustrations and list of U. S. Patent Claims; Illustrated Mechanical, Philosophical, and Law Books and Reports, of the very highest authority, forming the only extensive library of patent works west of the Rocky Mountains. We offer patentees and inventors the free use of these books at our office. The files of the MINING AND SCIENTIFIC PRESS contain the claims of the Pacific Coast Patents, and many illustrated descriptions of the same. We have also in our office *full copies* of a large majority of the patent cases emanating on the Pacific Coast.

Copies of Patents.

Full copies of U. S. Patents will be furnished in the shortest time possible, at favorable rates.

Copies of the claims of U. S. Patents will be furnished without delay, from the reports in our office, at trifling expense. State the name of patentee and assignees, and date and No. of the patent, if possible.

Copies of Patents in foreign countries expeditiously furnished at moderate rates.

EXTENSIONS.—U. S. Patents issued prior to 1861, are subject to extension for seven yeas, provided some ostensible reason can be shown the Government for so doing. Patentees who have, from circumstances beyond their control, been deprived of the full benefit of their patents for any considerable time, are usually successful in obtaining an extension of the same, when presented through our agency.

INFLUENCE AT WASHINGTON.—No inventor can possibly have better facilities or more influence (through friends or agents, at Washington or elsewhere), to secure their patents sooner or more surely, than ourselves. Our influence at Washington is unrivalled, so far as success for applications from the Pacific States and Territories are concerned.

Illustrate your Inventions.

One of the best means—and the cheapest, too—for eliciting attention to a new invention, is that of illustrating and describing it in the columns of the MINING AND SCIENTIFIC PRESS. To do this in the case of a meritorious improvement (and none other will be accepted), will cost our clients no more than the price of a first-class engraving.

Superior Engraving Done.

We have superior draughtsmen employed in our office, and take especial pains in furnishing engravings and electrotypes of superior merit, of all kinds, at fair rates, and tender our patrons the benefit of our practice and experience, by advise and assistance, in getting up their circulars, advertisements, etc.

With a poor representation we desire to have nothing to do, as it would be calculated to injure both the inventor and ourselves.

Too many ingenious inventors lose the product of their genius and labor by not bringing their improvements conspicuously or plainly enough before the public—the general reading public.

Dangers of Delay.

Situated so remote from the seat of Government, delays are even more dangerous to the inventors of the Pacific coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor, or by reason of return for amendment when addressed directly by the inventor to the Government.

More valuable patent rights have been sold on the Pacific Coast by reason of the information given of them by illustrations in the MINING AND SCIENTIFIC PRESS, than through any other source. The cost of such illustrations is little in comparison with the satisfaction gained.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

Advertising and Subscription

Rates for the Mining and Scientific Press.

Subscriptions in Advance:—One year, $5; Six months, $3; Single copies 12½ cts; Monthly Series, $5 per annum; QUARTERLY SERIES (stiff paper binding) $6 yearly.

Lowest Rates for Advertising:

We shall adhere to the following rates (payable in gold coin) for advertising in the MINING AND SCIENTIFIC PRESS from this date:

One column, one year	$400 00
Half column, one year	200 00
One column, six months	200 00
Half column, six months	100 00
One column, three months (13 weeks)	100 00
Half column, three months	60 00
Per line (smallest type) one year	3 00
Per line (30 lines or more) one year	2 40
Per line, three months	1 00
Per line (10 lines or more) three months	80
Per line, one month (4 weeks)	50
Per line (10 lines or more) one month	40
Per line, one week	25
Per line (10 lines or more) one week	20

Particular attention will be given to preparing engravings, inserting advertisements in conspicuous, novel and attractive form; we will otherwise assist advertisers in getting up their notices, when desired.

☞All advertisements in the PRESS appear in both the ☞MONTHLY AND QUARTERLY SERIES of the MINING AND ☞SCIENTIFIC PRESS, which (by special arrangement) are ☞placed for FREE READING in the principal hotels, steam- ☞boat and steamship saloons, depots, and public reading ☞rooms and libraries in San Francisco, and the Pacific ☞States. Many volumes are also bound, thus affording ☞permanent advertising.

The PRESS now receives the largest and best advertising patronage of ANY WEEKLY PAPER west of the Rocky Mountains.

In regard to the value of advertising in our journal, we refer with pleasure to those who can speak from experience—*our advertisers.* Better referees, or more reliable names, cannot be found in the advertising columns of any newspaper in the world.

DEWEY & CO.,
Publishers and Patent Agents.
No. 414 Clay st., San Francisco, May 1, 1869.

Price $1. Cloth Binding.

A NEW EDITION
OF OVER 500
ILLUSTRATED
MECHANICAL MOVEMENTS.

JUST ISSUED BY

DEWEY & CO.,

Publishers Mining and Scientific Press

SAN FRANCISCO.

This work is superior to any other of its kind in the English language, The drawings are of good size, plain and distinct, and the descriptions full and comprehensive to intelligent readers of every class.

THIS IS A CHEAP BOOK,

Notwithstanding most Scientific and Mechanical works are costly.

No Inventor or Patentee should be without it.

It is interesting to all classes of Mechanics, Farmers, and others, who have more or less to do with constructing machinery. It is

Valuable and Handy for Every Day Use

In every Mill, Factory, Foundry, Machine and Workshop. Sent to any part of the United States, for

$1, POSTAGE PAID.

A liberal discount to the trade and country newsdealers.
DEWEY & CO.,
Publishers and Patent Agents, Mining and Scientific Press Office, San Francisco.

Contents of Our Illustrated Patent Circular.

SENT FREE ON APPLICATION.

Advancing Cases; Advantages, Important; Assignments, Forms, Cost, etc.; Caveats of what they Consist, Form of, Cost, how Filed effectively; Cost of Obtaining Patents; Confidential Advice; Copies of Patents Assignments, etc.; Copyrights; Dangers of Delay; Designs, Patents for; Engravings and Illustrations; Engine, Condensing-Beam—Illustrated; Extension of Patents; Foreign Patents—all Countries; Forign Inventors; Hints to Inventors; Government Fe s, List of; Home Counsel; How to Obtain Patents—Steps Necessary; Hydrostatic Press—Illustrated; Interferences; Influence at Washington; Laws (U. S.) and Decisions Relating to Patents; Latho, Engine—Illustrated; Letters Patent—of what they Consist; Library, Reports, Law Books; Locomotive Engine—Illustrated; Medicines or Compounds, Patent for; Mechanical Movements—Illustrated; Mining and Scientific Press Office; Processes, Patents for; Record of Pacific Coast Patents; Re-issues; Rejections—Cause and Remedy; Reports of Patent Office; Rights and Privileges of Inventors and Patentees; Saving of Time; Self-evident Facts; Selling Patent Rights; Springs, Various Kinds—Illustrated; Stamp Battery, Quartz—Illustrated; Telegraph, Patent Business by; Unsuccessful Applicants; Who can Obtain Letters Patents; What Claims can be Patented; Worthless Patents, Candid Reasoning.

☞ This pamphlet sent free on receipt of postage.
DEWEY & CO.,
U. S. and Foreign Patent Agents, 414 Clay street

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the MINING AND SCIENTIFIC PRESS. Established in 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the MINING AND SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms; Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

ELECTROTYPE ENGRAVINGS, CUTS, ETC.—Our Job Printing Office is abundantly supplied with elegant engravings, ornaments, and other embellishments to suit the various branches of industry in this State

---

MINING AND SCIENTIFIC PRESS
DEWEY & CO.
Patent Agents
Engravers & Printers
414 CLAY ST. SAN FRANCISCO

Volunteer Compliments.

From an endless series of appreciative testimonials and frank acknowledgements, we give the following:

"TIDAL WAVE" OFFICE, SILVER CITY,
IDAHO TERRITORY, July 27th, 1869.

MESSRS. DEWEY & CO.—GENTLEMEN:—Allow me to express my high appreciation of the ability and business management of the Mining and Scientific Press Patent Agency, and to say that our business relations have been marked with the utmost promptitude upon your part and with entire satisfaction upon mine.

Yours, etc., JNO. S. BUTLER.

SAN FRANCISCO, May 5, 1869.—MESSRS. DEWEY & CO. Gentlemen:—Allow me to express to you many thanks for services rendered me in procuring my patent, which has just come to hand. I would also say that your work has been faithfully done, and your advice and representations have in all cases been honest and truthful.

Respectfully, GEO. INWOOD.

SUISUN CITY, Cal., June 26, 1869.

MESSRS. DEWEY & CO:—This is the third time you have presented me with Letters Patent within twelve months. Gentlemen, you have done all I have asked of you—you have been honest; you are men that an inventor can rely upon for doing business for him, and he need not fear of being swindled or wronged in any way. I would give you business to do in your various departments in preference to any one else. Many thanks to you for your success. You have obtained valuable patents for me, and I appreciate your kindness, your honesty, ability and success. Yours, RICHARD KNOTT.

PORTLAND, Oregon, May 2, 1869.

MESSRS. DEWEY & CO—*Gentlemen:*—Receive my kindest thanks for your attention in the matter of bringing my application for a Patent to a successful issue.

THOMAS MANN

GRASS VALLEY, Dec. 2, 1868—*Messrs. Dewey & Co.*—Having received the patent for Symons & Co's Tossing and Refining Concentrator, through your Agency, we return our sincere thanks to you for your unrivalled success. Yours, respectfully, SYMONS & HARRY.

LEXINGTON, April 3, 1869.

DEAR SIRS:—The Letters Patent have just come to hand. For the prompt and business-like manner with which you have put the matter through, please accept my thanks. GEO. W. TEASDALE.

To DEWEY & Co., Publishers M. & S. Press.

STOCKTON, April 8th, 1869.

MESSRS. DEWEY & CO.:—Your favor of the 6th inst., accompanying patent for improvement in horse shoes, is received. I beg you will accept the earnest assurance of my gratitude for your kind assistance and valuable services. Very truly yours, W. R. WATSON.

SOMERSVILLE, CAL., August 26th, 1869.

MESSRS. DEWEY & CO.—Dear Sirs: Allow me to return you my thanks for the very able manner in which you have conducted the business entrusted to your care. You will please forward the document (British Patent) by Bamber's Express to this place. Yours, respectfully, GEO. HAWXHURST.

MARYSVILLE, CAL., August 13th, 1869.

MESSRS. DEWEY & CO.—GENTS:—Enclosed find $20 (currency) for last fees on patent for gang plow. I am very much surprised, after opinions received from Munn & Co. I am, respectfully, yours, F. A. H.

The original of the above letter (and many others with similar reference to other agencies) can be seen at this office, in cases for which we have secured patents for inventors who had been denied patents, or who had paid for being told that they could not obtain patents. Inventors on the Pacific coast are fast learning to patronize first-class home agents, who better understand their cases and will give more thorough attention to every invention entrusted to their keeping.

JAMESTOWN, Cal., July 6th, 1869.

MESSRS. DEWEY & CO.—GENTLEMEN:—The Patent for our Ore Washer and Concentrator was duly received by express. We return you our thanks for the promptness and successful manner which have attended your efforts in our behalf. Yours, WM. G. HESLEP.

THE RIGHT STAMP!—One of our wide-awake California inventors (who has already received two patents through this office) evinces the true winning spirit in the following note:

SAN JOSE, Cal., June 29, 1869.

MESSRS. DEWEY & CO:—A few days ago I received your letter apprising me of the rejection of my case, etc. Well, under the circumstances, I will just say, "*Let 'er rip!*" and I will remember the indefatigable Zack. Taylor's advice to his soldiers—"Pick your flint and try it again." I will have to try and get even on something else. I am satisfied you have done your duty as agents. Yours, J. F. C.

We have had frequent occasion to have business relations with the patent agency connected with this establishment, and have had nothing left to desire in regard to it. Fidelity, promptness and courtesy, soon arranged everything for us to our complete satisfaction. Having had frequent delays at Washington while in that city, we have been surprised at the promptitude with which some of our friends obtained their patents through the agency of Messrs. Dewey & Co.—*S. F. Spiritual Light.*

NEVADA CITY, Nov. 3d, 1868.

MESSRS. DEWEY & CO.—Gentlemen:—Your favor of the 30th ult., is just received, informing me of the successfull prosecution of my application for a patent on my "Hair Cutting Shears." Please accept my sincere thanks for the speedy and successful manner in which you have conducted the case, and believe me, as ever,

Very truly yours, LEE D. CRAIG.

SAN FRANCISCO, April 19, 1859.

MESSRS. DEWEY & CO., Patent Agents.—*Gentlemen:*—Allow me herewith to tender you my sincere thanks for the efficient assistance you have rendered me in securing my patent, and other papers, as well as the promptness and energy displayed by you in our business transactions. Very respectfully yours, C. E. JAYCOX.

MAYFIELD, Cal., June 26, 1869.

DEWEY & CO., *Patent Solicitors, San Francisco*—Gentlemen:—In acknowledging the receipt of my Letters Patent, allow me to express my thanks for the skillful and trustworthy manner in which you have conducted my business before the Department at Washington. I am perfectly satisfied with the high degree of ability and integrity displayed in the management of my case, and I know of no similar agency in which I could place corresponding trust. Yours truly, J. M. JOHNSON.

DEWEY & CO.,
Publishers Mining and Scientific Press, 414 Clay street, San Francisco.

TURN OVER.

SCIENTIFIC PRESS.
An Illustrated Journal of Scientific and Industrial Progress,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, January 1, 1870.

VOLUME XX.
Number 1.

Apparatus for Receiving and Delivering Mail-Bags.

Our express and palace-car trains between San Francisco and the East are continually quickening their running time, and thereby bringing us ever nearer and nearer to the rest of the country. Every device which enables us to increase the speed, without overstepping the bounds of prudence, is thus a great gain for us.

With well-constructed roads, our trains could easily average thirty-five to forty miles an hour were there no stoppages, except at long distances; and thus San Francisco would be only three to four days distant from New York, instead of being six to seven, as now. It is the stoppages which consume so much time and cause so much delay. When will the day come when passengers and baggage can be transferred to and from a train when it is in motion?

This day is not so very far distant, perhaps, as some might imagine; for several devices for a similar purpose have been invented in late years. It is one of these devices—an apparatus for delivering to and receiving from a moving train of mail and express matter—that we propose to treat this week.

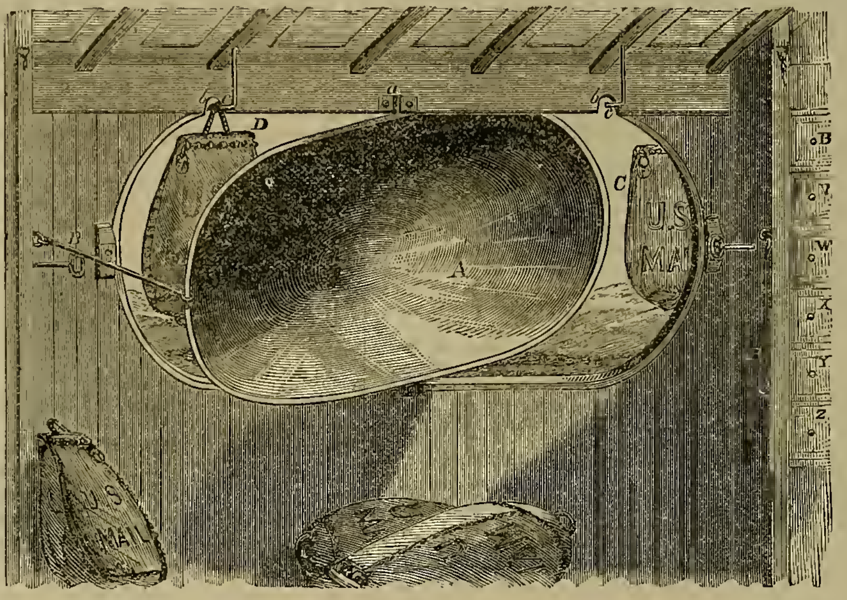
To all such devices hitherto invented, many objections have been found, which have prevented their general adoption. In December, 1868, however, Messrs. Freeman K. Sibley, of Auburndale, and Levi C. Wade, of Newton Upper Falls, Mass., received a patent for an improved apparatus, which we illustrate this week, and which has been practically tested on the Boston and Albany Rail-Road with complete success, it is claimed.

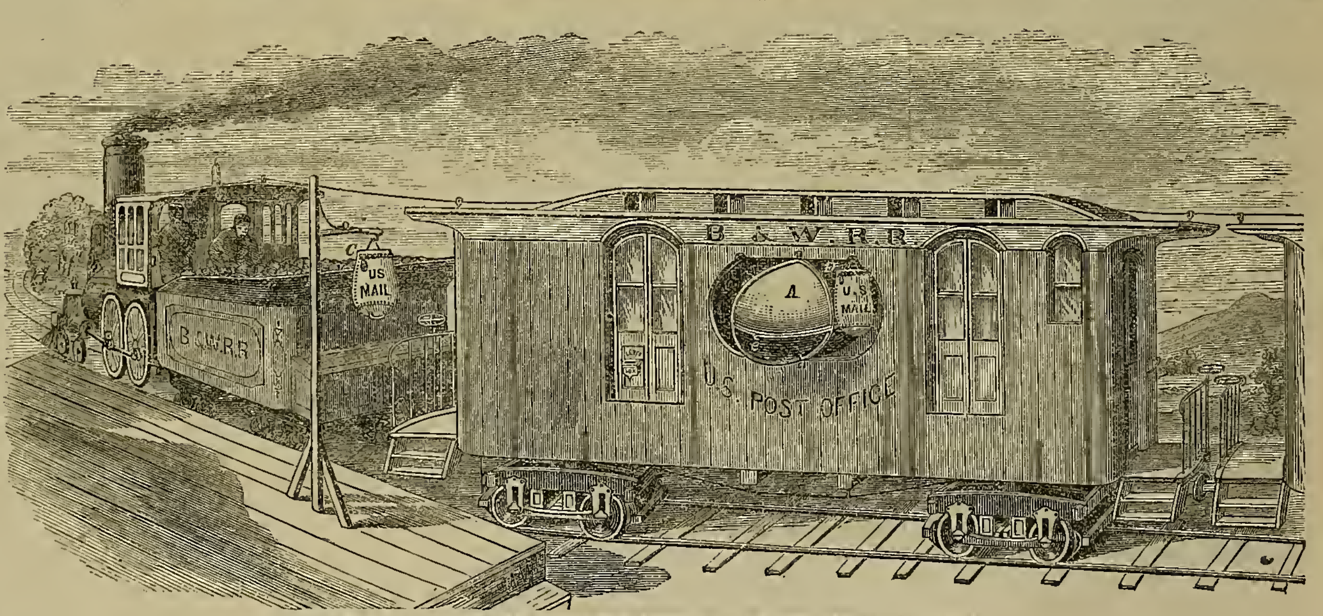
In one side of the mail-car is cut an oblong opening, in which is adjusted an oval scoop, A, by means of the pivots, a. Fastened to the inside of the car, at either end of the opening, is a rod, B, with hooked end. By means of the hook, as shown in the engraving, the scoop is held in a position at an angle with the side of the car. One or the other of these rods is used according to the direction in which the car is moving, the foremost end of the scoop always being made to project outward. At each end of the opening is a recess, b, through which projects the horizontal part of the hook, c, on which the mail-bag, D, to be delivered, is hung. This bag is suspended always on the hook towards the rear-end of the car.

The bag or parcel, C, which is to be received, is hung, at the station, on a hook, as shown in the engraving, at the proper height and the proper distance from the track.

As the car passes, the forward end of the scoop catches the bag, C. and removes it from the hook on which it is suspended, whereupon the velocity of the car causes the bag to strike the inclined surface of the rear part of the scoop with sufficient force to disengage the hooked rod, B, and throw this rear part outward until the scoop is parallel with the side of the car. This motion of the scoop throws the bag, C, into the car, and at the same time knocks the bag, D, from its hook and throws it to the ground. This expulsion of the bag, D, is assisted by means of a small hook-shaped arm, against which the lower part of the arm rests when suspended.

The result of a trial of this apparatus on the Boston and Albany Railroad, which we find with the illustrations in the *American Artisan*, New York, is given as follows: "The new method was tested on a train going from Worcester depot. Bags were taken up at Newton Corner, Newtonville, West Newton and Natick; and at Auburndale, a basket containing a live dove, two bottles of wine, wine-glasses, etc., was easily scooped up while the train was proceeding at its average speed—thirty-three miles an hour. The dove was uninjured, and the bottles of wine were found intact. Wherever the bags were suspended at the proper distance, the experiment was thoroughly successful."





SIBLEY & WADE'S APPARATUS FOR RECEIVING AND DELIVERING MAIL-BAGS.

◆

Gold in Lapland.—It is reported that two old California miners found, last summer, in Lapland, a gold nugget, worth 93 marks. Their whole summer's work yielded 60 ounces. An Australian miner has now joined them, and the three are trying to get permission from the government to continue the business.

Influx of English Capital.

Our mines are attracting the attention of European capitalists, and already several have passed into the hands of English companies. This is but the beginning; we have plenty of developed workings, which, if properly managed, will surely yield profits large enough to attract foreign capital. Other nations are content with a smaller rate of interest than has been usual here, and if too gross deception is not practiced, and this may be attempted, unless only reliable information is demanded, we may expect to have our mining operations carried on to a large extent by foreigners.

During the past few weeks, several miners have called at our office and shown specimens of ore—and some very promising ones, too—from mines which they are anxious to dispose of in part or wholly. In every case they expressed a preference for English capital over American, because they regarded mining capitalists here as merely speculators, and were rather afraid of many of them.

This practice of regarding mining as a speculation only, and not a business, has gone too far, and must be stopped. It is ruinous to the industry specially, and to our credit generally. That our mines are considered paying investments is shown by this influx of foreign capital, after an inspection by experts. Shall we always refrain from regarding these presents of nature as mere inducements to deceive one another?

◆

It is stated that one of the Stetefeldt furnaces is to be erected at the Manhattan mill, Austin.

Communications.

Dressing of Ores—A Freiberg Process.

[Written for the Scientific Press.]

The subject of dressing ores has received too little attention in our country. Miners generally have worked only for the day, not intending to spend many years in the business, and trying to get out as much precious metal as possible in a short time, even at a great waste. This way of working answers perhaps for the early days of mining; but a more careful and precise method must finally be adopted; and the sooner this is done, the better for the country. Many mines which cannot now be worked at a profit might still be very lucrative if they had been properly worked at first.

For mining improvements we naturally look to older countries, where mining has long been a business. All our most valuable hints have thus far come from other lands. The American really *originates* but few theories or principles; but he has a wonderful power of adapting, and making practical, old ideas, which, perhaps, have never before been successfully carried out.

It is with the idea of saying something, from which useful hints may be extracted, that it is proposed to give one or two examples of the way ores are treated in Freiberg. Of course no whole process can be bodily imported from a country where labor is as cheap as it is in Germany. Still it is thought that many of your readers who cannot go to Europe will be glad to hear through your columns of what is really being done in the old world, there being no English work extant which gives the details of the processes used. [Küstel's book comes the nearest to this.—Ed.]

The Chur Prinz Mine,

Near Freiberg, will be taken as a good example—this mine belonging to the government, and being worked for the purpose of promoting mining interests in general, rather than of bringing in a special revenue. It is situated about five miles from Freiberg, close to the Mulde river; and in its general characteristics is nearer, perhaps, to the mines of Austin than to any others on the coast. The ore is principally argentiferous galena (with some gray copper ore containing silver), which occurs with iron pyrites, quartz, fluorspar and heavy spar. The country rock is gneiss. It is to be understood that the ore would be considered worthless here, not being rich enough to be worked; but it must not be forgotten that the price of labor, on the other hand, is also very low.

Separation in the Mine.

In the mine the ore is separated into three classes, and these are hoisted out separately. They are: Class A, "separation ore;" class B, stamp mill ore; class C, barren rock. At present, only the first class will be spoken of, as class B undergoes a distinct treatment, and the following remarks apply to this class (A) only.

Reduction to a Proper Size and Sorting.

The ore is first crushed in an ore-breaker modeled after Blake's patent. The jaws of the machine play to and fro 213 times per minute, and are about 1¼ inches apart. The ore is thus broken up into pieces which range up to 1½ cubic inches in size. These pieces are broken up finer, to ½ cubic inches, in a second ore-crusher which plays 256 times per minute, and whose jaws are ⅜ inch apart. It is thought that by crushing first more coarsely and then more finely, considerable is gained in an economical point of view.

The crushed ore now falls into a set of four sieves, or swinging riddles, and is sorted into five classes. The sieves have a length of 8½, 8, 6⅓ and 4⅔ feet, and meshes 5-16, 3-16, 2-16 and 1-16 inches wide respectively. The swing is six inches. The finest dust is washed in a hand buddle, which is 12 feet long, 30 inches wide, and 22 inches deep; the rest go to the jigging machines, except that which will not pass through the coarsest sieve. This is carried by an elevator—consisting of buckets attached to an endless band—to a rolling mill. This consists of two cast iron rollers, 9 inches wide and 14 inches high, which require about two horse-power to drive them at the rate of 39 revolutions per minute. The ore falls through into a cylindrical trommel or drum, which revolves 13 times per minute and sorts into 5 different classes, the sieves having meshes respectively ¼, 3-16, ⅛ and 1-16 inch wide. The finest product is washed in the hand buddle; the others are jigged.

These special details are given because a proper sizing of the grains is all important for the following processes, and too much stress cannot be laid on this point. Could the grains be obtained of *exactly* the same size, an almost perfect separation would follow.

It is not to be expected that we can work so thoroughly in this country, where labor is so high; but still many will see how these and other processes may be shortened and cheapened to suit our circumstances, and yet do valuable work. Up to this point almost no manual labor is required, except in overseeing the working of the machines. Several workmen are employed at the mine spoken of, but their numbers could easily be reduced to two or three.

The Jigging Machines.

The ore has now been sorted into four classes, according to the size of the grains. These are carried to four different sets of jigging machines. The sieves of the first four machines have 16 meshes per square inch; the second, 25 meshes; the third, 36 meshes; the fourth, 64 meshes. The stroke is about seven inches. All 16 machines use eight cubic feet of water per minute. But only half are at work at one time, as while one is working, the other is being cleaned out by the boy who has charge of a set of two. It takes three and a half to four minutes to treat each charge. In this country we would hardly be contented with these machines.

The jigging gives as products: 1st. Barren ore. 2d. Small grains, in which are still particles of ore mixed with rock, and which must be stamped finer with other stamp mill ore (to be described hereafter). 3d. Galena ore, which is pure enough to be sold. This contains 75 per cent. lead and about 0.05 per cent. silver, or about $19 to the ton.

To drive all the machinery described, there is a 12-horse power steam engine, with 14½-inch cylinder and 2½ feet stroke.

[TO BE CONTINUED.]

◆

Air in Gas.—Professor Silliman and Wurtz have been investigating the effects of atmospheric air upon the illuminating power of gas, with, according to the *Chemical News*, the following results: "For any quantity of air less than five per cent., mixed with gas, the loss in candle power due to the addition of each one per cent., is a little over six-tenths of a candle (0·611 exactly); above that quantity the ratio of loss falls to half candle power for each additional one per cent. up to about twelve per cent. of air; above which, up to five per cent., the loss in illuminating power is nearly four-tenths of a candle for each one per cent. of air added to the gas. With less than one-fourth of atmospheric air, not quite fifteen per cent. of the total illuminating power remains, and with between thirty and forty per cent., it totally disappears."

The Comte Philosophy.—"In the theory of positivism there is no room for metaphysics, nothing for the metaphysician to do. Positivism has to do not simply with the facts of science, the phenomena, but it aspires to be a general philosophy which shall express in a single formula a universal truth respecting all phenomena. It says you cannot know the absolute, the infinite; but you can, by searching, find out the general law. It here sets its limit to speculation, and rules out the metaphysical and the supernatural; or, if it is going to far to say that, it holds a position of indifferentism toward the supernatural. It builds its universal philosophy, if not wholly upon the material, yet upon a necessary union of thought and matter. It admits no fact outside of experience."—*Courant.*

Deep-Sea Sounding and Dredging.

[Reported expressly for the Scientific Press.]

The regular monthly meeting of the New York Society of Practical Engineering was held at the Cooper Institute, N. Y., on Wednesday evening, December 8th, President James A. Whitney in the chair. The subject of "Deep-Sea Sounding and Dredging" was discussed in an elaborate paper, by Prof. William Robinson, of Brooklyn.

In his opening, the writer alluded to the rapid advancement of science within a few years, and the mutual dependence of the physical sciences. Marine geology has received a new and important impulse since the laying of telegraph cables made it necessary to sound and dredge the ocean. But science has done comparatively little, as yet, by its researches in the ocean depths. As sounding and dredging, however, are an absolute necessity for the advancement of marine science and as a preparation for laying cables, it is of the greatest importance that the most perfect sounding devices should be invented. None heretofore used have been free from objection.

The earliest sounder used was the common lead and line. It answers for shallow water, but is not reliable beyond a depth of three or four hundred fathoms. In 1818, Sir John Ross procured shells, shrimps and other crustaceans from the bottom of Baffin's Bay, in water more than 650 fathoms deep. In 1830, Vidal carried dredging successfully to a depth of 200 fathoms, and in 1841, Admiral Sir J. C. Ross procured a variety of invertebrate marine animals from the bottom of the Antarctic Ocean at a depth of 270 fathoms. But all the old sounders were crude, and could not be used successfully in very deep water.

America has been the pioneer in deep-sea sounding, and it was not until 1853 that the secrets of the *deep* ocean bed were revealed. In that year, Midshipman Mitchell, on board the U. S. brig Dolphin, brought up ooze composed of the remains of microscopic animals, from the bottom of the Atlantic, where the water was 1,700 fathoms, or about two miles deep.

Devices for Deep Sounding.

The device heretofore most extensively used in the United States, and, with some modifications, also in the British Navy, for deep sounding, is an invention of Lieut. Brookes, of the U. S. Navy. It consists of a rod, to the upper end of which is attached a heavy ball, hollowed out to receive it, the lower end of the rod being provided with a cup containing a valve. When the instrument strikes the bottom, the ball falls off, the cup fills with the ooze of the bottom, if soft, and the machine is hauled up. It weighs only a hundred pounds, yet a 12-horse engine is required to haul in the line at a depth of two miles.

Various other devices have been proposed. One attempted to ascertain the depth by exploding a heavy shell at the bottom. The time of the explosion and the time of the sound reaching the surface being known, the depth could readily be calculated. This method seems to have been successful in shallow, but in deep water it was an utter failure, as no sound could be heard. Attempts have been made to dispense with the line—a very desirable thing to be accomplished, because of the expense attending its use.

One of the latest inventions is on the atmospheric pressure principle, by Dr. A. W. Hall, of New York City, and dispenses with the line. It consists of a tube closed at the top and open at the bottom, into which is inserted a graduated rod. As the instrument sinks, the increasing pressure causes the water to rise in the tube and dissolve a substance coating the rod for the purpose. The height to which the water rises is thus marked on the rod and the depth indicated. The apparatus is carried to the bottom by a sinker, which is automatically detached by striking the bottom, and the instrument then rises by a float.

Instruments constructed on the principle of the screw propeller have been tested and failed, chiefly because the registering device could not be constructed sufficiently delicate, and at the same time strong enough, to resist the pressure and action of the water upon it. An instrument of this class, lately invented, was exhibited at the late Fair of the American Institute. The spiral blade is hung in an open framework, provided with outwardly projecting vertical wings, to prevent the whole machine from turning as it descends to the bottom. The blade being in an open frame is subject to the action of side currents, and the registering device is open to the objections which caused the failure of other instruments of this class.

The writer, while preparing this paper, invented two new sounding instruments. The first consists of a tube open at both ends, expanding about the center for the reception of a wheel, which moves on a horizontal axis. Above the tube is situated an air chamber open at the bottom; in the upper part of this chamber is located a registering device, which is connected with the axis of the wheel. The instrument is kept in a vertical position by constructing it so that the center of gravity is below the tube. An automatically detachable sinker carries the instrument to the bottom. As it descends, the revolutions of the wheel record the depth. When the bottom is reached, the sinker is detached and the wheel locked. The wheel, protected by the tube, and moving on a horizontal axis, is free from the action of side currents, and the registering device being free from all contact with the water, records as accurately in the compressed air as in the open air. The air chamber not only protects the registering device, but it also answers as a float to raise the instrument. The other instrument is constructed on the pressure principle, and it is claimed will record the depth, however great, to a foot. In instruments constructed on the pressure principle, there is no danger of collapse when the pressure is equalized within and without. In connection with any of the above instruments, ordinary dredges may be used.

As soon as the paper was concluded, the chair called upon Dr. Hall, who came on the platform and explained a full-sized bathometer, on the atmospheric principle, as described in the paper. Mr. J. Fisher described a bathometer invented by Capt. Ericsson, and exhibitad before the American Institute about the year 1839. This device registered the depth of the ocean by the compression of a column of water and filling the space thus made vacant by mercury from another vessel. This small quantity of mercury, when weighed, approximates the depth to which the apparatus had descended. Some scientists doubt the compressibility of water, alleging that the apparent compressibility results from the air contained in the water and the porousness of the vessel containing it, though Jacob Perkins, some forty years ago, had demonstrated that water could be compressed perceptibly. If water is compressible, a column a mile deep would be considerably heavier at the bottom than at the top, and would require a scale to be calculated accordingly, to estimate the depth, if the machine exhibited by Dr. Hall should be used.

Dr. J. V. C. Smith spoke at length on a geological formation that had attracted his attention, containing shells imbedded in solid limestone that were once, evidently, the bottom of the ocean. His description of such formations found in the stones of the great pyramids of Egypt, called forth applause. The meeting adjourned till the 12th of January.

◆

Artificial Light.—The German chemist, Landsberg, says that artificial light contains 90 per cent. of calorific rays, while sunlight contains only 50. To this difference he ascribes the disagreeable effect of artificial light upon the eyes. By passing the light through alum or mica, the calorific rays are intercepted, and this unpleasant effect is obviated.

Mechanical Progress.

American Machine Products Abroad.

The Remingtons, of Ilion, N. Y., have furnished the Danish Government 25,000 of their breech-loading rifles, and the Swedish Government, 25,000; this year they will send to Europe 100,000. Colt's Co. is completing 30,000 Berdan rifles for Russia Col. Berdan has gone to Russia to superintend a factory there, for altering their present arms. Turkey has bought 200,000 of our rifles, and over $60,000 worth of machinery, with which to convert them into breech-loaders. The Winchester and Remington rifles are being sent to China and Japan. Nearly one-half of the entire product of Smith & Wesson's pistol factory, employing 300 hands, is sold in Europe—mainly in France, notwithstanding their cheaper labor. This result is of course due to the fact that they are mainly the product of *machine* labor, which machines are themselves of American invention and manufacture, and which produce an accuracy of work and finish that their hand labor cannot equal. The Union Metallic Cartridge Company, of Bridgeport, Conn., is furnishing cartridges to nearly all the world. They had one order of 25,000,000 from the Russian Government, and it is reported that the order has been increased to 100,000,000. They make them of every variety and size, their sale of one small size for pistols averaging 45,000 per day, a large portion going to Australia. And these, too, are all made on machines invented by Americans, the like of which do not exist elsewhere in the world. In addition to all this, the Windsor Company, of Windsor, Vermont, are just completing an order for $80,000 worth of milling and screw machines, to be shipped to Edinburgh, Scotland, to establish there a large factory for the manufacture of the Singer sewing machine. These milling and screw machines are also entirely of American origin.—*Tribune.*

Hydraulic Punching and Riveting.—Piggott & Sons, Birmingham, makers of gas-holders, have machinery for this work which is thus described in a late number of *Engineering:* "In the rectangular plates any number of holes up to 154, are punched at a single blow, and to the exact pitch. Originally the piston within a vertical steam cylinder of about four feet diameter, and worked with fifty pounds steam, had a rod or hydraulic plunger of four or five inches diameter, which was driven home with a force of perhaps forty tons, equal to at least two tons per inch, forcing water equal to its own solid contents into an accumulator, from which it was let on, as required, to a pair of vertical nine-inch rams, placed over the bed of the punching machine. These drove down the head, carrying the punches, which were turned with shanks of a diameter equal to the intended pitch, and secured in rows, and with their shanks in contact,* in grooves properly formed around the punching head. Each alternate punch was made three-eighths inch longer than its neighbor on either side, so that although a single blow sent all the punches through the plate with a single report like that of a pistol, but one-half of the punches actually went through at once. The work thus done was exact, indeed perfection. Instead of the large steam cylinder, a pair of rotative 'pumping engines are now employed, the working pressure being thirty-five hundred weight to two tons per square inch. The hydraulic riveting is performed also by hydraulic pressure, at an average rate of thirty rivets per minute, the rate often rising, for a short time, to one per second."

Micrographs.—These are photographs of magnified objects, and are produced by combining a microscope with the camera. A correspondent of the *Scientific American* describes a cheap arrangement of his own for the purpose. Over the eye-glass tube of an ordinary achromatic microscope, he places a sleeve or ferule, to which is attached a small box, having its rear part open to receive the plateholder, which fits closely. The interior of box and plate holder is painted black. In focusing, a frame with ground glass takes the place of the plateholder.

Non-porous Castings.—It is said that if the plumbago crucibles in which copper is melted be first lined with pipe clay, and dried, non-porous castings may be obtained. It is the presence of carbonaceous matter which causes the sponginess.

Chrome Steel.

J. H. Corbin has an article in the *American Journal of Science and Arts*, on certain specimens of chrome iron and steel examined by him in the laboratory of the Lehigh University. We give his description of the steel, omitting the result of the analysis: "The chrome steel is a compound possessing some peculiar properties, a marked one being that of assuming a highly crystalline structure and cracking badly when tempered at the usual heat for tempering steel; but at a low red heat, a product of very fine grain is the result. Another property is, that it may be submitted to considerable torsion without breaking. A bar twenty-four inches in length and one-half inch square, was twisted while cold by two men at the end of a powerful lever two and one-half feet in length, until the lever described three complete circles. The twisted bar was now bent in the shape of an ellipse until the ends touched; on examination no injury to the steel could be detected, as it appeared to possess the same properties after as before the operation. The steel is very hard. The hardness of a tempered specimen is equal to that of quartz, and that of an untempered specimen to that of feldspar. The density of the tempered specimen is 7.79, and that of the untempered one 7.8. The density of the latter, however, had been raised by its having been struck with a hammer. Its fracture is white, conchoidal, and very fine in structure.

Aluminum and its Alloys.—An alloy of seven per cent. of iron with this metal does not perceptibly lessen its toughness. With ten per cent. of copper, aluminum still remains ductile. If alloyed with small quantities of zinc, tin, gold or silver, the metal is rendered hard and more brilliant, but remains ductile. Especially recommended is the alloy, consisting of ninety-seven per cent. of aluminum and three per cent, of zinc. The alloy with seven per cent, of tin can be worked well, but does not take a very fine polish, and cannot be cast. since a more fusible alloy with a large proportion of tin is separated. Aluminum and lead do not unite. The composition with three per cent. of silver and ninety-seven of aluminum, possesses a beautiful color, and in equal parts they yield an alloy of the hardness of bronze. The union of ninety-nine per cent. of aluminum and one of gold is, though hard, still ductile; its color is that of green gold. With ten per cent. of gold the composition is rendered crystalline.

Another Road Locomotive.—*Engineering* illustrates a new road locomotive designed by Mons. J. F. Cail. We quote a portion of the description: "The boiler and water tanks are independent of the mechanism and easily dismounted. The mechanism placed under the boiler is within longitudinal frames, and is provided with reversing gear and a brake. The fire-box is placed at the same end as the fore carriage, which brings the engineer and conductor together, they being both covered by the same roof, and, having within reach all the driving gear, can help each other if need be. This arrangement also enables the engine to be worked entirely by a single attendant. The water tanks and fuel bunks are carried by the steering wheels, which alone sustain the variations of weight of these parts when in use; whilst the driving wheels carry a load which never varies, and this gives the engine a tractive power which is always constant on the same kind of ground."

Powerful Turbines.—A correspondent of the *Odd-Fellow* thus describes the turbines in the Mastodon mill, Cohoes, N. Y: "The number of looms is 1,486. These are driven by three 'immense turbine water wheels, which possess an aggregate driving capacity of over 1,100 horse-power. Three mammoth cast iron cylinders, eight feet in diameter, convey the water from the canal to the wheels. The perpendicular shaft of each turbine is connected with the main shaft by beveled gear. The shaft to which this power is applied is supported by three granite abutments, and forms the axis of six ponderous driving pulleys, twelve feet in diameter. The immense belts which radiate to all parts of the building are in keeping with the massive pulleys and gearing. These are each two feet wide, and the longest one, reaching to the fifth story, measures nearly 200 feet."

Scientific Progress.

Muller on Darwin.

From the opening portion of Fritz Müller's "Facts and Arguments for Darwin," derived from an application of his theory to the class of Crustacea, we quote the following:

"A false supposition, when the consequences proceeding from it are followed further and further, will sooner or later lead to absurdities and palpable contradictions. During my period of doubt, I took no small pains to detect some such contradictions among the inferences as to the class of Crustacea furnished by the Darwinian theory. But I found none, either then or subsequently. * * Nor, so far as I am aware, have any of the *necessary* consequences of Darwin's hypotheses been proved by any one else, to stand in clear and irreconcilable contradiction. And yet, as the most profound students of the animal kingdom are amongst Darwin's opponents, it would seem that it ought to have been an easy matter for them to crush him long since beneath a mass of absurd and contradictory inferences, if any such were to be drawn from his theory. To this want of demonstrated contradictions I think we may ascribe just the same importance in Darwin's favor, that his opponents have attributed to the absence of demonstrated intermediate forms between the species of the various strata of the earth. Independently of the reasons which Darwin gives for the preservation of such intermediate forms being only exceptional, this last mentioned circumstance will not be regarded as of very great significance by any one who has traced the development of an animal upon larvæ fished from the sea, and had to seek in vain for months, and even years, for those transitional forms, which he nevertheless knew to be swarming around him in thousands."

Photography in Transit Observations. In Prof. Alfred M. Mayer's report of observations made upon the August eclipse, he makes some remarks upon the prospective value of photography in determining the lines of contacts during the coming transits of Venus in 1874 and 1882. He says: "It has been shown that the sun's image was photographed on the camera plate with an exposure of only 1-500th of a second; and the duration of exposure for any other instrument can be determined with as great precision. The instant the mechanical movement exposes the plate, it also records the time of that exposure on a chronograph connected with a break-circuit clock, and thus we have an accurately delineated *figure* of the transit corresponding to a *time* marked on the face of the clock employed; and this correspondence of figure and time is unaffected with personal equation either of sight or of hearing. Now if the error and rate of the clock can be entirely freed from the personal equation of the observer who determined them, and if the longitude of the station be found by the coincidences of the beats of a sidereal clock with those of break-circuit mean solar clock placed at the observatory of the first meridian, we have the most accurate means of obtaining the *absolute* times of contacts at the station of observation."

Theory of Comets.—Prof. Daniel Kirkwood, in an article in *Silliman's Journal*, says: "The theory of comets now generally accepted is, that they enter the solar system *ab extra*, move in parabolas or hyperbolas around the sun, and, if undisturbed by the planets, pass off beyond the limits of our system to be seen no more, If in their motion, however, they approach very near any of the larger planets, their direction is changed by planetary perturbations; their orbits being sometimes transformed into ellipses. The new orbits of such bodies would pass nearly through the points at which their greatest perturbation occurred; and accordingly we find that the aphelia of a large proportion of the periodic comets are near the orbits of the major planets."

Paper Belting.—"It does not stretch, nor change shape, can be made into one piece of any desired length and width and thickness, and is uniform in every particular. It hugs the surface of the pulleys closely, generates no electricity when running, is sufficiently flexible to pass over six-inch pulleys without cracking, and is not injured by the heat, dust, oil or moisture incident to ordinary use, and is forty per cent. cheaper than leather."

Carbolic Acid vs. Alcohol for Specimens.—At a recent meeting of the Chicago Academy of Sciences, Dr. Stimpson gave the result of three months' experiments upon carbolic acid as a substitute for alcohol in the preservation of wet specimens. He found that deliquesced crystals of the acid dissolved in forty times its bulk of water gave a fluid which equaled alcohol, in its preservative qualities, at less than one-twentieth its cost, with the additional advantage of keeping the specimen far more nearly in its original condition. In a solution of twice that strength, the specimen itself is soon destroyed. Specimens should be first placed in a very weak solution, say one-half per cent.; but as the action of the acid is very rapid, it may be daily changed for a slightly stronger one, until the full strength (two and one-half per cent.) is reached. This should be done to prevent the contraction resulting from the sudden contact of a strong solution, and preventing endosmosis. Fluids once used will be found to have lost their preservative power far more than alcohol, and must be strengthened before being used again. The freezing of the fluid may be prevented by the addition of one-eighth part of alcohol. If the smell of carbolic acid, which is very slight in the weak solutions, should be objected to, the addition of a minute quantity of the oil of wintergreen will cover it completely.

Coal-Tar Notes.—Prof. Hoffman has been making investigations on *Naphthaline-rose*, *Aniline-green*, and relations of isomeric *Xylidine*. Several molecules of *Naphthalamine* combine to form the splendid rose color manufactured by Clavel in Basle, in a precisely analogous way as was proved to be in mixtures of bases of the Aniline series. The Aniline-green is produced together with the Aniline-violet by the action of *Iodide of methyl* on *Rosaniline*, and is to be regarded as a compound of. *Trimethyl-rosaniline* with *Iodide of methyl.*

Besides the hydrocarbons which afford the material for the products of the color manufactories, coal contains in small quantity a series of bases which have hitherto been but little studied. Dr. Baeyer has artificially prepared one of these bases, *picoline*, by the action of ammonia on *acrolein* (an aldehyde); other allied bases arise from the action of ammonia on higher aldehydes. Now, acrolein is a common product of the distillation of fats. Dr. Baeyer believes that this gives us the key to the understanding of the natural origin of these bases. They are produced by the distillation of animal matters; that is, of fatty substances which at the same time give rise to ammonia.—*Academy.*

Protoxide of Nitrogen.—M. Limousin has recently published a paper on this subject. He finds that water at the temperature of 4° or 5° C. will dissolve its own volume of this gas at the ordinary atmospheric pressure. A bottle containing about equal quantities of the gas and cold water was violently shaken; the stopper was forced down into the bottle with a detonation. Under pressure, several volumes of it will be dissolved by the water. Ether, kept at a temperature of twelve degrees below zero, C., by a freezing mixture, is capable of absorbing eight times its volume of this gas. Prepared under these conditions, the saturated ether acquires remarkable properties. It volatilizes with so much greater rapidity than pure ether, and produces thereby such a diminution of temperature that it would probably produce very energetic effects if applied to produce local anæsthesia.

The Big Mound of St. Louis.—Prof. Spencer Smith, in a paper read before the Academy of Science in St. Louis, states that the noted "Big Mound" has at last been laid low, and its substance used to grade a railroad. The destruction of the mound gave an opportunity to study its structure, and Prof. Smith is satisfied that it did not belong to the group of artificial mounds, but was simply a river deposit, formed of parallel and horizontal strata of clays and sand, the same as found on the banks of the river. But few relics were found during the removal of the mound, and nothing, Mr. Smith thinks, that would indicate anything more than that the Indians took advantage of the mound to bury their dead as they would in any high place,

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

M. C. Tunnel.—*Miner*, Dec. 18th: Hard rock has set the boys back for some days. Several bodies have been cut and ore can be taken out at any time after a process is decided upon. Lumber for the chute to convey ore to the road, is being delivered.

Stetefeldt.—This furnace has been inspected with reference to its use on our ores, and it is thought this plan or something similar, will be just the thing for Alpine.

Pennsylvania.—The result of the working of some ore from this mine, as per certificate of W. T. Rickard, is as follows: Value per ton, silver, $97.40; gold, $5.26; total, $102.56.

AMADOR COUNTY.

Kennedy.—*Dispatch*, Dec. 25th: It is rumored that this mine has been sold for $80,000. We know that some very rich rock has been taken out lately.

New Works.—Burr and Breedlove are erecting new chlorination works, at Sutter Creek. These gentlemen have an oven already in operation, but its capacity is not sufficient to meet the demand on them for working sulphurets.

Coney.—We learn from good authority that work will be resumed on this mine between this and the first of March.

Placer Mining.—Very little of this has been done in this section for ten years, and it is the opinion of good miners that good diggings can yet be found. The price of water is not so high as formerly.

CALAVERAS COUNTY.

Items.—*Chronicle*, 25th: The claim of Brackett & Co. is again being worked. A number of hands are drifting, and the mill is kept constantly running....Charles Harkins has sold out to Counelly & Brennan. During the past six months this mine has paid a profit of nearly $15,000.

Glencoe District.—Barney & Co. have cut the vein with their drain tunnel, and are taking out very rich rock. Timhy & Howarth have had a crushing of 40 tons of rock that yielded $30 per ton. Peter Gass has struck a vein—parallel with Barney & Co's claim—the rock of which is said to be held together with gold. This is the ninth rich claim Gass has found in the past year.

Railroad.—Quartz claims turning out well and work vigorously pushed. The mill on the Petticoat is progressing finely—boiler in place, engine set up and the building nearly completed. It is rumored that Mr. Gashwiler will commence operations on the claim he bought from the Lewis Brothers about New Year. Houston & Poe had 40 tons of rocks, recently, which netted $800.

Monitor Camp.—Cor. of same: A new company have taken hold of the old Merrimac claim, erected an engine, and are about ready to recommence sinking. Bigelow, Wright & Co., in the Monitor claim, have struck richer gravel than has ever been taken from the mine before. They are sinking a new shaft. The adjoining claim on the north has been located by Evans & Co., and operations will be shortly commenced. The Jackson Co. are taking out rich gravel, as usual. The Harkins mine continues to pay as well as ever. Last Saturday they had another large clean up—over three hundred ounces of gold—the result of the labor of eight men five weeks. I was shown a piece of rock from the Davis claim, Central Hill, that was about half gold. With a shaft 25 feet in depth this claim shows a load three feet wide. Mr. Davis has perfectedarrangements to work the mine next summer. Monitor will yet be the liveliest camp in Calaveras.

LOS ANGELES COUNTY.

New Placers.—*News*, 18th: We understand that rich placer mines have been discovered near the head waters of the San Gabriel, in the mountain gorges between the river and Little creek. Parties have left this city to investigate the truth of the reports.

NEVADA COUNTY.

Bullion.—*Gazette*, 22d: The Eureka Co. shipped on Tuesday to San Francisco $23,000, the result of twelve days' run of their mill.

"God's Country."—Caddy & Dower are erecting an eight-stamp mill, two and a half miles from the Jim or Mutual mine. They have a four-foot ledge. Their mill will be running in two months. The Jim run their 5-stamp mill night and day, crushing 15 tons in 24 hours. They have 1,200 cords of wood on hand, and provisions to last the winter. As the snow is deep in this region, known as "God's Country," it is necessary to have supplies hauled during the summer. Black & Young's mill is employed night and day on good pay rock, and its owners intend to keep it running all winter.

The North Bloomfield Co's Dam.—General Alexander has made an elaborate report upon this structure, showing it to be sufficiently strong for the present pressure, and pointing out what will be necessary when it is carried 15 feet higher as is intended. The present height is 48 feet.

Started Up.—Grass Valley *Union*, 28th: The machinery for the West Eureka mine was completed Saturday, and put in motion. Everything worked well and the mine was soon freed of water.

Good Rock. Same of 23d: We were shown, yesterday, some specimens from the McClellan Co's ledge. They were full of sulphurets and showed, also, free gold in coarse pieces.

Severe Weather.—The *Transcript* of the 24th says: The cold snap of the past few days has been more severe than for years. The Omega ditch is frozen from top to bottom. This has not occured before in 16 years. The miners in the upper part of the county can do nothing until a "thaw" comes.

The Idaho.—*National*, 21st: The U. S. patent for the Idaho mine was filed for record in the Recorder's office yesterday. The patent embraces a tract of seven acres and eighteen hundredths, and extends 3,100 feet along the ledge.

PLACER COUNTY.

Dutch Flat.—Cor. of the Auburn *Stars and Stripes*, Dec. 23d: "Owing to the scarcity of water, very little mining is being done, although most of the claims are ready, The owners of many claims have worked off the surface, and but few have ground that can be worked without running tunnels and opening up on a lower level; some of them hold back, waiting for capital to come in and buy them out. A company of San Francisco capitalists recently purchased the claims of the Ohio & Cologne Co.; they have been drifting and crushing the dirt with astonishing results; they intend purchasing more ground. We had an excitement a few days since in consequence of the discovery of a quartz lode on the head of Squire's Cañou; in the croppings it was very rich, but the vein was rather small and not easily traced; only two locations have been made on it; they have sunk two shafts on it with encouraging results.

PLUMAS COUNTY.

Stopped.—Quincy *National*, 18th: The Eureka Mills, at Jamison, have stopped until spring opens. The hands will be kept employed in taking out rock during the interval.

Struck Pay.—Billman & Richards, who have been running an incline tunnel near the old Great Western claims at Newtown, have found good pay dirt. As yet they have not struck bed-rock; but the gravel prospects as high as two bits to the pan.

Crescent.—The machinery having all been repaired, the mill commenced crushing rock last week.

Assessment.—The Mountaineer Co., at Sawpit Flat, has levied an assessment of $10 to the share.

SISKIYOU COUNTY.

Quartz.—Oregon *Sentinel*, 18th: Nash & Co., of the Eliza ledge, Humbug Hill, near Yreka. have just cleaned up a run of 33 tons rock, realizing 33 ounces of gold. This was from the lower level, where the lead is six feet thick, and the rock taken out as the men worked upward, making a chimney to get air.

A Rich Mine.—*Appeal*, 23d: R. L. Crary brought down yesterday, for assay, $41,000, the proceeds of the last run of the Smartsville Hydraulic Mining Co. This is the second dividend of this mine, the first being over $30,000.

Arizona.

Wickenburg.—Prescott *Miner*, Dec. 7th: Joseph Kelley informs us that the Vulture Mining Co's 40-stamp quartz mill was making money....It was rumored that Hinton & Smith had sold their mill and claim to a San Francisco company, who intended to build larger.....R. W. Groom and Geo. Monroe were running an arastra on the White Pichaco mine.

Walnut Goove.—Parties who arrived from the Grove on Wednesday, report everything lovely. C. B. Gennng had cleaned up one arastra, and got a good return from Sutler ore. He was preparing to clean up another, in which he had ground Blue Jay ore. He had also started work on the Montgomery mine. The placer miners were making fair wages.

Big Bug.—Messrs. Gray, Wunderlich and Hitchcock, arrived Tuesday, from Big Bug, to attend the funeral of their friend, Wm. Heslep. The mill will start up again Monday next.

Eureka Hydraulic Diggings.—Zadok Jackson bought the interests owned by his brothers Sol. and Cal. in these diggings, on Lower Lynx Creek, so that the "old man" now owns one-half the property. The other half is owned by Messrs. Lovejoy, Griffin, and the heirs of Mr. Shirley.

Work has commenced in the mining claims belonging to Messrs. Bean, Bowers and Wells, at the head of Lynx Creek.

Colorado.

Black Hawk.—Central City *Herald*, Dec. 15th: Logan Findley & Co. are still working the old Holdbrook mill to its full capacity. Holmes & Daws are running the 20 stamps of the Hurd mill on U. P. R. quartz. Mr. Lindsey has leased the old Holman mill and is running it on Bates & Hunter ore. Fitzpatrick and the Black Hawk Co's mill are supplied with all the ore they can crush. Kimber is running 25 stamps on California ore. M. B. Hayes has completed his additions to the New York mill, and is running 40 stamps on custom ore. The new engine works to a charm. The Consoildated Gregory and Woodbury & Norton's mills are crushing steadily.

Items.—Georgetown *Miner*, 16th: A new shaft is being sunk on the Caledonia lode....Work on the North America has been resumed....The Baker Co. shipped this week, 91 lbs. troy of silver bullion 940 fine; coin value $1,550....One ton of first-class Sterling ore was shipped to Newark, N. J., for treatment last week....Ten tons of first-class Snow Drift ore was shipped last week to Newark, N. J....Charles Bellamy informs us that two feet and a half of solid mineral has been struck in the Mendota lode, Sherman Mountain....The Sterling mine changed ownership, at good figures, a short time since....On Tuesday the Franklin Co. brought to Georgetown for melting, 235 lbs. troy of silver bullion. The assay and melting furnaces at the Co's mill will be finished in a few days.....The Baker Co. are sending 3 tons of ore to mill daily. They have let a contract to sink a 100-foot shaft.

Summit Items.—Work on the Napoleon load is revealing an unusual deposit of ore in the crevice. Milner & Black are working with good results on an extension of the Cooper lode, Collier Mountain. They have unearthed a solid vein of mineral of great width. The reduction works of the Sukey Co. on Snake river are completed.

Idaho.

Boise Mines. — *Statesman*, 16th: Ad. Quively, just returned from the mines 40 miles up the river, says work has ceased for the season on account of the freezing weather. A dozen men will winter there, sawing out lumber and making preparations for spring.

Willow Creek Mines.—Same of 18th: The new diggings are attracting some attention. Two or three hundred Chinamen are at work, and will commence mining next week. Almost all the creeks and gulches running into the valley prospect well.

Loon Creek.—*World*, 16th: Judge Shepherd's agent at Oro Grande writes: There was quite an excitement here last week about a prospect found on the Middle Fork of Loon creek, in Smith's district, three miles from Oro Grande, 25 cents to the pan and only two feet deep, with plenty of water. About 75 claims were recorded, and the prospects look favorable for good diggings.

Mining has ceased for the winter—Loon creek being frozen over in several places. A prospect has also been found in the lower discoveries. Our camp promises better than ever for another season.

Montana.

Summit Items.—Virginia *Times*, Dec. 20th. John How has workmen sinking on the Nelson, Keystone, Polar Star, and other leads at Summit. A run has been made on rock from the latter lead, with satisfactory results. Mr. How has erected a 20-stamp mill. Covelly & Co., owners in the Keystone, expect to have some ore crushed in the How mill, soon, for the purpose of testing it....The miners on Eagle Hill bar are tunneling, taking out pay dirt to wash in the spring.

Items.—*Gazette*, 14th: The Hendrie mill is running five stamps on ore from the Vawter lode, as a test. The other 15 stamps are on Union ore....On Saturday the Whitlach Park company cleaned up from one run, in Addis' ten-stamp mill, on Park ore, a neat brick valued at $4,700. Yesterday we saw another brick just out of the mould, weighing 637 ounces and worth over $13,000. This was from the Whitlach mine, and Hendrie's new mill. J. C. Ricker had a brick run weighing 327 ounces and worth over $6,000.

The Cedar Creek Rush.—Same of 22d: A private letter from Missoula says: Every body is excited with the news from the new diggings. The mines prospect from 25 cents up. I saw one piece that weighed $16. The creek is as long as Alder, and has many tributaries. Two or three of them are rich. The main gulch is called Cedar; the side gulches, Montreal, Rabbit, etc. Louisville is located, and another town will be laid out just below in a few days. The boys from Beartown began coming in to-day.

Another letter says: "The creek is 25 miles long, and they have found good prospects in every place thus far. I only saw two pans of dirt washed—87 cents to the two pans. Tipton got nine dollars and seventy-five cents to five pans; Jim Lawer, two dollars and seventy-eight cents to one pan, and the discoverers panned out over $300."

Nevada.

COPE DISTRICT.

Argenta.—Elko *Independent*, Dec. 25th: The vein at a depth of 77 feet is 18 feet in width, and carries the richest ore, Five tons came down on Thursday, and left for San Francisco yesterday.

Reinhart & Co. received, yesterday, a consignment of bullion from Cope. This is the second shipment from the Atchison & Drew mill.

Mountain City.—This mine, lately purchased by Meader & Co., is being worked vigorously, and the ore said to surpass in richness any before found.

HUMBOLDT.

Yosemite Mine.—*Register*, 25th; The owners are making arrangements to develop their property. The Supt. has arrived from California, and commenced operations with six men. The vein as far as developed averages two feet and the ore is of the richest quality—a lot shipped to San Francisco yielding $660 per ton.

Battle Mountain.—In the Buena Vista ledge, a tunnel of 275 feet cut the ledge at right angles at a depth of 120 feet. At the point of intersection the ledge is 10 feet wide and contains seven feet solid chloride and sulphuret ore, which assays from $40 to $250 per ton. The owners are having a shaft raised from the tunnel to the surface for ventilating purposes, and extensive ore houses built.

The owners of the Caledonian ledge have sold two-thirds interest to an English Co. for $20,000, The new owners are prosecuting work vigorously.

Excitement.—The people of Gold Run have been excited. An Indian brought into camp a piece of ore of exceeding richness which he claimed to have found in the mountain south. There was a general rush in the direction indicated. Meantime two or three individuals corralled the Indian and succeeded in spiriting him away on a fleet charger.

REESE RIVER.

Prospects of Austin.—*Reveille*, Dec. 23d: The ore in Lander Hill is rich. Last year the silver produced by the Manhattan mill amounted to about $1,200,000. Yesterday we heard of three miners who received $10,000 as their share of the profits of ore obtained from a mine in that hill by about one month's work. But these are not the cases upon which we base the future prosperity of Austin. Her resources are broader.

Bullion.—For the six days ending this date there were produced at the Manhattan mill 17,733 ounces of bullion.

Yankee Blade.—We hear several mines highly spoken of. Among them are the Tuolumne, the Chase, the Maggie, and the Yankee Blade mine of the American Co.

WHITE PINE.

Weekly Mining Review.—*Empire*, 25th: As a rule, mining matters have flourished for the past week. The men who were knocked off have found employment or gone to work on their own account, and there are not more idle men than formerly. The true solution of the question of the suspension of work by two or three of the leading mines on Treasure Hill will be found in the oversupply of ore on the dumps of the various mills.

The *News* says: "The new developments in the Earl, and the extraordinary showing of bullion value in the South Aurora, are encouraging. We hear of a break-off on one link of the chain of circumstances connected with the late stoppage. The corporations have come to a dead lock on a consolidation project, and the mining interest is likely to be gainer by it.

Bullion.—*News:* The bullion shipment for the week is—from Hamilton, $14,870.79; from Treasure City, $43,017.27. Total, $56,888.06. A considerable amount lies over for the beginning of the week.

The *Empire* reports: Our bullion shipments for the last six days amount to $61,327.91—nearly double the shipments of last week. In addition to the above, Wells, Fargo & Co. will send forward about $10,000 to-day. The base metal interest has not flagged. The shipments of the week will aggregate in the neighborhood of 30,000 pounds.

Items.—*Empire*, 25th: South Aurora West tunnel is in 120 feet, and is driven night and day. The main breast is 50 feet by 40 in good ore. Shipping over 100 tons to mill daily....Original Hidden Treasure works 40 men, and ships ore enough to the Swansea mill to keep it in constant operation. The north tunnel is also in good ore....Aurora Consolidated ships 20 tons daily. In the north drift of the Earl chamber, a winze is being sunk in good ore. From the south works a large amount of ore is being taken. Pulp assays for the week average $122 per ton....California commenced shipping ore to the Stanford mill on Thursday. The yield for the week is expected to be $20,000....Imperial shaft is down 50 feet in good ore....Truckee is working nine or ten men, and shipping the same number of tons to mill daily. The pay ore is six feet in width....Miner's Dream shaft down 40 feet. A large amount of good ore on dump, but no chance to get it milled....Eberhardt's active force reduced to 15 men on the mine, and shipping 10 tons of fair grade ore to the Oasis mill....Bullion main shaft down 30 feet, shows a fine body of mineral....Cadiz furnishes a large amount of smelting furnaces at $12 per ton....Clyde working a few men and shipping some good ore....Idlewild being worked, with an abundance of good ore in sight....Silver Wave attached for $2,000, and all operations suspended....Mazeppa sinking the main shaft with four men; looks well....Nellie Mac, small force at work and indications flattering. Silver bars are actually a drug at Bradshaw's assay office....The machinery of the Chandler quartz mill was yesterday on shipment to Silver Park.

Items.—*News*, 25th: Blackfoot, in Blue Hill, struck it Thursday. Rich ore, covered with horn silver, is common....Grant and Colfax mine has the largest body of ore we ever ran against.....The several claims of the Great Basin Co. are all in ledge matter....The Imperial is reported sold....Joe Potts ore milled last week $97 per ton. Work has stopped while the Co. consolidated with the Merced Co....Wabash has 100 tons ore on dump. The best is put at $200 per ton.

Outside Districts.—The *News* says a new district is started 30 miles this side of Ely. The rock assays $75, and lies in *fields*—so say "the boys." The *Empire* has two letters from Eureka District. We can only give an item or two. Five tons of Page & Corwin ore, Secret Cañon, worked $539 per ton at the Manhattan mill. An 18-foot shaft shows rich rock all the way. Spring Valley ores vary from $200 to $600 per ton. The Reeves & Berry ledge is 100 feet wide, but not so rich as some of the others.

Important Mining Sale.

We learn that the Union Hill quartz mine at Grass Valley and the Buckeye gravel claims at Birchville, have been sold to a company of English capitalists, known as the Pacific Mutual Mining Company, limited. The price paid is said to have been £150,000--nearly $750,000.

The London *Mining Journal*, Nov. 27th, gives the proceedings of a meeting of the Pacific Mining Co., and contains a lengthy report of George Batters, the agent, who visited this State, from which it appears that the North Star mine at Austin is included in the purchase. The amount paid for the three mines, as appears by the statement of a stockholder, was £135.000—the capital stock of the company being £150,000. The transfer was made the 23d ult. Mr. Batters spoke for over an hour and a half, giving a history of his investigations on the Pacific coast, and so satisfactory were his statements that the Pacific Mining Co. was formed immediately, and although the prospectus had not been issued, and no printed statement had been made, as is customary in London, the entire capital stock of the company (£150,000) was applied for twice over before four o'clock p. m. of that day.

Mr. A. B. Brady, of Grass Valley, acted as agent for the company in receiving the property.

San Francisco Mining Stock Market.

The Mining Stock Market has been very quiet during the past week, not much animation resulting from the Christmas feasts. It was not until Wednesday that any considerable activity was shown, resulting in improved figures for Crown Point and Yellow Jacket. The principal decline has been in Gould & Curry, which is $7.50 from last week; Overman declined $5. Yellow Jacket, on the other hand, advanced $8.50 in the same time. The following shows the difference between Friday the 24th and Thursday the 30th: Chollar Potosi, $19–19; Crown Point, $19—19; Gould & Curry, $77—69.50; Hale & Norcross, $152—150; Imperial, $52–53; Kentuck, $145—144; Mammoth $45.25–50c; Imperial, $52—53; Kentuck, $145—144; Mammoth, 45.25—50c; O. H. Treasure, $6—5.33¼; Overman, $80—75; Savage, $46.50—47; Yellow Jacket $45—53½.

The tenth annual meeting of the Gould & Curry Co. was held Dec. 27th. President Bull's report shows the advantages of the Truckee R. R., to which the Trustees had advanced $40,000. There has already been a marked reduction in the cost of wood and timber, from $15 to $11.50 per cord for wood. The railroad will permit the company to draw their supplies as needed. The Superintendent reports 15,879 tons of ore taken from the mine during the year, including 6,149 tons by contract. The ore worked by the company averaged $26.90 per ton, aggregating $247,516. The mine abounds with low grades of ore, which under reduced expenses can be worked at a profit. The main shaft has been completely repaired and lengthened 40 feet, making a total depth of 1,187 feet. Within 20 feet of the bottom of the shaft the seventh station has been opened, and drifts north and south made, the former being 160 and the latter 200 feet, with cross-cuts 50 and 57 feet respectively. The Secretary reports the receipts as $402,360 35; overdrawn and cash on hand, $22,930 .69. Total, $425,291.04. Disbursements, $425,291.04. Total assets, $322,392. Liabilities, $45,325.

* * *

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Mining and Scientific Press and other Journals.]

ASSESSMENTS.

Name, Location, Amount, and Date of Assessment.	Day Delinquent.	Day of Sale
Cons. Virginia, Storey co , Nov. 3, $1.50	Dec. 8	Dec. 31
Cons. Chloride Flat, W. P., Dec. 14, $1	Jan. 29	Feb. 24
Dancy, Lyon co., Nev., Dec. 7, $1	Jan 9	Jan. 27
Flowery, Storey co., Nov. 12, $1	Dec. 16	Jan. 7
Glenwood, El Dorado co., Dec. 13, 20c	Jan. 10	Feb. 1.
Gold Hill Tunnel, Dec. 17, $1.50	Jan. 19	Feb. 5
Hope Gravel, Nevada co., Dec. 10, $1	Jan. 17	Feb. 7
Imperial Storey co., Nov 15, $10	Dec. 20	Jan. 14
Kincaid Flat, Tuolumne co., Dec. 9, $2.50	Jan. 12	Jan. 29*
La Blanca, Mexico, Nov. 5, $1	Dec. 4	Dec. 27*
Latawana, W. P., Nov. 22, 10c	Jan. 29	Feb. 19
Manchester, Alpine co., July 16, '0c	Dec. 4	Dec. 27*
Mahogany & G. B., W. P., Nov. 8, 10c	Dec. 14	Jan. 4
Meadow Valley, Lincoln co., Dec. 4, 25c	Jan. 5	Jan 25
Mineral City, W. P., Nov, 3, $1.50	Dec. 6	Jan. 5
Noonday, W. P., Nov. 13, 30c	Dec. 20	Jan. 15
Oneida, Amador co. , Oct. 5, $10	Nov. 20	Dec. 30
Pilot, W. P., Nov. 23, 10c	Jan. 3	Jan. 18*
Pocahontas, El Dorado co., Nov 12, $5	Dec. 20	Jan. 12.*
Rising Star, Idaho, Nov. 5, 50c	Dec. 18	Jan. 15.
Rocky Bar, Nev. co., Nov. 23, $300	Dec. 27	Jan. 13
Silver Star, White Pine, Nov. 2, 15c	Dec. 17	Jan. 3.*
Silver Vault, W. P., Nov. 22, 5c	Dec. 23	Jan. 24
Sacramento and Meredith, Nov. 15, $1	Dec. 22	Jan. 10
Sierra, Douglas co., Nev., Dec. 3, $1.25	Jan. 6	Feb. 4
Tallulah ,Nev., Nov. 22, $2	Dec. 31	Jan. 25
Taylor, El Dorado co., Nov, 16, 30c	Dec. 20	Jan. 10.*
White Pine Mutual, Sept. 29, 50c	Nov. 22	Jan. 20
Yellow Jacket, Storey co., Nov. 26, $5	Dec. 28	Jan. 31
Yosemite, Humboldt co., Dec. 15, 50c	Jan. 19	Feb. 5*

MEETINGS TO BE HELD.

Adriatic, Storey co	Annual Meeting Jan. 3
Consolidated Virginia	Meeting Jan. 6
Miser's Dream	Meeting Jan. 4

LATEST DIVIDENDS—(Within Three Months).

Amador Co., div. $6 per share	Payable Nov. 8, 1869
Chollar-Potosi, div., $1	Payable Dec. 6, 1869
Eureka, div. $7 50	Payable Dec. 6, 1869
Golden Rule, Tuolumne co, div. 50c ℔ sh	Pay. Oct. 26, 1869
Ida Elmore, div. $1	Payable Dec. 14, 1869
Kentuck, div., $10 per share	Payable Dec. 6, 1869
Sierra Nev., Storey co., Nev., div. 50c	Pay. Oct. 10, 1869

——*Advertised in this journal.

* * *

Latest Mining Stock Prices Bid and Asked.

AT THE S. F. STOCK AND EXCHANGE BOARD

Friday, December 31, 1869.

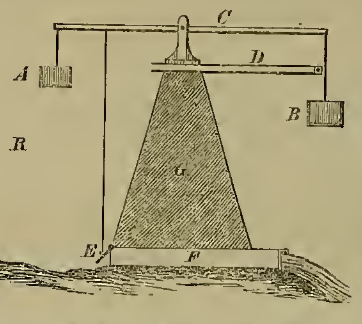
WASHOE DISTRICT, NEV.	*Bid.*	*Asked.*
Alpha	18	19
Belcher	15¾	16
Bullion, O. H.	16	16½
Crown Point	19¼	19½
Cole (Va.)	—	—
Confidence	25	—
Chollar-Potosi	19¼	19½
Dancy	—	½
Exchequer	8	8½
Empire M. & M. Co	36	37⅝
Gould & Curry	99	70
Gold Hill Quartz	32	—
Hale & Norcross	150	152
Imperial	53	53½
Julia	½	—
Justice and Independent	3	4½
Kentuck	142	—
Lady Bryan	6¾	7½
American	—	—
Occidental	13	13
Ophir	15	15¼
Overman	78	78
Segregated Belcher	8	8½
Savage	47½	47¾
Sierra Nevada	9¾	10
Yellow Jacket	55¼	55½
MISCELLANEOUS DISTRICTS.		
Amador (California)	315	325
Aurora, White Pine	10	10½
Eureka, (California)	250	—
Golden Chariot (Idaho)	14	20

A Word About Hydraulic Mining.

In a communication in another column the writer refers to the wasteful way in which much of the precious metal is lost in mining, which, with a little more care, might be saved. This is a point to which more attention should be given. It is time now that we should recover from the first feverish excitement, which leads us to expect a too sudden accumulation of riches, and to husband more carefully our resources. As a country gets older, sudden fluctuations become more rare,—that is things settle down to a healthier condition,—and we are now getting well into advanced age, or at least beyond the rawness of extreme youth.

In hydraulic mining, many advances can still be made, although perhaps most miners are not inclined to think so. One advance of late is, for example, the improved joint for pipes, by which the stream of water can easily be turned in any direction. We need other such improvements and especially do we need such apparatus as will enable us to save more of the precious metal, which is now lost to so large an extent. It is better to obtain a certain amount which lasts for a long time, than to get a somewhat larger supply for a short period only.

We desire to hear more from our placer workings than we have of late. It is rather too difficult now to obtain correct information as to what is really being done.



We shall be very happy to receive from miners any communications with regard to work done, and will give such notice as such articles may deserve.

A gentleman this week has kindly given us a description of a simple self-acting apparatus for the storing and utilizing of water for sluicing claims where only small amounts are available. It consists in a self-acting hoisting gate, which renders the use of small reservoirs practicable, when situated at a considerable distance from the ground being worked. While there may be some incompleteness in so simple a contrivance as this, yet as we are informed that it is really doing good service in Trinity county, we give it as an apparatus which may be of use in many a case where circumstances forbid more complex machinery. The figure shows the cross-section of the bank or dam, and the apparatus mounted on a dam or embankment.

At two ends of a beam, C, which moves on a pivot over the embankment, G, (which dams up a gulch or ravine, into which flow small streams, and thus forms a reservoir, R,) are hung two boxes, A and B. A is filled with stone, B is for the present empty. The gate, E, of a sluice, P, is attached to the beam, C, by a chain or rope in such a way that as A is raised, the gate will be opened. When the reservoir is empty, E is closed, as the weight of A will cause it to drop, raising B in the air. The beam, C, is represented as level in the figure, merely for distinctness in showing the working of the apparatus. As the reservoir gradually becomes filled by the in-flowing streams, E being closed, the water flows over through the trough, D, into B. When this becomes full, the weight of A being properly proportioned, it lifts A in the air, and thus raises the gate, E. The water now rushes out with force through F to the required place, where it washes out the dirt and stones as the miner desires.

There is a small hole in the bottom of B, through which the water escapes gradually, and thus when the reservoir has become empty, B rises, and A falls, and the gate, E, is closed until the reservoir is again filled. The size of the hole in A is regulated according to the time required for the reservoir to be discharged through E.

A similar device to this was described in the Press over two years ago, without drawings. A miner in Downieville took the hint from our notice, and made a gate in a few hours' time, which saved him many times its cost during the season.

* * *

Notes on Contributions for our Cabinet.*

Nos. 450 to 453 were received from Mr. F. S. Maddox, and came from the Asbestus mining claims near Georgetown, El Dorado Co. Mr. M. gives the following description: The Asbestus is situated in the hornblende stratum or belt, between two thick ledges of soapstone (steatite), which are 100 feet apart in the middle and gradually approach each other at each end (north and south), forming a kind of elongated ellipse. Between the walls, at short intervals, are the auriferous veins of asbestus. The greenish rock [No. 453] is a vein-stone running through the gangue parallel to its wall.

No. 450.—Gold-bearing asbestus, as it is commonly called, These specimens, which are very beautiful, are apparently a sort of fibrous talc, which blackens in the flame as if still containing organic fibres. We have not had time to examine them carefully. Among the fibres are deposited scales of gold, some very large and beautiful.

A gentleman who called at the office and saw the specimens, reminded us, in this connection, of Dr. Wurtz's theory with regard to the formation of gold in quite large scales and corns. In gold veins, the upper part, where the pyrites, etc., have been decomposed, often shows these large grains, while below with the undecomposed pyrites, the gold, being minutely subdivided, is nowhere visible. The theory is that by the decomposition of the iron pyrites, persulphate of iron ($Fe^2 O_3, 3SO^3$) is formed. This, it is found, will dissolve the gold. If now the solution comes in contact with any organic substance, the gold will be deposited.

No. 451.—Foliated talc, light green.

No 452—Copper pyrites, of rounded form.

No. 453.—Serpentine, holding crystals of magnetic iron ore, together with one or two specimens of ilmenite or titanic iron.

No. 454.—Durango tin ore, from a lot now being worked at Taylor's Metallurgical Works. This ore is exceedingly rich, and the specimens are said to average some fifty per cent. of tin—which is very possible.

No. 455.—A piece of glass, the lower part of which, as the process of cooling was carried on gradually, has partly crystallized in globular masses, while the upper part is still massive and transparent. Presented by C. Newman, of the S. F. Glass Works.

---

* Under this heading we will continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., adds much to the value of such specimens.

* * *

Melting Points of Metals.—The melting points of several metals have been very carefully determined in a recent series of experiments by A. von Riemsdyk, of the Royal Mint at Utrecht. The results are as follows: Tin, 228.5° *centigrade;* bismuth, 268.3°; cadmium, 320°; lead, 326°; zinc, 420°; silver, 1040°; gold, 1240°; and copper, 1330°.

A New Haven firm makes billiard balls out of india rubber.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

Growing Nut Trees.

When it is desired to raise nut trees from the seed, the great secret of success is in never letting the kernel of the nut or acorn become wilted or dried; for as sure as it does, its vitality is lost, and no germination can take place. Many of our people, for the reason that nursery trees are scarce and high, are planting the nuts or seeds of various trees. Care should be taken, in selecting the nuts, that the above conditions have been fulfilled, or both money and labor will be lost, and, worst of all, discouragement will follow.

To prepare nuts properly for keeping or for transportation, they should be packed in boxes, or barrels, and carefully interlayed with moistened moss or some similar substance. The packing material should be just sufficiently moistened to prevent the nuts from becoming dry. Wheat chaff is a very good substitute for moss. The nuts should be packed immediately after being gathered. To keep up the moisture until the time arrives for transportation or planting, a good plan is to bury the box or barrel in which the nuts are packed in the ground, in some sheltered place, where excessive winter moisture can be avoided. In most localities in this State, for home-gathered nuts, they may be planted immediately after being gathered.

Chestnuts, oaks, hickories, etc., are difficult to transplant. They can be raised much cheaper and better from the seed. This is especially true of the black walnut, which has a long tap-root, which should never be broken. A good tree of this character cannot be produced by transplanting from the nursery without the utmost care. In fact, all nut-bearing trees are better raised by planting the seeds just where you wish the trees to grow. Two or more nuts should be put in a hill; and if all grow, prune out the weaker ones after the first year's growth.

Much attention is now being given, in all parts of the country, to the planting of such forest trees as are valuable for timber or nuts. We referred in our last issue, at considerable length, to the interest taken in the improvement of our native chestnut trees. An instance of improvement in this direction has since come to our notice, as recorded in the *American Agriculturist* for December, 1865, which figures and describes an American variety that has been so much improved in size by simply manuring the land about their roots that forty of them weighed a pound! Such chestnuts must come nearly or quite up to the famous Japanese chestnuts which were exhibited at the State Fair in Sacramento two years ago. It is also said that the nuts were greatly improved in quality by such culture.

The natural inclination of all forest trees is to throw out side branches as the trunk advances in perpendicular height. This habit may be encouraged by open cultivation; and should be where fruit is the main object in view. By planting close, the sun and air are excluded from the lower branches, so that they are smothered until they die out; thus encouraging a long butt, free from knots. The only access of the sun being to the tops of the trees, their growth is encouraged in that direction.

VARIETY IN CHESTNUTS.—In Europe, there are over *thirty* catalogued varieties of the chestnut, all of which may be had of the nurserymen. Great pains are taken there in the improvement of this tree, both by grafting and cultivation of the fruit, which, in many places, is largely used as food, and is very cheap. In the Atlantic States this fruit is worth from $7 to $13 per barrel. Its price in California is much higher.

Inverted Posts—Their Philosophy.

There is no question but that in setting fence posts, they should be placed in a position inverted to that in which they grew—or *top end down.* Numerous facts have been published sustaining the correctness of this theory in practice.

William A. Otis has informed the *Ohio Farmer* that he recently had occasion to take down a fence which he built twenty-four years ago. The posts were set butt end down—as they grew. These posts had all been reset, and the second lot were so much decayed as to be utterly worthless. Some gate posts in the line of the fence, which were set *top* end down, when removed, were in good condition, and fit for service for many years to come. The gate posts were thus set because, as they were cut off at the forks of the tree, the tops were the largest, and were, therefore, put in the ground to give the post a firmer "set."

Mr. S. E. Fiske, of Prairie Creek, Ind., some time since communicated to the New York Farmers' Club the fact of his once setting the two posts of a gate split from one log—one with the top end down, the other with the butt down; the latter was completely decayed in ten years, while the former was still good at the end of seventeen years.

Numerous other similar instances might be cited. We have one account before us of some posts set top down which lasted only about five years, and the party thinks he will never try it again. As he did not try any with the butt down, the experiment amounts to nothing. If any of the same lot had been set that way, we presume they would have decayed in two years. His timber was probably very poor, or the soil in which they were set particularly unfavorable for preserving wood.

Now if the results of inverting timber for posts are as we have supposed, and to some extent proven, there must be a cause therefor; and here we have it, and for aught we see, perfectly philosophical—furnished by a correspondent of the Germantown (Pa.) *Telegraph*, from whom we condense as follows: The particles of wood are so arranged by nature as to enable the water or sap of a tree to ascend. Were it not for this arrangement it would be impossible for the tree to grow. The making of a tree into posts does not change the arrangement of the particles, and consequently a post set in the ground in the position in which it grew, is constantly taking up moisture, while, by a change of position, the wood is drained of this moisture, and, as a consequence, the post placed in an inverted position will last the longest. If it is true that sap never descends, there may be considerable advantage secured by adopting his plan of post setting.

The correspondent of the *Telegraph* is in error in his supposition that sap never descends; but the circumstances and laws attendant upon the ascent of the sap and descent of the elaborated fluid in trees are quite dissimilar, as shown in the issue of the PRESS, of Nov. 13th, under the head of "The Flow of Sap in Trees." The laws of the movement of sap, as there set forth, fully warrant the conclusions given with regard to the cause of the greater durability of inverted fence posts. This is a subject of much importance to farmers everywhere, and should be generally known and acted upon. A knowledge of the philosophy of the practice will no doubt induce many to adopt it who would not do so otherwise, for fear of being laughed at for following what might be thought a mere whim.

A GOOD PARTY.—A "wood-sawing party" has been organized in Wapakonette, Ohio, numbering some twenty vigorous young men, for the practical purpose of sawing wood for all the widows of that town.

Mammoth Grape Vines.

Our readers are all familiar with the native habit of the grape vine to spread over a large surface; but probably the fact that it is also one of the longest lived of vegetable creations is not so well known. Californians are accustomed to point with wonder and pride at the great age and size of some of our mammoth redwoods. Other regions may point with equal pride at the great age and mammoth proportions of their grape vines.

Mr. J. A. Watson, in the *Gardener's Chronicle*, mentions a large vine growing on Mount Salevi, in Switzerland, which in March, 1867, measured three feet ten inches in circumference of the stem at four feet from the ground. The branches have covered and monopolized several large trees, and have had no pruning nor care of any kind for years; still the produce last year was four hundred bottles of first-rate red wine. This, at thirty cents a bottle, is $120 for the entire yield. Calculating the number of square yards covered by the vine, it is said to be at the rate of over $1,600 per acre. There is a vine in Richmond, Va., which measured forty-eight inches in circumference at the base, and sixteen inches in diameter, in 1865. There is a vine in New Jersey with a diameter of two feet. Downing mentions one on an island in the Ohio river which had a diameter of two feet, the branches of which covered more than an acre. These largest vines were estimated by Downing to be *two thousand years old.* There is a bearing vine in New Jersey which gave, twenty years ago, seventy-eight bushels of fruit, which went to market

It is in consideration of the great age and immense spread which the vine reaches, when left to its natural course, that has induced many persons to take the position that we cultivate it too closely in vineyards—that we thereby gorge it with unripe sap, producing an inferior fruit and inducing disease in the vines. It is well known that if we cut back the top of a tree, we, to an approximate extent, kill its out-lying roots, and thereby more or less injure their regular and healthy action. Such facts would at least seem to prove that the grape ought to have a large extension of both root and branch, to properly eliminate the fruit-forming sap. We have no knowledge of any experiment in this direction; but would suggest that such should be made. Take a small section of vineyard that has been in bearing, say six or eight years, and remove every other vine. Note for several years to come the quality and quantity on the section so thinned out, in comparison with an undisturbed area of equal extent. Vines so thinned should be allowed more stem, and should not be as closely pruned as is the common practice. The full advantages of such culture could not, of course, be seen until the lapse of several years.

A VINE NEAR THE DOOR.—The *Massachusetts Ploughman* well says that a traveler over a country road would instinctively have his eye caught and his thoughts somewhat tangled up by a fine vine growing vigorously near the door of a home. It does not matter how small or humble that home may be, it is raised in the esteem of the passer-by in holding up the suggestive shelter of a vine. It expresses love in the house, thoughtfulness for what is at once graceful and appropriate, pure and healthy domestic sentiment, and a spirit of contented happiness which many an one goes the world over to find, and looks for in vain. Such a simple home ornament as this is a token for all men to see, that the dwellers beneath the roof it adds expression to, are persons of feeling for what is true and lovely, for native refinement and quiet happiness. There should not be a farmhouse in the land without a vine somewhere contiguous.

THE cranberry crop of New Jersey for this year amounts in value to $2,500,000.

A Flower Garden on the Farm.

Why should not the farmer have a flower garden, as well as any other body? Don't he and his wife deserve some of the good and beautiful things of this life, as well as his neighbor in the village, who owns and cultivates that beautiful garden, which everybody admires? No time to attend to it; we don't believe it. He thinks, no doubt, that his *great* garden—his farm,—needs all his time and attention; but he is mistaken. He has a plenty of time, or at least he ought to have. He owes it to himself and to his family (all farmers have families) that he should maintain a garden—not one overrun with the curse of Adam, and covered with thorns and thistles; but one beautified with all the loveliness of the floral kingdom. There is many an odd hour that he can devote to its care and culture, until his sons and daughters are old enough to take the care off his hands. He should learn to *love* it himself, and teach his children to love it. It will add vastly to his own and the happiness of his family. Flowers are expressive of loveliness. Wherever you see a well provided flower garden, no matter how humble the house, depend upon it there is love and thrift in that house.

Horticulture occupies the same relative position to agriculture that the fine arts do to merchandising and manufacturing. The progress of either is an index to the advancement of a community in culture, intelligence and prosperity. There is this difference, however, in favor of the farmer—he can procure *his* refinements for less money than the merchant or manufacturer can; and his garden possesses more real value, and distributes more real happiness, than do the paintings and other adornments of his more pretentious neighbor. At the close of a prosperous career on the farm, what can give more real enjoyment to the farmer himself, or to his children, than the possession of a homestead adorned with flowers and trees? If his children have gone out from him to the city or elsewhere, how delightful they find it to visit the old homestead, made beautiful by the careful hands of themselves and their parents. How much such a home adds to the family tie. There should not be a farm-house in the land without its flowers and ornamental shrubbery and trees.

PEACH ORCHARDS IN CALIFORNIA.—The official county reports for the present year show an aggregate of 800,000 peach trees in California—enough to produce about 100 pounds of peaches to each individual in the State. The trees are distributed through the various counties as follows: Santa Clara county is down for 70,000 trees, Sacramento for 74,000, El Dorado for 56,000, Sonoma for 52,000, San Joaquin for 45,000, Butte for 40,000, and Napa, Placer, Tuolumne, Colusa, Amador, Yolo and Yuba range between 20,000 and 30,000 each, leaving about 250,000 for the balance of the State. The climate of California is well adapted to the cultivation of the peach, and it should be still more largely cultivated for drying. The average number of trees to the acre is about 100; and the average yield to a tree about 120 pounds of fruit, which, at four cents, the average wholesale price, makes the gross returns to the acre, $480, The entire expense for care and cultivation, aside from use of land and transportation, does not exceed $50.

HOW ROCK IS FORMED.—The soil, in most places, by its weight and the chemical solutions in the sub-soil, is constantly trying to form rock immediately below where it is disturbed by the plow-share. It is the business of the farmer to see that this process does not go on too near the roots of his plants. His plow and spade are the proper instruments of his warfare in this contest. Plow deep.

"It Broke Itself, Ma'am!"

Such was Bridget's reply to the query of a careful housewife who found a broken platter in the closet—and Bridget was not much out of the way, either, as we will show.

The body of common crockery ware is composed of a mixture of clay and silica (quartz). This mixture is moulded into shape and baked at a slow heat. In this condition it is porous, and will not hold liquids. To render it fit for use, clay, litharge, and ground quartz are mixed with water, forming a solution, into which the "baked" ware is dipped, and then submitted to another baking at a higher temperature. By this process the materials of the bath, which adhere to the surface of the dishes, are melted together so as to form a thin coating of glass all over the same, and impervious to moisture. This is called "glazing."

Now, if by careless handling, or by putting the dishes when very cold into hot water, this glazing becomes cracked, and water or fat may be gradually absorbed into the inner or porous portion of the dish, by which it is caused to swell and press against its coat of glazing. The glazing is unaffected by the fluid; but will expand by heat, and contract in cooling. If a cracked dish is suffered to remain a long time in hot water, the glazing will expand by the heat, and the interior by the absorption of water; then if the dish be taken from the water, wiped and put away upon a shelf, the glazing will shrink on cooling, while the interior will remain about the same—shrinking a little, but less than the exterior, and the consequence is, very likely, that a further sudden cracking of the glazing takes place, producing a shock which involves the entire dish, separating it into two pieces along the original line of fracture. Hence, Bridget was not far out of the way in saying "It broke itself." Bridget, however, must be careful about putting her crockery into hot water when it is very cold.

Cracked Dishes Unfit for Use.

There is another trouble often attendant upon badly-cracked dishes. As we have already shown, such dishes absorb oils or fats from the different kinds of food placed upon them. These fats soon become decomposed in the pores of the dish, and no amount of cleansing can remove the nauseating and poisonous deposit. Such dishes are filthy and unfit for use. The peculiarly unpleasant taste sometimes noticed in pie-crust is caused by their being baked upon old, cracked dishes, from which the rancid fat from previous bakings has been absorbed.

BIRDS PREFER TO FLY AGAINST THE WIND.—Careful observers have noticed that birds always appear to fly against the wind, and when aquatic birds dive, they prefer to do so against the stream. Migrating birds are always most numerous when the wind is blowing from the direction in which they are moving. If the wind blows strongly in the direction of their flight they frequently alight and await a change. Great numbers of quails annually cross the Mediterranean into Africa, and it has been noticed that they invariably start with a head wind. If the wind happens to veer around during their flight so as to blow nearly in a line with its direction, these birds perish by thousands in the water. The general opinion is to the contrary of the above, but observation has fully proven it correct. Reason: When the wind is *with* the bird in its flight, it gets under and ruffles its feathers in such an aggravating manner as to destroy its equilibrium, and possibly its equanimity at the same time. The result is a desire or a necessity for alighting. The same trouble would, of course, hold good with the swimming or diving of an aquatic bird.

Profits of Wheat Farming.

Under the head of "Profits of Farming in Stanislaus," we copied, two weeks since, an unconsidered article from the Tuolumne City *News*, in which that paper claimed that wheat could be cultivated in the San Joaquin valley at a cost of $4.80 per acre. The Contra Costa *Gazette* very properly thinks the figures given by the *News* are altogether to low for any locality, and says:

"There is undoubtedly a great deal of light land in the San Joaquin valley that will produce wheat in favorable seasons at small cost; but taking the wheat lands of the State together, and allowing $2 per acre, for rent or interest, which is not above a fair rate on the valuation, the cost of producing grain crops will not be found less than $10.50 per acre, without including the cost per bushel for thrashing, which, at the average of twenty bushels per acre, would be $1.80, and sacking, $1, making a total cost per acre, of the sacked wheat, in the field, $13.30 for 1,200 pounds. The further cost of hauling, freight, storage, etc., will depend upon the situation, distance and other circumstances, but will not average less than $3.30, making the whole cost of producing and marketing twenty bushels, $16,60, or a rate of eighty-three cents per bushel, which, at present prices for average quality of wheat, leaves so exceedingly small a margin of profit, as to furnish but little encouragement to immigrant farmers, if exclusive wheat growing is to be their sole resource."

The figures of the *Gazette* are full high enough, but are no doubt very close to the truth. The average per acre is smaller than it should be. With proper cultivation, and very little extra cost, the California yield of wheat might be increased fully 50 per cent., which ought to more than double the present average profit per acre.

The Pea Weevil.

The pea is very liable to attack from a species of weevil, commonly known as the pea-bug. This insect deposits its eggs in the pod just as the pea is swelling. The mischief is done at night or in cloudy weather. As soon as it is hatched, the grub makes its way into the young pea, and remains there till toward the close of the next winter, when it leaves its abode, after having changed into a pupa and cast its skin. A smooth round hole gives evidence of its long sojourn. Generally, if not always, this insect leaves the germ uninjured, so that seed affected by it will germ, though of course the grain is diminished in value by its depredations. There seems no effectual way of preventing the attacks of this insect. Some recommend very early sowing, and others very late sowing, but this troublesome little creature lives in other plants, so that its destruction is well nigh an impossibility. Professor Dawson is an advocate of early sowing, and remarks that it is worthy of inquiry whether, by sowing betimes, peas may not be harvested soon enough in the season to take a crop of buckwheat from the same ground. If this is not practicable, a sowing of buckwheat might follow peas, and be plowed in to enrich the soil for a crop of something else the following year.

TO MAKE CUTTINGS GROW.—Cuttings which are difficult to grow in other ways may be made to grow readily by putting both ends in the ground and allowing the plant to start from a single bud in the center. It is said that cuttings of the rose, apple, pear, plum, etc., may be readily made to grow in this way. The cuttings should, of course, be kept well moistened, and should be the growth of the previous year. By this method they draw nutriment from both ends, instead of exposing one end to be dried up in the atmosphere.

A CHEAP WAY TO CLEAN BROOM CORN SEED.—I. Mather, of New Jersey, recommends standing the corn with the heads through the palings of the poultry yard, when the seed will be taken off "free of cost." That is making the hens earn their own living, besides furnishing eggs.

Flowers in a Vase.

Of all the various mistakes that are made by persons in arranging flowers, the commonest is that of putting too many into a vase; and next to that is the mistake of putting too great a variety of colors into one| bouquet. Every flower in a group should be clearly distinguishable and determinable, without pulling the nosegay to pieces; the calyx of a clove pink should never be hid by being plunged into the head of a white phlox, however well the two colors may look together. Sweet peas never look so well in the hand as they do on the boughs over which they climb, because they cannot be carried without crowding them; but put them lightly into a vase with an equal number of pieces of mignonette, or rather ornament a vase of mignonette with a few blooms of sweet peas, and you get a charming effect, because you follow the natural arrangement by avoiding crowding of the blooms, and putting them with the green foliage which they want, to set them off. Few people are aware, until they try it, how exceedingly easy it is to spoil such a pleasing combination as this; a piece of calceolaria, scarlet geranium, or blue salvia would ruin it effectually. Such decided colors as these require to be grouped in another vase, and should never be placed on the same table with the sweet peas; they also require a much larger preponderance of foliage to set them off to advantage than is wanted by flowers of more delicate colors. It is unquestionably difficult to resist the temptation of "just putting in" this or that flower, because it is such a beauty; a beauty it may be, and so may be an apricot, but it would be out of place in a basin of green pea soup! There is at least one proper place for every flower; and let every flower be in its place.—*Gardener's Chronicle.*

How the Seed Contains the Tree.

In the single-flowering cherry tree, which gives the most distinct illustration of this fact, the pistil is formed from two capillary leaves, which have become succulent and united together so far as to form a component pistil with a simple cavity containing the young seed. Reflecting on this, in connection with the nature of buds and leaves, and minute examination of the germ bearing the plumule and radical of a bean, it appeared clear that a germ of vegetable life exists in every joint of a plant. To try this, a joint of mint appeared the best experiment. This was placed in water, having been cut as close as consistent with leaving the joint uninjured at the lower end. A bud soon appeared on one side, which quickly formed itself into another joint, from which a root grew out, whilst the original bud continued to progress, and seemed disposed to show the characters of a monocotyledonous germination, (having only one seed lobe or seminal leaf) assuming a green tinge at the extremity. However, a second joint and another root was thrown out from it. A decided upward growth now continued, and buds and leaves were formed at all the joints subsequently developed. This would prove that a joint in a plant is a life-knot, from which, under favorable circumstances, a plant or tree may be developed should it be separated from its original stem, and that it corresponds with the radical plate of a bulb, the crown of plants, the germs from which the plumule and radical are developed in seeds.

GROWTH OF OUR BIG TREES.—In the December number of the *Gardener's Monthly*, Philadelphia, Pennsylvania, P. Barry gives the present size of some seedlings from our California big trees. Those in Lamory Park, Kent, England, planted in 1854, and consequently now fifteen years old, are twenty-nine feet ten inches high, nineteen feet in diameter across the branches, and six feet nine inches in circumference of trunk one foot above the ground. Those planted in the same park two years later are twenty-five feet two inches high, fourteen feet eight inches across the branches, and five feet three inches in circumference of trunk. Those planted in Ellwanger & Barry's nursery grounds at Rochester, New York, in 1857, in a group without sufficient room to spread, are now, at the age of twelve years, twenty-four feet high, eleven feet across the branches, and three feet nine inches in circumference of trunk. These facts show a rapidly growing tree, and the people of this State, its own habitat, should look to it as one of the sources of our future supply of lumber.

San Francisco Market Rates.

Wholesale Prices.

FRIDAY, December 31, 1869.

Flour, Extra, ꝑ bbl	$5 00	@	$5 50
Do. Superfine	4 25	@	4 50
Corn Meal, ꝑ 100 ℔s	2 00	@	2 25
Wheat, ꝑ 100 ℔s	1 15	@	1 60
Oats, ꝑ 100 ℔s	1 15	@	1 60
Barley, ꝑ 100 ℔s	1 10	@	1 25
Beans, ꝑ 100 ℔s	2 50	@	3 50
Potatoes, ꝑ 100 ℔s	75	@	1 10
Hay, ꝑ ton	10 00	@	18 00
Live Oak Wood, ꝑ cord	9 00	@	14 00
Beef, extra, dressed, ꝑ ℔	7	@	10
Sheep, on foot	2 50	@	3 00
Hogs, on foot, ꝑ ℔	5	@	5½
Hogs, dressed, ꝑ ℔	8	@	9

GROCERIES, ETC.

Sugar, crushed, ꝑ ℔	14½	@	15
Do. Hawaiian	8	@	12
Coffee, Costa Rica, ꝑ ℔	18½	@	19
Do Rio	18½	@	19
Tea, Japan, ꝑ ℔	75	@	90
Do Green	60	@	1 25
Hawaiian Rice, ꝑ ℔	9½	@	10
China Rice, ꝑ ℔	5½	@	6
Coal Oil, ꝑ gallon	62½	@	65
Candles, ꝑ ℔	16	@	18
Overland Butter	20	@	42
Ranch Butter, ꝑ ℔	40	@	50
Isthmus Butter, ꝑ ℔	25	@	40
Cheese, California, ꝑ ℔	16	@	20
Eggs, ꝑ dozen	50	@	55
Lard, ꝑ ℔	12½	@	14
Ham and Bacon, ꝑ ℔	17	@	19
Shoulders, ꝑ ℔	10	@	12

Retail Prices.

Butter, California, fresh, ꝑ ℔	50	@	60
do. pickled, ꝑ ℔	40	@	50
do. Oregon, ꝑ ℔	25	@	30
do. New York, ꝑ ℔	40	@	50
Cheese, ꝑ ℔	20	@	25
Honey, ꝑ ℔	25	@	30
Eggs, ꝑ dozen	60	@	65
Lard, ꝑ ℔	20	@	22½
Hams and Bacon, ꝑ ℔	22	@	25
Cranberries, ꝑ gallon	1 00	@	1 25
Potatoes, ꝑ ℔	2	@	3
Potatoes, Sweet, ꝑ ℔	—	@	2
Tomatoes, ꝑ ℔	2	@	3
Onions, ꝑ ℔	3	@	5
Apples, No. 1, ꝑ ℔	4	@	5
Pears, Table, ꝑ ℔	5	@	
Plums, dried, ꝑ ℔	10	@	12
Peaches, dried, ꝑ ℔	10	@	15
Oranges, ꝑ dozen	50	@	75
Lemons, ꝑ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ꝑ ℔	—	@	25
Soap, Pale and C. O.		@	12
Soap, Castile, ꝑ ℔		@	20

Pickled Forage.

The Germans are great on "sauer-kraut." They even prepare a variety of this condiment for their cattle. It is done in this wise: Several pits are dug in a clover field, about ten feet deep, with the same width and length; these are lined with loose boards, and the clover thrown in green, as cut, and thoroughly trampled down by two men; the surface of every layer, about a foot or eighteen inches in thickness, is whitened with salt; layer is added to layer, and trampled as above and salted, until the pit is filled with a comparatively solid mass of clover. A rude covering of boards is then put over the whole, sufficient to turn rain, a slight trench, such as a soldier digs around his tent—and the operation is then complete. After fermentation, the mass is cut out through the winter with sharp spades, fed to stock of all kinds, and devoured with great relish. The same process is applied to pea vines, the leaves of the Jerusalem artichoke *(solamin tuberosis)* and to the leaves of certain forest trees. When we consider the difficulty of curing for winter's use, all the more succulent varieties of herbage, and the immense annual loss of that most valuable of all forage plants, clover, in the curing, it is to be hoped that some one will have the nerve to give a fair trial to this Prussian process. The Germans are eagerly imitated in the use of the needle gun and in the art of destroying; why not in that of sustaining life?—*Ex.*

GOD SEEN IN THE FLOWER.—The argument for the existence and wisdom of God, drawn from the marks of design in the works of creation, is one which cannot be controverted. And it meets us at every step. In the flowering month of June, the gardener may discover so beautiful an illustration of divine wisdom, that we must call special attention to it. It is in the habits of the plant known as *Colchicum.* It blooms in October, sending up from the damp soil its flower-stems without leaves, and then disappears. Flowering thus just upon the verge of winter, it has not time to perfect its seed and so provide for its own reproduction. But the unmatured seed lies protected in the bulb below ground through the winter; then, in the spring, up shoots a fruit-stalk, on which the seeds mature and ripen about the first of June. What an admirable provision! Does this happen by chance?

TIMBER MADE FIRE-PROOF.—Professor Reinsch has come to the conclusion that common salt answers the purpose as well as anything. Timber impregnated with a concentrated solution of salt, will not burst into a flame, any more than if coated with silicate of soda. The salt is also a preservative against dry rot and noxious insects.

TO TRY OUT LARD.—A mode of trying out leaf-lard, one which produces few scraps, is to add to every ten pounds of rough lard a tablespoonful of saleratus during the process of trying out.

Scientific Press.

W. B. EWER........................SENIOR EDITOR.

A. T. DEWEY, W. B. EWER,

DEWEY & CO., Publishers.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance	$4 00
One copy, six months, in advance	2 50
Delivered by city carriers, per month	50

Rates of Advertising.

One square (ten lines agate), one week	$ 1 00
One square, one month	3 00
One column, one month	40 00
One column, one year	400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, Jan. 1, 1870.

Table of Contents.

Apparatus for Receiving and Delivering Mail-Bags.. 1
Influx of English Capital. 1
Dressing of Ores 2
Deep-Sea Sounding..... 2
In Memoriam........... 8
Contributions for Our Cabinet............... 5
A New Volume and a New Year.................. 8
The Ramie—Ill......... 9
Coal Tar and its Products 10
E. M. Stanton........... 8
A Word about Hydraulic Mining—Ill........... 5
In Memoriam........... 8
The Earthquakes........ 8
Great Mining Sale...... 5
READING FOR THE HOUR.—Ice-fields and Icebergs—Ill.; Useful Properties of Water; The Mortgage Tax Question; Prof. Marsh on the Giant, etc...... 12
FARMING AND GARDENING.—Growing Nut Trees; Inverted Posts; Mammoth Grape Vines; A Flower Garden on the Farm: The Pea Weevil; Flowers in a Vase; Profits of Wheat Farming, etc.......... 6
MECHANICAL PROGRESS—American Machine Products Abroad; Hydraulic Punching and Riveting; Chrome Steel, etc..... 3
SCIENTIFIC PROGRESS—Muller on Darwin; Photography in Transit Observations; Carbolic Acid vs. Alcohol: Protoxide of Nitrogen, etc.......... 3
MINING SUMMARY.—California, Arizona, Idaho, Montana, Colorado, and Nevada.................... 4
Recent Patents......... 9

Notices to Correspondents.

SUBSCRIBER, San José.—You can bring water from a well even more than 121 feet from your house, by placing a common pump in your kitchen, provided your well is not more than 25 or 28 feet deep. In order to do so it will be necessary that your pipes should be perfectly tight. Lead pipe would not be safe for use, as the water would have to stand in it so long that it might decompose the metal to an extent which would render the water poisonous. Gas pipe will answer your purpose; and by the use of the joints and corner pieces which come with it, you can easily vary its direction as desired. You can put in gas pipe as readily as lead pipe, and it is cheaper. A pump in a house is a very convenient hing. No housewife should ever bo compelled to go outside to draw water for the family.

PLOWMAN, Contra Costa.—It is diffcult to draw a precise line between a regular farmer or gardener and an amateur farmer. An amateur is usually regarded as one who is versed in, or who is a lover of, some particular pursuit; but who is not engaged in it professionally, or does not get a living by it. As the individual to whom you refer derives a part of his income from market gardening, we should not call him an amateur.

PRO AND CON, Ellsworth, Nye county, Nev. Much obliged for your communication, but as we have been overwhelmed with articles on the same subject, we are obliged to refrain from publishing it.

FIRE HOSE.—The contract for supplying the Fire Department with 5,000 feet of hose, by Mr. M. Cook & Son, was completed on Saturday, the 18th inst. The test of 180 lbs. to tho square inch was applied to it by the Department at the corner of Powell and Ellis streets. Twenty-four hundred feet were tried, and without a single exception stood the ordeal. It was accepted by the officers of the Department and taken to the corporation yard.

◆

"MELTED"—NOT "WET."—In the communication of Mr. Pique, on the second page of our last issue, the term "wet" was employed where "melted" was intended by the writer, in speaking of the conducting properties of glass and resin. The mistake arose from indistinct manuscript.

◆

VALLEJO has increased during the past two years at the rate of 25 per cent. per annum. The present population of the town is about 8,000.

A New Volume and a New Year.

As the beginning of a new year also marks the commencement of a new volume, it seems peculiarly appropriate that we should hold a little familiar talk with our readers and friends on matters pertinent to their own interest and to ours.

We enter upon the eighth year of editorial duty, conscious of many past defects and short-comings, when judged by the standard of excellence set up by a discriminating public in measuring their expectations of what a periodical, such as we have aimed at, should be made. Still we confess a feeling of honest pride at what has already been accomplished, and with enlarged experience, more effective assistance and increased facilities, we hope to render the paper still more useful than ever to its readers, and more worthy to be held up to its readers as the representative journal of the material interests of the Pacific coast.

With the commencement of the twentieth volume the publishers have gone back to the original name under which the paper was established. In dropping the prefix of "Mining," it is not our intention to make any change whatever in the character of the paper, other than to do our utmost to improve it in whatever manner may be in our power. We have made tho change for the sake of brevity, and because the title of the paper as it now stands more nearly expresses its true object and mission—to elevate and develop the three great industrial interests of this coast—Mining, Farming and the Mechanic Arts. These are the practical sciences with which we all have more or less to do, and it will be our aim to discuss them in a plain and practical manner.

We and our circle of readers form a company of students in the great college of Nature, our business being both to teach and to learn. We invite all earnest inquirers after facts and principles connected with the pursuits mentioned, to set down with us and employ the "SCIENTIFIC PRESS" as their medium of intercommunication, their vehicle for receiving and imparting instruction. It falls to our lot to be the *leader*, simply, in this great school of enquiry and research—not the teacher. We have set up for no such position. We have simply started a great, comprehensive, coöperative school, in which we invite all who place any value upon knowledge to join us. We are all inquirers after facts and principles connected with Mining, Farming and Mechanics. We therefore invite all engaged in those pursuits to supply us with information and suggestions that may be of general advantage. It will be *our* part to collect and arrange the same so that the public may most readily take advantage of it.

By our position we are placed in communication with co-laborers in all other parts of the world, who are daily sending to our address, in the various journals with which they are connected, the results of their obsevation and experience. Much of such information comes to us in a crude condition, or unsuited to our particular locality. Especially is this true of agriculture and mining. In the former, our variable circumstances of climàte, soil and labor; and in the latter, our geological and topographical, social and physical conditions, are so different from such conditions elsewhere, that it is only by careful deductions from our own experience that we can hope to improve our own practice by comparing it with that of other localities. We can have a really living, growing and improving system of agriculture and mining here only by the intelligent collection and comparison of the results of our own experiments, founded upon a most judicious use of the knowledge of what is being done in these pursuits in other parts of the ready done—and we have abundant evidence that they are—will they not aid us at this favorable opportunity in extending the area of that usefulness. We have no hesitancy in making this request, for we are conscious that we have endeavored to return value for value; and that our efforts to promote the best interests of the Miner, the Farmer and the Artisan, have been earnest and successful, and not altogether without recognition in quarters from whence we may well feel pleased at such appreciation.

We intend to make the SCIENTIFIC PRESS a *live paper*—one from which may be derived both pleasure and profit—and with this pledge we again renew our promise to keep pace with the march of the times.

◆

Disasters in Pennsylvania.

The particulars of the explosion at the torpedo factory at Titusville, December 16th, and of the caving in of the coal mine at Stockton, December 18th, have been received. In the first case, only one life was lost, but one or two buildings in the neighborhood were badly damaged, and in Titusville—the factory was situated about a mile from the city post-office—houses were shaken, windows shattered, and considerable injury done generally. The cause of the explosion is unknown. The supposed amount of explosives destroyed is stated as 1,500 pounds of gunpowder and 3,000 to 4,000 pounds of nitro-glycerine. A most remarkable fact (if it is a fact) is, that some 1,500 to 2,000 pounds of nitro-glycerine were thrown out of a building, which was demolished, to quite a distance, without exploding. The glycerine was packed in cans, which were placed in wooden boxes, and surrounded with plaster of paris, the cover being fastened with screws to avoid hammering.

At Stockton, by the caving in of a stope in Linderman & Skeer's coal mine, at five o'clock in the morning, two double houses were engulphed with enormous masses of earth. With the houses, ten persons were carried down, and, as the stoves in the buildings set fire to the wood-work, there could be no hope of any one surviving in the burning mass. There is great excitement, and the fear that other houses will fall or the mines take fire. If these little things do happen, very likely more precautions will be used thereafter in that place.

◆

In Memoriam.

DR. PEREZ SNELL, a gentleman well known throughout the central portion of the State, died at his residence in Sonora on Monday last. Dr. Snell was a native of Vermont; served in the war of 1812; acted as Professor in the New Orleans Medical College for several years; came to Sonora, in this State, in 1850, where he has ever since resided, devoting his time chiefly to scientific pursuits and the collection of a cabinet of California curiosities and geological specimens, which is now one of the most extensive and valuable in the State. He died at the advanced age of 87 years.

MR. WILLIAM G. HESLEP, one of the early pioneers of California, died in Arizona on the 6th ultimo. Mr. Heslep had recently gone to that Territory to assist in developing its mineral resources. The Arizona *Miner*, in speaking of his decease, says: "Although he had sojourned with us but a short time, his genial disposition and sound practical sense, added to great knowledge of mines and mining, won for him the esteem of our people, who had commenced to look upon him as the savior of this section of the Territory, for the reason that he alone, of all those who had come here to work quartz, had achieved success, and was prepared to prove to all doubters that, in point of richness, the mines of this vicinity were second to none on the continent. All had faith in him, for his record, which came before him was good."

The Earthquakes.

The earth seems to be getting uneasy and to show symptoms of being about to do something. But as yet, no very severe convulsions have occurred, and no great damage has been done.

On December 26th, at about six o'clock in the afternoon, a series of shocks occurred, extending north and south in this State from Marysville to Stockton, and west and east from Sacramento to beyond Reno, on the Pacific Railroad. The severest shocks were felt at the east at Virginia City and vicinity, walls and chimneys being thrown down, while at the west, no other damage was done than to shake doors and windows and cause chandeliers to vibrate.

About two o'clock next morning, another shock was felt in different places, and was apparently more severe at Sacramento than the first. Other slight shocks have since been reported.

The vibrations of the first shock are recorded at Stockton as from northwest to southeast; at Sacramento, south to north; at Truckee, east to west; at Reno, southeast to northwest, and at Virginia City, north and south. Judging from the times recorded, it might be thought that the quake came from the east to the west. The data given as yet, however, are not accurate and full enough to enable us to determine with certainty the central point, nor the exact directions, etc. It is to be hoped that accurate observations will be made in any case, on which may be based deductions, which are very important and interesting. Of course, until the country is more fully settled, the data must be incomplete; but we might, as it is, have much more information than we do.

This year, it would seem as if it was thundering everywhere. In the eastern part of the Union, here and there it has been asserted that small shocks have occurred. In Europe, quite severe shocks have been felt. In various parts of Germany, it is said, chimneys have been thrown down and plastering cracked, and this in the interior of the continent. At Naples, observers say that Vesuvius is big with menace, and it would seem that other volcanoes are beginning to rouse themselves after their long rest. And Africa also is joining in the dance—Algeria having been severely visited.

◆

Death of Edwin M. Stanton.

This week brings us the news of tho death of one who has, of late years, borne an important part in the history of our country. On the 24th inst., Edwin M. Stanton, Secretary of War during the late strife, succumbed to disease, contracted by his severe labors, and died of congestion of the heart.

The deceased was born at Steubenville, Ohio, in 1815; passed a year at Kenyon College; studied law, and was admitted to the bar at the age of 21; was called into the cabinet by President Buchanan, as Attorney General in 1860, and appointed Secretary of War by Lincoln in 1862.

Only a few days ago, Stanton was nominated as a Judge of the Supreme Court, and confirmed by the Senate, but did not live to receive his commission. As a mark of respect to his memory, this has been sent to his widow, with the signature of President Grant.

◆

SHARP PRACTICE.—According to the New York *Evening Post*, a company, which has been at work for some months on a supposed pneumatic dispatch tube under Broadway, is really building a tunnel for an underground railway. The utmost secrecy is maintained with regard to the work, no one being permitted to go down the shaft to the entrance of the tunnel; even the city authorities are ignorant of its size and direction. The object is to push the work so far that the Legislature will feel compelled to grant a charter.

Reduction of Price and Other Improvements.

With the beginning of the New Year, and in consideration of the altered condition of things on the Pacific coast, whereby it becomes necessary for people here to curtail their expenses, and economize their means, we have reduced the price of the Scientific Press from five to *four dollars* per year. We have also done this in the expectation that it will bring large accessions to our list, and operate as an increased inducement for the continuance of many who may have been thinking of curtailing their expenses by discontinuing the paper. Notwithstanding this reduction of price, we would assure our readers that we shall still continue to add to the interest and value of the paper by improvements in its appearance, and in the matter which it may contain.

During the past few months we have taken what we are assured by others is an important step forward, in adding to the amount of our agricultural matter, and raising it to a special department in the paper. This has not been done at the sacrifice of any other class of reading, but by giving an increased amount of the same. The increased attention which is being paid to this branch of industry in the mines, and its rapidly increasing importance in the valleys, to say nothing of the advice of numerous friends and subscribers, fully warrant this step; and we are pleased at the various expression of satisfaction thereat which have reached us from all parts of the coast.

During the coming year we shall also devote increased attention to our Mechanical, Mining and Patent Departments, and to the illustration of such new devices and machines as may be introduced from the improvement and advancement of these important branches of industry. If our friends are satisfied with what we have al world. California—or, rather, the Pacific coast—requires a practice, system and school of its own. The theories and practices of other countries must be modified here to suit our own peculiarities as actual experiments and results shall point out.

It is the province of the Scientific Press to collect this information, both at home and abroad, and to spread it before the public for the benefit of all. It is such facts as those above set forth that render this paper more valuable to people on this coast than any class journals from abroad. Thanking our friends for their assistance in the past, we would invoke a continuance of their coöperation in the future, to the end that they may unite in adding the benefit of their knowledge and experience to the common stock.

* * *

The Aerial Steam Navigation Company.—At a meeting of stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cazneau, Henry F. Williams and Simon L. Jones were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars, said shares to be *unassessable*. The funds thus raised are to be devoted exclusively to the construction of the first aerial steam carriage, and to be deposited in the Bank of British Columbia, to be disbursed upon requisition of Mr. George K. Gluyas, Engineer of Construction. The working, drawings, etc., can be seen at the office of Gen. Thomas N. Cazneau, No. 321 California street, where subscriptions will be received. No invention for navigating the air has before received such positive indorsement from engineers of reputation, or so liberal encouragement from prominent capitalists as Marriott's Avitor, which now seems sure of being thoroughly tested on a large scale.

The Ramie.

It would seem as if we were to have another excitement in our State with regard to this, to us, new, plant. Such favorable reports have come from other parts of the Union, where its cultivation has been tried, that it is thought many farmers here will give their attention to its propagation.

History of its Introduction Into the United States.

The plant, although quite new in this country, has long been known in other lands. Under the name of the China grass, large amounts have been imported into Europe. The technical name is the *Boehmeria tenacissima* for the Javanese, and the *B. Nivea* for the Chinese variety. The former is the one cultivated in the Southern States.

The late wars in China and Japan have caused the yield in those countries to become irregular, and inadequate to supply the demand; and it is owing to this that the plant has been introduced into the United States. In 1867, Dr. Benito Roezl was successful in cultivating it in Louisiana, and from here its cultivation has spread into most of the other Southern States. This year an effort has been made to introduce it into California, and it is thought that the soil and climate are such that the plant will produce immense crops at a small expense.

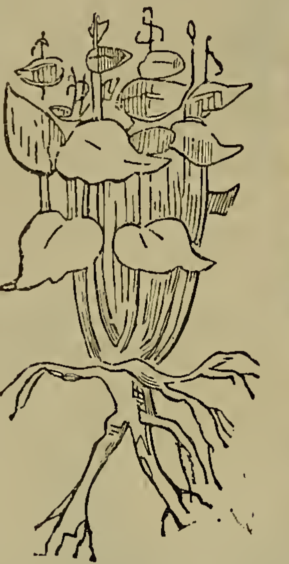


Fig. 2.—Ready for Propagation.

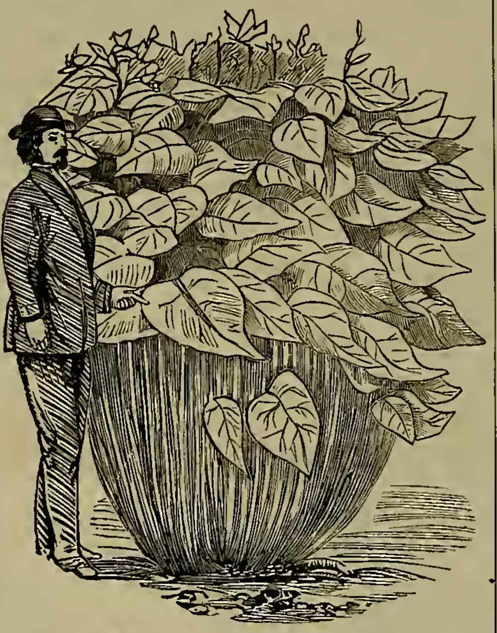


Fig. 3.—Full-grown Plant.

Requisite Soil.

A rich, sandy soil is the most suitable, especially for a nursery, where plants are to be propagated. The land should be thoroughly broken up and pulverized to a depth of ten to twelve inches. The plant is said to resist drought better than most others. It is claimed that the submerged fresh water islands of the Sacramento and San Joaquin, when reclaimed, are excellently adapted for the cultivation of the ramie, and will produce some 4,000 pounds of raw fiber to the acre yearly.

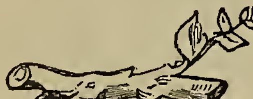


Fig. 1.—Root-Cutting.

Propagation in a Nursery.

The ramie is a perennial plant and a very rapid grower. It produces no generative seed, and can be propagated only from roots and layers, from which it can be rapidly multiplied. Fig. 1 represents a root-cutting for first planting.

In propagation, level cultivation is preferable; root-cuttings should be taken for first planting. These roots should be planted six feet apart each way, and three inches deep, in a slanting position, with one inch left above ground. The ground should at first be kept moist. No further attention is necessary, except weeding, until the plants are about two feet high, when they should be gradually and gently bent towards the ground. When three or four feet high, the plants grow brownish near the root, and are ready for propagation. Fig. 2 represents the plant at this period.

Incisions should now be made at each eye of the stem, which is bent down and covered with earth, a few top leaves being left above ground. In four or five weeks these layers will be rooted, and can be cut from the parent plant, divided into pieces and replanted.

Planting in the Field.

The ground, after being plowed as deeply as possible, is generally laid off in beds four feet wide, running the whole length of the field, with pathways three feet on each side, and, at intervals, cartways for harvesting.

The plant, after cutting, will rapidly shoot out other stems and yields three harvests yearly—there being two and a half months between the cuttings. Figure 3 shows the plant six months old; the figure of the man shows the relative height of the stems.

Preparing the Fibre.

The stalk is first soaked in water for a few hours, then passed through a brake, similar to a hemp brake, to divest it from the woody portion. It is again soaked and again passed through the brake, freeing it partially from the gum. A third soaking is necessary to remove all the gum, and then, after a third passage through the brake, it is ready for the refining.

The planter does up the fibre in hanks for the market. It is worth 10 cents, gold, per pound, as raw fibre. Preparing it for the factory is a separate industry, requiring bleaching and several manipulations.

Uses of the Fibre.

The prepared fibre is very soft and strong, and is used in what are called stuff goods, now much worn by ladies, as a substitute for silk. It is largely interwoven with silk itself, as in Japan and India, forming very desirable dress goods. It works equally well with silk and with worsted chain, takes fast colors, and always has a silky lustre.

Messrs. H. Hughes and J. S. Silver, 302 Battery street, San Francisco, say that they are authorized by English dealers to buy all the Ramie fibre which can be produced in the State for some years to come. They have, also, roots for sale, and machines for preparing the fibre for market. The English manufacturers prefer to buy the raw fibre and refine it themselves, rather than to take that which is already refined, as the latter, they say, is not treated as well here as in England.

If in the next few years, large amounts of the Ramie fibre are produced in California, it will but answer the expectations of many who have been watching the development of the plant. It would seem as if its cultivation would be most profitable, as it it is very hardy, requires but little attention, has no enemies, and is not affected by mildew, if reports are true. While we should be very glad to see anything undertaken which promises so well for the prosperity of the State, yet we cannot refrain, in view of the too great precipitancy with which Californians are apt to go into a promising business, from expressing the hope that the cultivation of this plant may not be overdone.

New Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Mining and Scientific Press.]

For the Week Ending December 21st.

Animal Trap.—Adam Brown, Bridgeport, Oregon.

Machine for Upsetting Tire.—Albert S. Hart, San Francisco.

Railway Car Coupling.—Albert S. Hart, San Francisco.

Variable Cut-Off for Steam Engines. Michael C. Taylor, Grass Valley, Cal. Antedated December 17, 1869.

Lubricating Sleeve.—George A. Lloyd, San Francisco, Cal., assignor to himself and Anthony Rosenfield.

Dynamometers.—John W. Sutton, Portland, Oregon.

* * *

Notices of Recent Patents.

Among the interesting and important patents recently issued to Pacific coast inventors, the following are worthy of mention:

Railway Car Coupling.—Albert S. Hart, S. F.—This is an ingenious self-coupler, which is so arranged that the coupling pin will be held in a position from which it will drop through the link as soon as the latter is inserted. It consists of a plate fastened horizontally to the upper side of the opening in the head or bunter, and having a hole through it in a line with the holes above and below, through which the pin can pass. Two sliding plates move forward and backward over this first plate, one above and one below; the upper one being pierced, so that when moved backward, it will allow the pin to pass through it, while the lower plate overhangs far enough to intercept the pin. A fourth plate is hinged to the first one, so that it stands at an angle, the lower end being weighted and resting near the back part of the chamber in the head. Now, by the introduction of the link, this plate is raised until nearly parallel with the others; at the same time, by means of a connecting-arm, the lower sliding-plate is moved forward so as to allow the pin to drop through the link and couple the cars. By the use of a coupling like this, all danger of crushing a person, who may be in the act of coupling, is avoided. But there is another point gained by this invention. The pin may be withdrawn before the cars are separated, and yet be left in a position to couple again without further handling, as in this case the upper sliding-plate will be moved forward by a spring independent of the lower one, and the pin can be left resting on this upper plate.

Variable Cut-Off for Steam Engines. M. C. Taylor, Grass Valley, Cal.—This is an improved device, by which the steam is cut off after the piston has accomplished a portion of its stroke. This is effected by two cams, which act upon the valve-stem more or less directly, one of which opens the valve, and the other, following it, moves it still further and closes the steam-port, but leaves the exhaust-port slightly open. The last, or cut-off cam, is attached to a cylinder having spiral grooves on the inside. A follower or plunger, having projections which fit these grooves, is moved backward or forward by a hand-wheel and screw, and makes the distance between the cams greater or less. By this, the point at which steam can be cut off, can be changed or regulated with the greatest ease.

* * *

The Spanish Gunboats.—These thirty vessels, of which so much has been said during the last few weeks, are all built, says the *Scientific American*, after one design, prepared by Capt. Ericsson. They are twin screw steamers, 105 feet in length, 22 feet beam, and their depth of hold is eight feet. Their maximum draft is five feet. The screw is five feet ten inches in diameter, and are each driven by two steam cylinders, the length of stroke being fourteen inches, and the diameter of the pistons fifteen inches.

The arrangement of the steam machinery is most compact; the whole, including pumps, surface condenser, fresh water generator, etc., resting on a surface of ten feet square and rising from this surface only six feet. The nominal horse-power of the engines in each boat is 140.

[From the Scientific American, June 12, 1869.]

Coal Tar and Its Products as Preservatives for Wood.

Ever since the establishment of gas works it has been considered a matter of great importance to find some useful application for their waste products, principally the coal tar. The old custom was to use wood tar as a coat for common wood structures exposed to the inclemency of the weather, and it was soon found that coal tar resinfies, dries, and hardens quicker than wood tar. This circumstance led to experiments to ascertain the preservative nature of coal tar.

More than fifty years ago, W. H. Hyett and others impregnated wood with gas tar, and reported that such wood, placed in a damp cellar, became moldy sooner than the same wood in its natural state, and that it showed fungi, particularly where the tar abounded.

In 1830, Reichenbach published his experiments, by which he obtained creosote from beechwood tar. He subjected the tar to a fractional distillation, the heavier products, which distilled over by increased heat, were washed with an alkali, redistilled, again treated with lye, and then with sulphuric acid, and again distilled. The substance so obtained he found to preserve meat, and therefore called it "creosote," meaning meat preserver.

This invention of Reichenbach served as a nucleus for a number of erroneous conclusions. It was alleged that a substance which preserves meat also preserves wood, which is not true. A solution of common salt, for instance, serves to preserve meat and fish, while it accelerates the decay of wood. It was said that coal tar is the same as wood tar, and furnishes creosote; but the truth is, coal tar differs materially from wood tar, and contains no creosote. It was further stated, that the mere distillation of coal tar is sufficient to convert the same or part of it into creosote, and the coal tar, which distilled over by increased heat, and was found heavier than water, was deceptively called "creosote," sold as creosote, and used as creosote to "creosotize" wood and preserve it, yielding, through such misrepresentations, large revenues to the gas works and inventors of various processes to impregnate wood with gas tar or its products.

The first man whom we find engaged in the creosotizing patent business, and probably the most candid inventor, was Franz Moll, in A. D. 1835. He found, by practical experiments, that the so-called "creosote of coal tar" was worthless to protect wood from decay. He ascribed its failure to the presence of other substances therein, with which the "pure creosote" is associated, and strongly recommends its previous purification with alkaline lye, similar to Reichenbach's process described above. When coal tar is heated in a still by gradually increasing heat, the product first obtained, which is lighter than water, is called by him "eupion;" the heavier liquid obtained thereafter he calls "creosote." Merely coating wood or timber with coal tar or other tar, he finds of but little advantage.

Moll's British patent was granted in 1836, and is the more interesting, as his process is based on the best principle, so far known, to saturate wood with liquids, and as his specification accounts for the necessity of tedious operations, without which he finds the application of the products of gas tar of no practical advantage. His process is as follows: The wood is placed in a close chamber, which is connected with one or more stills. He begins the operation by heating the inside of the chamber by a steam pipe or elsewise, to about 100° Fah., and then increases the heat gradually till sufficiently warm, to assist in maintaining the vapors of eupion and creosote in a vaporous state. The water from the damp timber is then drawn off, and eupion, previously sufficiently purified, is heated in the still, from which the vapors enter the chamber. When the wood is considered sufficiently impregnated with the eupion vapors, the surplus vapor is drawn off, and vapor from a still containing creosote, also previously purified, is then admitted and finally boiling liquid creosote is introduced into the chamber by a pipe in a quantity sufficient to cover all the wood therein. After the whole has become cold, the wood is removed from the chamber.

He describes the following experiment, made by him "on a balk of good oak which was rather in a damp condition, the same was fourteen inches square, and about ten feet long, which, on being submitted to the vapors of eupion for about six hours, when cut in two parts, was found to be impregnated proportionately, even to the heart, with eupion, and when the two parts were afterward submitted to the vapor of creosote, and boiling creosote, the same was found to have taken effect within 12 hours. But subsequent experiments have proved that it is better to submit the wood or timber for a comparatively short time to the action of the vapors of eupion and creosote, and depend more on the liquid bath as described, this process being less liable to crack the wood or timber than the vapors."

Moll's Simplified Process.

Where it is not thought a matter of importance whether the timber be chiefly penetrated with creosote or eupion, the former of which I consider the chief agent against dry rot, or where the operation is chiefly performed in order to prevent the effects of penetration of water into the wood, or where it is judged to be immaterial, whether these fluids convey any acidity into the timber, and when the proportion of eupion and creosote contained in the tar is well known, the operation may, of course, be much simplified by letting the vapors or liquid products of tar, or other matter containing eupion or creosote, or both, enter into the timber. But I am bound to state that the above-described method of washing the substances, and applying them separately, will be found far superior in use, as the volatility of the eupion and its fluidity will allow its rapid penetration into the timber more perfectly than when in combination with the creosote, whose entrance the former will greatly facilitate when once lodged in the pores through the affinity of the two substances, and as by these means the quantity of eupion can be regulated which is to be absorbed by the wood; moreover, the antiseptic power of the creosote will be augmented by the washing and freeing from matters mixed with it."

Louis S. Robbins' Process.

The process just described by Moll as his simplified operation, was re-invented thirty years thereafter, and patented here, A. D. 1866, by Louis S. Robbins, of New York, and the patent was lately purchased by "The National Patent Wood Preserving Company," by whose order a pamphlet was published last year under the title of "Discovery of a Lost Art of the Egyptians."

Robbins, like Moll, uses a chamber, in which the wood is placed; Robbins also uses a retort, or still, in which, like Moll, he heats coal-tar and introduces the vapors from the retort into the chamber by a gradually increasing heat, lets off the water from the damp wood, and impregnates the wood with the vapors of coal tar, which he calls "oleaginous vapors," while Moll calls the same "eupion and creosote." Robbins says further, that he does not limit himself to any particular form of apparatus, nor does he intend to limit himself to the removing of the surface moisture from the wood by means of oleaginous vapors, as there are various ways in which the same can be accomplished with the use of heat. "But what I claim as 'new' is the process consisting in, first, removing the surface moisture from the wood, and then charging and saturating the same with hot 'oleaginous' vapors and compounds, also removing the surface moisture from the wood by means of hot oleaginous vapors."

We suppose that Robbins did not know of Moll's process, as he says in his specification: "From the above description it is apparent that by my process I am enabled to more completely saturate the wood with the preservative compound than has been, or can be done, by any of the processes heretofore in use, for the reason that I cause the preservative compound to permeate the pores and fibres of the wood in a *vaporized state*, while in the others it is made to enter in a liquid state."

John Bethell's Process.

Patented in England in 1849. He applies the "creosote," or coal tar, in its liquid state, without any previous purification. The wood is placed in a pressure tank, from which the air is exhausted previous to the introduction of the "creosote," which is then forced into the pores of the wood by a pressure pump. Bethell's process, being the most simple and quickest in its operation, was extensively used, and of the results we have reliable reports.

David Stevenson, the eminent English engineer, states that although highly recommended to him by Bethell, he found such creosotized wood to be wholly unfit for use on piers or other water structures, as it was soon destroyed, perforated, and eaten off in places where the creosote abounded, though the most favorable location had been selected for trial, and every precaution used by Bethell in the preparation, the wood having been creosotized after being cut into shape in which it was applied. (*Civil Engineer and Architect's Journal*, vol. 25, page 205. London, 1862).

Wm. Jerry Walker Heath reports (*ibidem*, vol. 29, page 301, 1866), that square rail ties sent by Bethell for use in South America, even when laid on the best sandy ground, were soon totally destroyed.

John Bethell himself stated (*ibidem*, vol. 29, page 323), at a meeting of the association of the engineers, that he received from Belgium rail ties of the round shape back, which were previously creotosized by him in the best manner, and which were then found to be hollow like a cannon, the heart being all gone, and the outer part representing a black, hard mass.

Failure of Coal-Tar Oil for the Preservation of Wood.

The causes of the failure are explained by the fact that coal tar does not yield any creosote, even if treated in like manner as wood tar, which often yields as much as 25 per cent. of creosote. The substance obtained by the treatment of coal tar is carbolic or phenic acid, which differs materially in its properties from the real creosote. Being an effective disinfectant, carbolic acid does not prevent fermentation or putrefaction; on the contrary, Ilisch, of St. Petersburgh, found that some substances impregnated with a solution of carbolic acid showed the formation of mould within a fortnight. This circumstance, taken in connection with the fact that coal-tar resinifies and hardens quicker than wood tar, explains the failures observed by Hyett, Stevenson, Heath and others, when used in a wet place, where the tar cannot quickly dry and form a hard coating. This also explains why nothing but a hard mass outside remained in the rail tie spoken of by Bethell, where all wood within was gone, leaving the resinified tar as the "hard, black mass." Such is similar to the experience of coachmakers relative to hubs, which, when painted with oil color before being well seasoned, soon rot on the inside. Experience and science seem to teach that the use of coal tar or its products is, in most cases, more detrimental than advantageous for the purpose of preserving wood.

[From the Scientific American, July 31, 1869.]

MESSRS. EDITORS:—In referring to an article with the above heading, in your issue of June 12th, it is not my intention to enter into a history of the various trials with the products of the destructive distillation of carboniferous bodies belonging to the coal series. Your correspondent's paper is very elaborate in this respect. My purpose is simply to relate some experiments not recorded by him, and which were undertaken by Mr. Rottier, Professor of Chemistry at the University in Ghent, Belgium, in order to determine what ingredients of coal tar are most effectual in protecting wood from rot. An account of these experiments may be found in the *Breslauer Gewerbeblatt*, of 1865, page 152. Rottier's experiments extend over the following constituents of coal tar: 1, The light oil; 2, the oil containing phenic or carbolic acid; 3, the oil containing aniline; 4, the naphthalized oils; 5, the solid residue; 6, the green fluorescent oil distilling between 275 and 320 Centigrade, containing pyren and paranaphthalin.

The light oil was found to be of no avail, for the wood treated with it decayed within the same period of time as wood that was not treated at all. The delay in time in the decomposition produced by the aniline oil amounted only to 6.66 per cent. which, indeed, is a very insignificant period.

It is well known that carbolic acid affords an excellent means for preserving animal matter from putrefaction. This fact has led to the conclusion that the heavy tar oils would be as excellent for preserving wood, they being the chemist's source for carbolic acid. Rottier found this hypothesis not confirmed. Decomposition set in after the usual period of time, whether the acid was employed in solution, in benzine, or otherwise. Tar oils which contained not a trace of carbolic acid proved to be just as ineffectual as oil to which a considerable portion of the acid had been added. Naphthalin has proved to be very powerful in protecting collections of natural objects against the ravages of insects. It might, therefore, appear that it was the proper agent for preserving wood. This is not the case, it being too volatile to be adapted for the purpose in question where time and external agencies play such an important part. However, quite favorable results were obtained with the greenish fluorescent oil that comes over at the last stage of the distillation. Direct trials with pyren and paranaphthalin did not yield successful results. It must, therefore, be concluded that it is the green fluorescent oil to which the preserving action of coal tar must be attributed. "Is the same contained in sufficient quantities in the latter as to justify its employment for preservative properties?" I am inclined to answer this question in the negative, rather than in the affirmative sense. ADOLPH OTT.

New York City.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

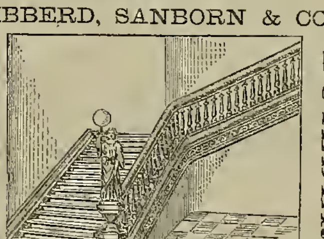
Traveling Agents.

WM. H. MURRAY, California and Nevada.
E. M. DEWEY—California.
S. H. HERRING—California.

Resident Agents.

CENTERVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
SACRAMENTO.—M. S. Senter.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—Thos. Starr.
CARSON CITY, Nev.—John G. Fox.
TREASURE CITY, Nev.—J. L. Robertson.
SHERMANTOWN, NEV.—P. C. Renfrew.
SILVER CITY AND IDAHO TER.—Sam. Heidelberger.
SILVER CITY, Idaho—J. Caples.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orahood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Barkalow & Brothers.
LONDON—George Street, 30 Cornhill, E. C.
HEDSON & MENET, 41 Park Row, New York.
A. C. KNOX, City Soliciting and Collecting Agent.

HIBBERD, SANBORN & CO.,



South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Metallurgy.

MOSHEIMER'S
Pioneer Mining School
—AND—
METALLURGIC WORKS.
ESTABLISHED........................1858.

Having established the first Practical Mining and Metallurgical School in the United States, I would call the attention of gentlemen who may wish to obtain a practical knowledge of

Chemistry, Assaying and Metallurgy,

That I am prepared to teach all the above branches in less time than in any European School.

I also undertake to work any kind of ore, or mineral substances.

Special attention I would call to all parties who have the so called rebellious ores, that I undertake the construction of any kind of Smelting, Chlorination, Amalgamating, Refining, or Manufacturing Works.

I refer not to single persons, but to all the works which I build in the States of Nevada and California, all of which are in successful operation.

For terms, apply to JOS. MOSHEIMER,
Practical Chemist and Metallurgist.
Office, 328 Montgomery street; Metallurgic Works, 2005 Powell street, San Francisco. 16v19-3m.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at

No. 36 FREMONT STREET,

And WORKS at H. J. BOOTH & CO'S FOUNDRY, northeast corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.

Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.

By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public.

☞ Mines Examined and Reports made.

REFERENCES.—William Bosworth, Thomas Varney, Egbert Judson, E. T. Steen, Wm. Bellshaw, P Reichling, W. O. Sleeper, J. L. N. Shepard, Norbert Landry.

CHAS. PLETZ & CO.

CHAS. PLETZ, Analytical Chemist.
FRED. MORRIS, Amalgamator and Millman. 25v19-3m

G. W. STRONG,
ASSAYER AND WORKER OF ORES,
No. 10 Stevenson street, near First, San Francisco.

Highest price paid for choice lots of Ores, Sulphurets, Assay Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14v15qr.

H. W. GRAY. J. ROSEBERRY. D. S. LOOMIS.
Ores of all Kinds Crushed and Sampled.
H. W. GRAY & CO.,
YOLO MILLS.
Corner Market and Beale Sts., San Francisco.
24v19-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.
24v18 1m

J. J. JONES,
CARPENTER and BUILDER,
No. 324 Jackson street, between Sansome and Battery,
Stores and Offices fitted up with neatness and dispatch.
7v18tf

W. C. CAMPBELL,
PATTERN AND MODEL MAKER,
No. 20 Fremont street, over Phœnix Iron Works, San Francisco.
Particular attention given to MODELS for the Patent Office
Brands and Pattern Letters Cut. 4v18mtf

GEO. A. DAY,
Pattern and Model Maker,
28 Fremont street, over City Foundry,
SAN FRANCISCO.
☞ Sole Agent and Manufacturer of STEBIN'S JIG SAWS, in THREE SIZES. Price, $90, $225 and $350. 13v19-1y

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

SCIENTIFIC PRESS.—To the miner, farmer and mechanic—the three great interests that form the base and ground-work of all our prosperity—this paper should be considered as almost indispensable. We wish the PRESS boundless success in the future.—*Placer Herald*.

Business Cards.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

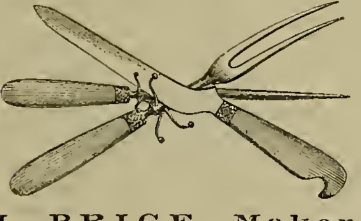
M. S. BUCKELEW. GEO. LAMB. R. GROOM.
BUCKELEW & CO.,
Importers and Jobbers of
Choice Teas, Groceries and Provisions.
520 Market street,
Below Montgomery street. 17v18-3m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent. and upwards 23v17qr

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM
PRINTING ESTABLISHMENT.
Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf



M. PRICE, Maker,
No. 415 KEARNY STREET,
BETWEEN PINE AND CALIFORNIA, SAN FRANCISCO.
20v19-3m

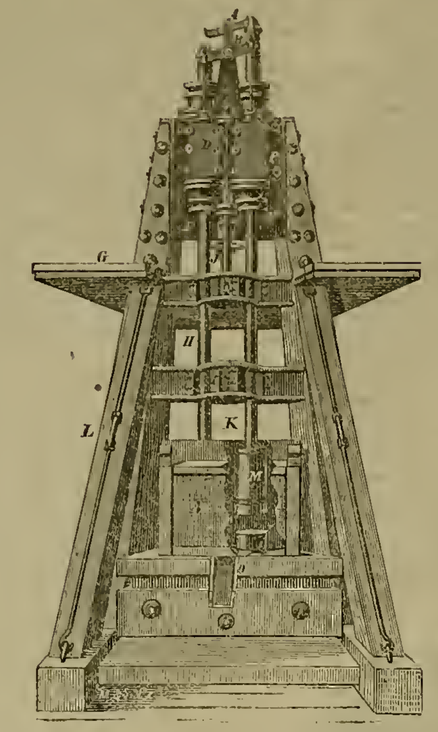
OCCIDENTAL
Insurance Company,
OF SAN FRANCISCO.

Cash Capital, - - - - - - -	**$300,000**

GOLD COIN.
Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.
CHR. CHRISTIANSEN, President
B ROTHSCHILD, Secretary 20v17-3m

TAYLOR'S IMPROVED
STEAM STAMP MILL.



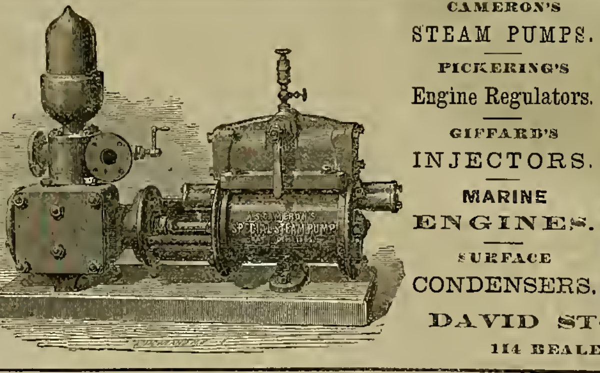
This Mill is driven by a direct application of steam to the stamps. It saves from fifty to seventy-five per cent. of the cost of the ordinary stamp battery, performing the same amount of work.

Cost of Mill with a capacity of 25 tons per day, $2,500.

THIS MILL IS LESS COMPLICATED
THAN ANY OTHER IN USE,

And, consequently, much less liable to get out of repair. See illustration and detailed description in the *Mining and Scientific Press* of October 30th, 1869. For further information, reference may be made to PRESCOTT, SCHIEDELL & Co., Marysville, or address

GEO. A. TAYLOR,
San Francisco, Cal.
19v19-1am3m



CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
MARINE
ENGINES.
SURFACE
CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

For Miners, Millmen and Metallurgists.

KUSTEL'S NEW WORK,
CONCENTRATION
Of all kinds of Ores, and the
CHLORINATION PROCESS,
For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price, - - - -	**$7.50**

A liberal discount to the Trade. For sale by the Booksellers Sent to any part of the United States, postage paid, on receipt of the price. Address,

DEWEY & CO., Publishers,
Office of the Mining and Scientific Press, 414 Clay street
1v16tf SAN FRANCISCO, 1868.

I. O. O. F.
THE NEW AGE,
A WEEKLY JOURNAL OF SIXTEEN PAGES.
The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

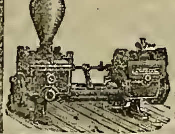
Gas Fixtures.

The Largest and most Modern Designs of GAS FIXTURES, including Parisian Patterns, Gold Gilt, are to be found at

335 Pine St., below Montgomery.
— ALSO —
Mantel Clocks, Statuettes and Portables,
Suitable for Holiday Presents,
All of which will be sold at greatly reduced prices till the 1st of January.
THOMAS DAY.

☞ Everything connected with Gas and Plumbing to be found as usual at
732 Montgomery Street. 25v19 1m

Blake's Patent. THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's



Patent Steam PUMP

It is SIMPLE, COMPACT and POWERFUL, needs no expert to run it, and will start at any point. Is warranted POSITIVE under all circumstances. Send for a circular.
BERRY & PLACE, 112 and 114 California st., San Francisco.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.
M. PRAG,
3v18 ly Stove Store, No. 1 Clay Street, below Davis.

Professional Cards.

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street. .... San Francisco
(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing, Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v15-1y

J. BALL,
DENTIST,
645 Clay Street, bet. Montgomery and Kearny,
SAN FRANCISCO. 20v19-1m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.
2v15-tqy

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

TRADE MARK.

New Almaden Vichy Water,
(CALIFORNIA VICHY WATER.)
FROM THE SPRINGS,
NEW ALMADEN,
Santa Clara County.

F. L. A. PIOCHE .... **Proprietor**
O. CHAUVIN .... **Agent.**

OFFICE, 506 JACKSON STREET,
GENERAL DEPOT:
Corner of Jackson and Montgomery streets.

This Mineral Water is especially useful and very powerful, not only in the course of certain diseases, but also as a preventive of intermittent fever, chronic rheumatism, gout, scrofula, general debility arising from disorder of the nervous system and circulation of the blood, and especially of the veinous circulation.

It is necessary to observe, in this connection, that, since the action of this water is very powerful, it must be used in cases of sickness WITH THE ADVICE OF A PHYSICIAN, for there are cases where a patient could not make use of it with impunity, at least in the beginning of a course of treatment(*). On the other hand, the composition of Vichy Water renders it highly efficacious as an adjuvant to the action of certain medicines which, without it could not be digested, and would therefore remain ineffectual. It is a fact that, for some diseases, the action of this Mineral Water cannot be efficacious without the use of certain medicines which the PHYSICIAN ONLY can properly prescribe. The omission of that precaution is the reason why many patients do not find in mineral waters in general all the relief they might otherwise derive from them.

California Vichy Water is used with success in many cases, such as—

Impoverishment of the Blood; Weakness of Nervous System; Chronic Inflammation of Liver, Stomach, Spleen, Spine, Womb, Intestines, Ovaries, and Inflammation generally, *when there is no fever:* Dyspepsia in all its stages; Loss of Appetite; Bad Digestion; Flatulency; Constant and Tenacious Vomiting; Weakness of certain Organs; the indispositions peculiar to Women; Frequent Uterine Hemorrhage; Hemorrhoides; Obstruction of Liver and Spleen; Night Sweats; Chronic Rheumatism, *when without fever;* Gout, *when the patient is still able to walk;* Gravel, and in cases of Diabetes, the New Almaden Vichy Water is a most powerful adjuvant to the remedies prescribed for this terrible disease.

(*) Besides its Medicinal qualities, this Mineral Water is a most agreeable beverage at meals, or at any time of the day, pure or mixed with Water, Beef Broth, Red Wine, White Wine, Champagne, Brandy, Milk, etc.

PRICE—12 Bottles, at the General Depot, $4. Returned Bottles Bought for Five Cents apiece

Twenty-four Half Bottles, $5. Returned Bottles Bought for 50 cents per dozen 25v18tf

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS
113 and 111 Beale St., San Francisco
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

Reading for the Hour.

Useful Properties of Water.

All substances are expanded by heat and contracted by cold. This is true of water, except within very narrow limits of temperature. Thus, when a kettle full of water is put on a stove, the water, being a very poor conductor of heat, can be heated only by having its different particles brought in contact with the source of heat, and this is accomplished in the following manner: The particles in contact with the hot bottom of the kettle expand, and thus becoming specifically lighter, rise, while their place is taken by colder particles, which are in turn heated and rise; and in this way a circulation is established, by which all the particles are brought in contact with the heated bottom of the kettle, until the whole mass is raised to the boiling point.

Again: if ice is put in water, the part in contact with it is cooled, rendered heavier and sinks, and a circulation is established as before, and the water cooled until it reaches a temperature of 40°. Here, however, a change takes place, for, by its peculiar constitution, water at 39° is lighter than water at 40°, and, therefore, remains at the top—and now the colder the water becomes, the lighter it grows, and although it may readily be frozen at the surface, yet, on account of its poor conducting power, it remains below at a temperature of 40°. And ice is lighter than water, and so floats on its surface, although most substances are heavier in a solid than in a liquid state.

This exception to the general rule is a wonderful provision of nature. Were it not for this, in winter ice would form at the bottom of a pond or lake, and the freezing would continue until the whole was changed into a solid frozen mass. Life then would be rendered impossible, and the denizens of the deep would no longer exist. In the summer the surface would melt to the depth of a few feet only. Again, the soil being more or less saturated with water, would be frozen many feet deep, and plants and trees could not live.

There is another quality of water of great use in preserving vegetable life in the winter. Water in all its conditions is a very bad conductor of heat, and especially bad is snow. Hence, a snow-covered soil cannot easily lose its heat, and its temperature does not fall much below the freezing point in the coldest weather. So when the winter sets in, nature covers with a warm frost-blanket the soil and tenderly protects the delicate plants.

THE Capitol hall at Sacramento seems to have passed off successfully in most respects. But as some people are always dissatisfied, so we find on this occasion a certain reporter, who has spoken in derogatory terms of the supper. The caterer rejoins, defending himself manfully, and asserting that the food was well worthy of the city and of the Legislature, calls upon the paper which publishes the report to be more particular not to print articles in this way, which may detract from the dignity of Sacramento and Sacramentans, and concludes with the insinuation that the above mentioned reporter was seen gliding from the place with a bottle of Clicquot under his arm. No more conclusive evidence of the excellence of the supper could be given than this last fact.

DOWNIEVILLE is evidently doomed. We have been expecting every moment to hear of its being swallowed, since we read the following telegram: "There was a *severe earthquake* at Downieville, to-day—the *severest ever experienced*. NO DAMAGE." When the place finally disappears, will the telegraph operator add the gentle sarcasm "no damage?"

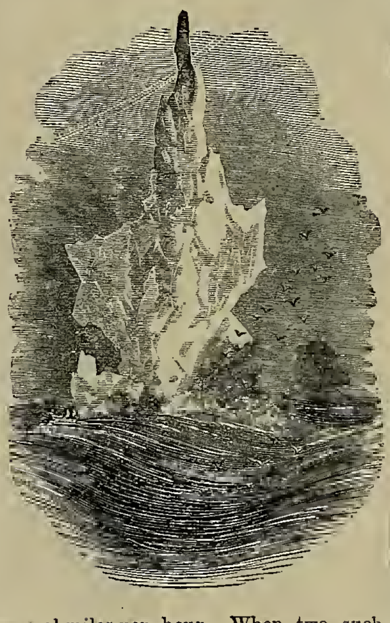
Ice-fields and Icebergs.*

In every part of the ocean the mariner has to guard against the perils of hidden shoals and sunken cliffs; but the high northern waters are doubly dangerous, for here, besides those rocks which are firmly rooted to the ground, there are others which, freely floating about, threaten to crush the vessel to pieces.

To these movable shoals various names are given. They are *icebergs* when they tower to a considerable height above the waters, and *ice-fields* when they have a vast horizontal extension. A *floe* is a detached portion of a field; *pack-ice*, a large area of floes closely driven together; and *drift-ice*, loose ice in motion, but not so firmly packed as to prevent a vessel from making her way through its yielding masses.

The large ice-fields which the whaler encounters in Baffins Bay or on the seas between Spitzbergen and Greenland, constitute one of the marvels of the deep. When they first descend from their northern strongholds, the ice of which they are composed is from ten to fifteen feet thick, and their surface is sometimes tolerably smooth, but generally covered with numberless ice-blocks, piled upon each other in wild confusion to a height of forty to fifty feet, the result of repeated collisions. Before the end of June they are covered with snow, which, melting, forms small ponds or lakes upon its surface.

Not seldom ice-fields are whirled about in rotary motion, which causes their circumference to gyrate with a velocity of several miles per hour. When two such fields come into collision, each weighing many millions of tons, imagination can hardly conceive a more appalling scene.



Icebergs are formed by pieces falling off from the glaciers of the northern highlands. They are often of huge dimensions. Dr. Hayes measured one, and calculated that its cubical contents were about 27,000 millions of feet, and its weight some 2,000 millions of tons. Capt. Ross mentions another 4,169 yards long, 3,689 broad, fifty-one feet high above water, which was aground in sixty-one fathoms; its weight was estimated at 1,292,397,674 tons.

In a high sea the waves beat against an iceberg as against a rock, and when there is a swell, the noise made by their rising and falling is tremendous. Their usual form is that of a high vertical wall gradually sloping down to the opposite side; but frequently they exhibit the most fantastic shapes.

The wonderful beauty of these crystal cliffs never appears to greater advantage than when clothed by the midnight sun with all the splendid colors of twilight. "The bergs," says Dr Hayes, describing one of these enchanting nights, "had wholly lost their chilly aspect, and glittering in the blaze of the brilliant heavens, seemed in the distance like masses of burnished metal or solid flame. Nearer at hand they were huge blocks of Parian marble, inlaid with mammoth gems of pearl and opal. One in particular exhibited the perfection of the grand. Its form was not unlike that of the Colosseum, and it lay so far away that half its height was buried beneath the line of blood-red waters. The sun, slowing rolling along the horizon, passed behind it, and it seemed as if the old Roman ruins had suddenly taken fire. In the shadow of the bergs the water was a rich green, and nothing could be more soft and tender, than the gradations of color, made by the sea shoaling on the sloping tongue of a berg close beside us. The tint increased in intensity where the ice overhung the water, and a deep cavern near by, exhibited the solid color of the malachite, mingled with the transparency of the emerald, while in strange contrast, a broad streak of cobalt blue ran diagonally through its body. The bewitching character of the scene was heightened by a thousand little cascades which leaped into the sea from these floating masses."

Though often dangerous neighbors, the icebergs occasionally prove useful auxiliaries to the mariner. From their greater bulk lying below water, they are not perceptibly influenced even by the strongest gale, and thus their broad masses not seldom afford protection to ships mooring under their lee.

---

* From "The Polar World: a Popular Description of Man and Nature in the Arctic and Antarctic Regions." By Dr. G. Hartwig. For sale by A. Roman & Co.

PROF. MARSH ON THE GIANT.—The Buffalo *Courier* gives a private letter from Prof. O. C. Marsh, who has made a careful examination of the Cardiff giant, and pronounces it not only a humbug, but of recent origin. We quote a few sentences: "The peculiar position of the body and limbs, which has occasioned so much remark, was determined, in a great measure, by the form of the block of stone, which was water-worn, on at least three of its sides, before the sculptor began his work. These rough water-worn surfaces were not entirely removed in cutting. Portions of them still remain on the sides of the head and on the limbs and feet, and have erroneously been regarded as indicating for the work a high antiquity. The tool marks are still very distinct on different parts of the statue, especially where they have not been obliterated by the imperfect polishing which evidently completed the work. In several places they are surrounded by the water-worn surfaces, and therefore are of subsequent formation. Now, as gypsum is soluble in about 400 parts of water, a very short exposure of the statue in the locality at Cardiff would suffice to liberate all traces of tool marks, and also to roughen the polished surfaces; but these are quite perfect, and hence the giant must have been very recently buried where discovered."

SOUND FIGURES.—What are determined sound figures may be produced in various ways. One is, to fix a plate of glass at its center with Burgundy pitch to an upright support on a stand, then to dust the plate with fine dry sand or other suitable powder, such as lycopodium. Now if the plate be made to vibrate by drawing over its edge a violin bow, the dust will in time arrange itself into certain figures. The same effect may be produced by tying over a broad-mouthed glass or goblet a bladder that has been moistened and allowed to dry to a drum-like surface, dusting it with lycopodium or very fine sand, and then placing it upon a piano. Certain lines are visible after the instrument has been played upon, particularly when one chord only has been struck. The blowing of a cornet, using one key, or the tuning of one note of any instrument, near the stretched membrane, will cause it to vibrate, and the dust to arrange itself into form. Thus by due study of the dust lines we may see what sound has been.

YOU think you know all about *walking*, don't you, now? Well, how do you suppose your lower limbs are held to your body? They are sucked up by two cupping vessels, and held there as long as you live and longer. At any rate, you think you move them backward and forward at such a rate as your will determines, don't you? On the contrary, they swing, just as any other pendulums swing, at a fixed rate, determined by their length. You can alter this by muscular power, as you can take hold of the pendulum of a clock and make it move faster or slower; but your ordinary gait is timed by the same mechanism as the movements of the solar system.
—*O. W. Holmes.*

THE SPANISH THRONE has considerable difficulty in finding an occupant. The Archduke Victor of Austria respectfully declines trying to fill it, and the mother and the uncle of the young Duke of Genoa are unwilling that this youth should assume the responsible position. Being King doesn't seem so pleasant a business now as formerly. In case that they are eventually unsuccessful in Europe, the Spanish monarchists have still our Duke Gwin, or Emperor Norton, to fall back upon.

The Mortgage Tax Question.

[Written for the Scientific Press.]

The Constitution of California provides that taxation shall be equal, and the Legislature of the State, in providing for revenue, declares what shall be assessed for taxation. Every description of property, real and personal, including real estate improved and unimproved, merchandise, furniture, debts due, stock in public companies, money on hand and on deposit, money loaned on bond, *mortgage*, etc., etc., is declared assessable.

The justice of taxing mortgages has for years been disputed, and more time has been wasted by our law-makers over this vexed question than has been paid for by the party who seek to evade that wise provision of the Constitution—that taxation shall be equal. All this waste of time might have been avoided, and the tax collected without grumbling, but for simple "tautology" in the law. Real estate is assessed, whether mortgaged or not, and the assessment paid by the owner; but the assessment is generally below its cash value, the percentage varying with the capricious whim of the Assessor or the necessities of the county.

What distinction is there between "debts due" and money loaned, whether on mortgage or any other security? There is a wide distinction in favor of the money-lender, who has security and obtains interest; neither of which the merchant or trader, as a general rule, obtains for "debts due." If money on hand and money on deposit are taxed, why should money loaned upon any kind of security escape?

Whether merchandise, debts, money on hand or loaned, should be assessed at their full value, while real estate is assessed below and frequently at only a fraction of its value, is a question for the consideration of our law makers; but that forty or fifty, and perhaps a hundred millions of money, loaned on mortgage by savings and other moneyed institutions, as well as by individuals, should escape taxation, may be questioned. Expunge the word "mortgage" from the law, and retain "money loaned and money on hand;" then enforce the law, and when a man is in doubt as to what he has, raise his assessment until that doubt is removed. Taxation may then become more equal than it ever has been.

Every man should be assessed according to the value of his property, whether that property be real or personal. Money employed by the money-lender should not escape the burden any more than money employed in mercantile or other business. Every departure from these rules is in contravention of the spirit of the Constitution of the State. M.

AN English traveler in California, who stopped at Clark's ranch, near the Yosemite, thus describes the proprietor: "To look at him, with his rough dress, rougher beard and trousers, stuck, western fashion, into his boots, you might carelessly put him down for a coarse, tobacco-chewing, swearing son of the forest. But take a flower or a fir cone in your hand and ask him what it is. He will give you at once its Latin name in soft measured speech, and with courteous rejoinder. He had a few books in the window of the ranch. I laid my hand at once on Goethe's Faust and Robertson's Sermons. Again and again we met with combinations of contrasts of character in the same individual which, I think, could hardly be found in the Old World."

HARD TO SUIT.—The people of Lima and Callao, who shook in their boots when Prof. Falb foretold the earthquake to take place in October last, are now furious because it did not come off. Sixty thousand of them moved out of their comfortable homes and lived, for safety's sake, in tents outside of the city. They broke half their crockery in moving, were robbed of most of their jewelry by the thieves who were busy during the confusion, and got fever and ague besides. In order to get even, they have burned Prof. Falb in effigy.

NOVA SCOTIA AND OHIO GRINDSTONES.—The "Acadians" take advantage of the extraordinary high tides of the Bay of Fundy, to work its quarries. At low water a huge mass of stone is loosened from its bed and a heavy chain is passed under it and over a large boat, which is placed alongside. As the tide rises, the stone, attached to the bottom of the boat, is floated into a sand cove at high water, and made into grindstones after the tide recedes. This is done with mallet and chisel, the rough parts being first chopped off with a heavy ax. Machinery has been recently introduced, and the small grindstones are now turned in a lathe by steam power. Nearly all the Ohio grindstones are made by machinery driven by steam power. The blocks of stones being loosened from the quarry bed are roughly hewn out, with a square hole in the center. This is placed on a heavy square iron shaft furnished with a 9-inch collar, against which the stone is securely fastened by means of another collar keyed against the side of the stone. The shaft and stone being driven by steam power, two men on opposite sides of the stone turn it off perfectly true, by means of soft iron bars about 6 feet long, and 2 by ¼-inch thick, drawn out to a thin point, which is curved upwards.—*Cor. Scientific American.*

◆

BOOK ON EARTHQUAKES.—A Treatise on Earthquake Dangers, Causes and Palliatives, by Prof. Thomas Rowlandson, comprising Earthquake Dynamics; Earthquake Waves, Sound that attends Shocks, Lime, Mortar, etc., Cosmogony and Seismogony, Phenomena of the Neapolitan Earthquake of 1857, and General Observations respecting Structural Arrangements. Published by Dewey & Co., Mining and Scientific Press Office, San Francisco, 1869, containing 96 pages. Price 50 cents, postage free.

AN ARTICLE OF TRUE MERIT.—"*Brown's Bronchial Troches*" are the most popular article in this country or Europe for Throat Diseases and Coughs, and this popularity is based on real merit, which cannot be said of many other preparations in the market which are really but weak imitations of the genuine Troches.

Pain Killer,

No article ever attained such unbounded popularity.—*Salem Observer.*

An article of great merit and virtue.—*Cin. Nonpareil*

We can bear testimony to the efficacy of the Pain Killer. We have seen its magic effects in soothing the severest pain, and know it to be a good article.—*Cincinnati Dispatch;*

A speedy cure for pain—no family should be without it.—*Montreal Transcript.*

Nothing has yet surpassed the Pain Killer, which is the most valuable family medicine now in use.—*Tenn. Organ.*

It has real merit; as a means of removing pain, no medicine has acquired a reputation equal to Perry Davis' Pain Killer.—*Newport (Ky.) Daily News.*

It is really a valuable medicine—it is used by many physicians.—*Boston Traveller.*

REDINGTON & CO. and HOSTETTER & SMITH, San Francisco, General Wholesale Agents. jal

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the MINING AND SCIENTIFIC PRESS, have just issued a neat little volume of over five hundred well executed wood cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the M. & S. PRESS office, postpaid, for $1.—*New Age.*

Use Pain Killer for Cholera and Bowel Complaints, for Boils, Cuts, Bruises and Scalds, Old Sores, Sprains, Swelling of the Joints, Toothache, Pain in the Face, Neuralgia and Rheumatism, Frosted Feet, Felons,

Sore Throat,

Sudden Colds,

Coughs, Etc.

Use it for any of these, and you will never do without it. Its success as a valuable family medicine has induced others to imitate and counterfeit the Pain Killer to some extent. *Beware of Counterfeits!*

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful Institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block San Francisco. 24v18-4w

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. HOWLAND.

B. P.—C. Muller, 205 Montgomery street, has a fine assortment of Brazilian Pebble Spectacle, to suit all eyes and ages. *

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

RETURNED.—Dr. J. H. Paine, Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

SEND FORMER ADDRESS when you wish your paper directed to a new place.

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

TREATMENT OF REBELLIOUS SILVER ORES, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Mining Notices--Continued.

Arctic Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of September, 1869, an assessment of three dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, or to S. Wenban, at Cortez.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.
Office, 426 Montgomery street, San Francisco. dec18

Cassell Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of December, 1869, an assessment of three dollars aer share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, or to S. Wenban, at Cortez.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.
Office, 426 Montgomery street, San Francisco. dec18

Glenwood Mill and Mining Co., Greenwood, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth day of December, 1869, an assessment of twenty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, 418 California street.

Any stock upon which said assessment shall remain unpaid on the tenth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the first day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.
Office, No. 418 California street, San Francisco. dec18

Idaho Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day December, 1869, an assessment of three dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to S. Wenban, at Cortez.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Tuesday, the eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.
Office, 426 Montgomery street, San Francisco. dec18

Kincaid Flat Mining Company, Tuolumne County, California

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of December, 1869, an assessment of two dollars and fifty cents ($2.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twelfth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the twenty-ninth day of January, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, 220 Clay street, San Francisco, Cal. dec11

Latawana Mining Company.---Location: Hamilton City, White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees, held on the twenty-second day of December, 1869, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, or at 526 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the nineteenth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.
Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. dec18

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, State of California.

NOTICE.—There are delinquent on the following described stock, on account of assessment levied on the twelfth day of November, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A D Moore	28	40	$200 00
I W Raymond	32	40	200 00
I L Requa	31	40	200 00

And in accordance with law and an order of the Board of Trustees, made on the twelfth day of November 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the salesroom of John Middleton & Son, auctioneers, No. 310 Montgomery street, San Francisco, Cal., on Wednesday, the twelfth day of January, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. A. JENNINGS, Secretary.
Office, 419 California street. San Francisco. dec25

Pilot Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of November, 1869, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room No. 7, 428 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Monday, the third day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the eighteenth day of January, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. M. HARRON, Secretary.
Office, Room No. 7, 428 California street, San Francisco, California. no27

Silver Star Consolidated Silver Mining Company, White Pine District, Nevada.

NOTICE.—There are delinquent, upon the following described stock, on account of assessment levied on the second day of November, 1869, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J M Gridley	59	740	$111 00
J R Patridge	13, 14, 17, 18 20—10 ea.	50	7 50
W P Raymond	7	50	7 50

And in accordance with law, and an order of the Board of Trustees, made on the second day of November, 1869, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, 37 New Merchants' Exchange, California street, on Monday, the third day of January, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.
Office, 37 New Merchants' Exchange, California street, San Francisco. dec18

Taylor Mill and Mining Company.—Location of Works: Georgetown District, El Dorado Co., State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the sixteenth day of November, 1869, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
T B Bishop	17	500	$150 00
S S Murfey	18	500	150 00
S S Murfey	19	1000	bal. 100 00

And in accordance with law and an order of the Board of Trustees, made on the sixteenth day of November, 1869, so many shares of each parcel of said stock as may be necessary will be sold at the auction house of John Middleton & Son, No. 310 Montgomery street, San Francisco, Cal., on Monday, the tenth day of January, 1870, at the hour of 12:30 P. M. of that day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

SAM'L S. MURFEY, Secretary.
Office, No. 520 Montgomery street, over Sather & Co's Bank, San Francisco, Cal. dec25

Yosemite Mining Company, Oro Fino District, Humboldt County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of December, 1869, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco, or to J. T. MACLEAN, Superintendent, at the mine.

Any stock upon which said assessment shall remain unpaid on the nineteenth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fifth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary pro tem.
Office, 220 Clay street, San Francisco, Cal. dec18

To Mining Secretaries:

You will please take notice that the copy for advertisements in the SCIENTIFIC PRESS must be handed in as early as *Thursday* evening. Our paper is published on Saturday, but the last form goes to press early on Friday, in order to afford time for sending out our large edition.

Respectfully,
DEWEY & CO.,
Publishers Scientific Press, 414 Clay street.
San Francisco, Dec. 20, 1869.

N. B.—Companies that insert advertising in our mining journal, where such notices appropriately appear, economize ONE-HALF THE COST of daily publication. Attention given to inserting notices correctly and legally. Blanks for filling out notices furnished free to advertisers.

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

New Advertisements.

OSCAR LEWIS. J. H. CULVER.

LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.

Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

SAN FRANCISCO
Gold and Silver Plating Works.

ATTENTION. Quartz Mill Men,
MINERS,
HOTEL KEEPERS,
—AND—
OTHERS. ATTENTION.

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. OLD GOODS of all kinds re-plated for hotels, restaurants, etc.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery, San Francisco.

☞ All work done at the lowest prices. 1v20-3m

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods CHEAPLY, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

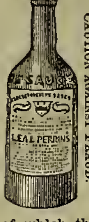
The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent. off to the trade. Address,

HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

LEA & PERRINS'
CELEBRATED
Worcestershire Sauce.



CAUTION AGAINST FRAUD.

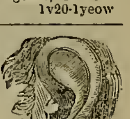
Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c.; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

EYE
AND
EAR

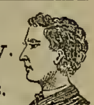


DISEASES.

DR. ABORN'S
CONSULTING AND OPERATING APARTMENTS,
NO. 22 KEARNY STREET,

For the most modern and scientific treatment of the diseases of the EYE, EAR, HEAD, THROAT and LUNGS.
18v19-3m

WONDERFUL
Scientific Discovery.
THE GREATEST EVER MADE.



Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

NO EXAGGERATION, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, JOHN STAPLETON,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.
21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.
2v17-3m **T. G. DURNING & CO**

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

J. P. GALLAGHER. J. H. WEED V. KINGWELL.
9v13-1y

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS,
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of Housesmith work, Bridge, Prison

FORGING AND MACHINE WORK,

IMPROVED FIRE-PROOF SAFES,

FIRE AND BURGLAR-PROOF SAFES

Of a superior make. Sole manufacturer of the celebrated

MONITOR SAFE.

BANK VAULTS AND SAFES,

Of every description, made to order at short notice. A large stock of SAFES of all kinds constantly on hand. Agency for the ISHAM KEY REGISTER BANK AND SAFE LOCK, the only first class Lock in the United States
1v17tf

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco.
10v14qr

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v11 SACRAMENTO CITY]

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates, Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED..............................APRIL 30, 1868.
CAPITAL..............................$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, James Pollock,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

JOHN N. RISDON..............................President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..............................Secretary.
21v17-qy

HUGH H. LAMONT. WM. CALDWELL.

CYCLOPS MACHINE WORKS,

Construct and Repair every description of

Stationary and Marine Engines, Mill and Mining Machinery.

Special attention given to Repairing Machinery.

ap17-3m **113** Beale street, near Mission, S. F.

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

NEW FILES OF EVERY DESCRIPTION
ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.
REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended to. 9v19 qy

---

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

FOUNDRY FACINGS.

BENJAMIN ELLIOT,

No. **483** Brannan street..............................San Francisco,

Manufactures Foundry Facings constantly, from choice coals. Bituminous, packed in tight sacks. Anthracite and Charcoal ground together or separate, packed in barrels Black Lead, Coke and Soapstone ground to order. ☞ Foundrymen located far from choice material, can rely on having superior Facings forwarded to order.
10v18qr

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

☞ All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

---

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT.

UNION IRON WORKS,

CORNER FIRST AND MISSION STREETS,

SAN FRANCISCO.

MANUFACTURE

ALL KINDS OF MACHINERY

MARINE, LOCOMOTIVE,

And Stationary Engines,

Booker Patent Locomotive Stack,

ARMSTRONG PATENT

Heater, Condenser and Filter, Combined.

BOILERS, HIGH AND LOW PRESSURE,

Pump, Pipe and Sheet Iron Work of all kinds; Quartz Crushing and Amalgamating Machinery, including High and Low Mortar for wet or dry crushing; Furnaces for roasting ores; Horn. Wheeler's, Patton's, and Belding's Amalgamating Pans and Settlers; Hendy's Concentrator; Hungerford's Concentrator; Hunt's Grinder; Blake's Crushers; Stamp Shoes and Dies of the best white iron; Russia Iron Screens, etc.; Flour Mill and Saw Mill Machinery in every variety; Hendy, Gang, Saw Mill, Pumping and Hoisting Machinery; Excelsior Force Pump, for domestic, ship and mining use—the simplest and best in use; Iron and Brass Castings of every description; Steamboat Repairs; Boiler Making executed with despatch. Steam Engines and Boilers constantly on hand and for sale.

We would call particular attention to our

SCOTT & ECKART CUT-OFF ENGINE.

As a simple, effective, fuel-saving, first-class Engine, it has no equal. We have twenty-five of our Cut-Offs at works on this coast, every one of which gives entire satisfaction. We refer with pleasure to the report of the Committee on Engines at the Sixth Industrial Fair, which we annex. They say:

"*Horizontal Steam Engine of the Union Iron Works.*—This Engine is 16 inches diameter of cylinder, 3-foot stroke of piston, and is provided with Scott & Eckart's Patent Variable Expansion Valve. It is very substantially built, well proportioned, and capable of doing severe duty. This Engine was used every third day to drive the machinery of the Exhibition, *working very smoothly and steadily under all circumstances, and with great economy.* The friction brake was applied to this engine; but owing to the fact that the belt which had been provided for merely driving the machinery of the Exhibition was not of a suitable size to transmit the full power of the engine, the test was not applied above 30-horse power; *and up to this point the power was developed with the greatest possible economy in the expenditure of steam.* In speaking of the performance of this engine, the variable expansion valves of Messrs. Scott & Eckart deserve special mention of the ingenuity displayed in the arrangement of the valves and in the attachment of the same to the governor, whereby the position of the slides is changed so quickly to accommodate any change of load upon the engine *that the correct speed of the engine is maintained with* WONDERFUL UNIFORMITY *under all circumstances.* This engine will work 50 or 60 horse power with ease and economy. Awarded silver medal. Wm. Burnett, Mont'y Fletcher, John Myers."

Pickering Governors, Machinists' Lathes,

Plainers, Shapers, Drills, Etc.

On hand and for sale, Drawings furnished free of cost. Orders promptly attended to. A complete stock of fittings on hand.

☞ We are prepared to furnish all kinds of Machinery at short notice, as our facilities are unequalled on the Pacific Coast.

H. J. BOOTH & CO.

SAN FRANCISCO
Pioneer Screen Works.

JOHN W. QUICK,

203 Fremont street, near Howard, San Francisco.

Screen Punching of all kinds and qualities for Quartz. Cement, Flour and Rice Mills, at greatly reduced rates.

ORDERS SOLICITED AND PROMPTLY ATTENDED TO.

I would call special attention to my slot cut and slot punched Screens which are attracting much attention and giving universal satisfaction, both as regards their efficiency and durability. This is the only establishment on the coast devoted entirely to the manufacture of Screens. It has furnished screens for the principal mills and firms on the coast for many years. 10v19tf

---

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.
21v17-qy **J. WEICHHART, Proprietor.**

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

California Steam Navigation COMPANY,

Steamer CAPITAL..............................CAPT. E. A. POOLE
" CHRYSOPOLIS..............................CAPT. A. FOSTER.
" YOSEMITE..............................——
" CORNELIA..............................CAPT. W. BROMLEY
" JULIA..............................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE,
President
13v12

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,
26v19-3m 611 and 613 Front street.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf **414 Front street,** San Francisco.

The Perfection of Prepared Cocoa.

MARAVILLA COCOA.

Sole Proprietors—TAYLOR BROTHERS, London.

The Cocoa (or Cacao) of Maravilla is the true Theobroma of Linnæus. Cocoa is indigenous to South America, of which Maravilla is a favored portion. TAYLOR BROTHERS having secured the exclusive supply of this unrivalled Cocoa have, by the skillful application of their soluble principle and elaborate machinery, produced what is so undeniably the perfection of Prepared Cocoa, that it has not only secured the preference of homœopaths and cocoa-drinkers generally, but many who had hitherto not found any preparation to suit them, have, after one trial, adopted the Maravilla Cocoa as their constant beverage for breakfast, luncheon, etc.

"A SUCCESS UNPRECEDENTED."

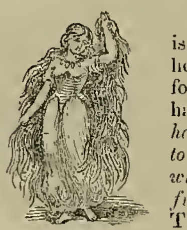
[See following extract from the Globe of May 14, 1868.]

"Various importers and manufacturers have attempted to attain a perfection for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage."

Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills, Brick Lane, London.
8v19 6m

Ayer's
Hair Vigor,

For restoring Gray Hair to its natural Vitality and Color.



A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a

HAIR DRESSING,

nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.

Prepared by Dr. J. C. Ayer & Co.,

PRACTICAL AND ANALYTICAL CHEMISTS,

LOWELL, MASS.

PRICE $1.00.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 25v18eow4m

San Francisco Metal Market

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

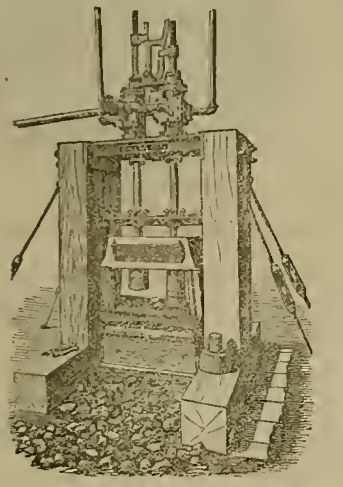
Friday, December 31, 1869

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ₰ 100 lbs; Bar, 1@1¼c ₰ lb; Sheet, polished, 3c ₰ lb; common 1¼@1¾c ₰ lb; Plate, 1½c ₰ lb; Pipe, 1½c ₰ lb; Galvanized, 2⅛c ₰ lb.			
Scotch and English Pig Iron ₰ ton	$31 50	@	32 50
White Pig ₰ ton	30 00	@	— —
Refined Bar, bad assortment ₰ lb	— 03	@	— —
Refined Bar, good assortment, ₰ lb	— 04	@	— —
Boiler, No 1 to 4	— 04¾	@	— —
Plate, No. 5 to 9	— —	@	— 04½
Sheet, No. 10 to 13	— 04¾	@	— 5
Sheet, No. 14 to 20	— 05	@	— 5½
Sheet, No. 21 to 27	— 05	@	— 6½
Copper—Duty: Sheathing, 3½c ₰ lb; Pig and Bar, 2½c ₰ lb			
Sheathing, ₰ lb	— —	@	— 26
Sheathing, Yellow	— 20	@	— 21
Sheathing, Old Yellow	— 10	@	— 11
Composition Nails	— 21	@	— 22
Composition Bolts	— 21	@	— 22
Tin Plates—Duty: 25 ₰ cent. ad valorem.			
Plates, Charcoal, IX, ₰ box	12 00	@	— —
Plates, I C Charcoal	10 00	@	10 50
Roofing Plates	10 00	@	10 50
Banca Tin, Slabs, ₰ lb	— 40	@	— 42½
Steel—English Cast Steel, ₰ lb	— —	@	— 15
Quicksilver—₰ lb	— 55	@	— 60
Lead—Pig ₰ lb	7½	@	— 8
Sheet	— 10	@	— —
Pipe	— 11	@	— —
Bar	— 9	@	— 9
Zinc—Sheets, ₰ lb	— 10½	@	— 11
Borax—California, ₰ lb	— 38	@	— 40

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELL, Agent,
Nevada City, California,

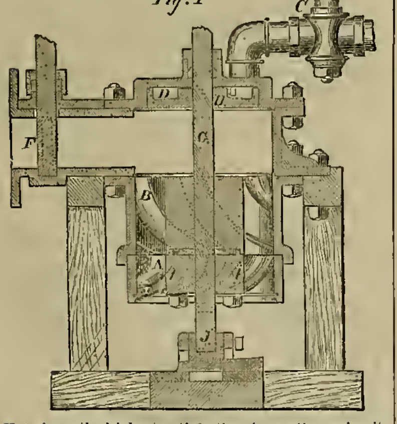
Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

Lind's Improved Water Wheel

Fig. 1



Has given the highest satisfaction to parties using it. We are now prepared to sell it at reduced prices. Will also contract for all kinds of Machinery—Flour, Saw and Quartz Mill. All our work guaranteed. We will send competent men to put up our Wheels and Machinery. We contract for or do it ourselves. Our extensive acquaintance with millwrights on this coast enables us to furnish millmen with the best of workmen at short notice. Drawings for contracts furnished gratis. Send for circular.

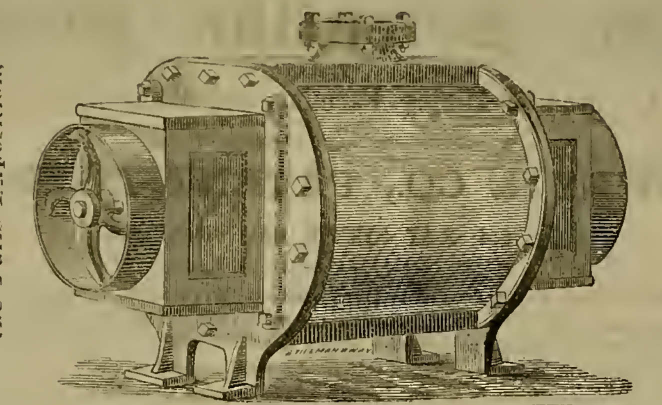
A. LIND, Millwright,
Pacific Iron Works, San Francisco.
Refer to John Sime and .J. Haley. 15v19

ROOT'S PATENT FORCE BLAST ROTARY BLOWER

MANUFACTURED BY KEEP & BARGION,

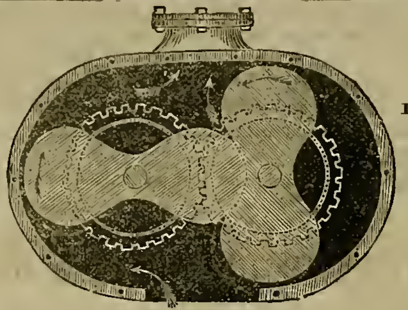
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition,



Patented Nov. 1st, 1864; July 21, 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

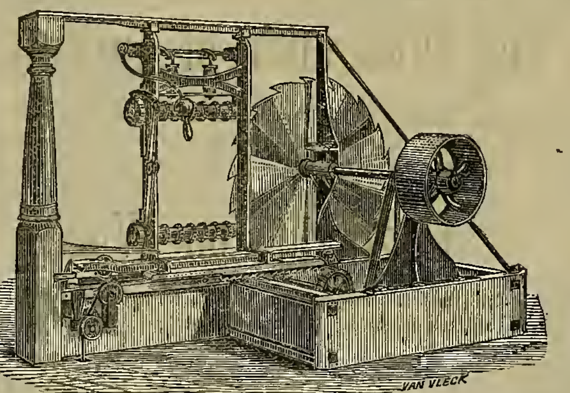
Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m Globe Iron Works, Stockton, Cal.

HUNTINGTON'S IMPROVED SHINGLE MACHINES.



SHINGLE MAHINES CONSTANTLY ON HAND.

Steam Engines, Saw Mills, Lath and Picket Machinery, and Flax-Breaks MADE TO ORDER.

F. A. HUNTINGTON, Manufacturer,
8v18-3m1am 17 and 19 Fremont Street, San Francisco.

Rails, Newel Posts,

AND BALUSTERS,

Constantly on hand for sale, and shipped, together with all kinds of

STAIR WORK,

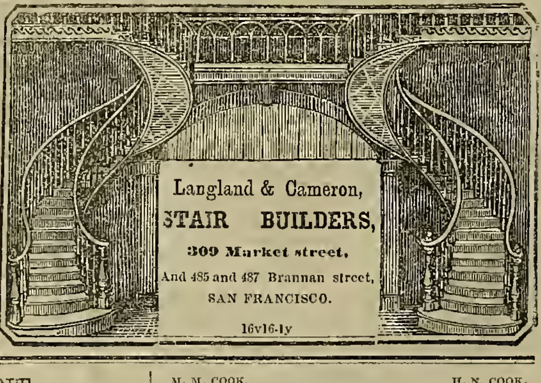
To any part of the coast. Practical workmen sent, when desired, to put up the same.

Work Warranted to Fit

by simply sending a correct ground plan of stairs, together with hight of story.

Wood-Turning and Scroll Sawing of all kinds promptly executed.

Spanish Cedar, Walnut and California Laurel always on hand for sale.



Langland & Cameron,
STAIR BUILDERS,
309 Market street,
And 485 and 487 Brannan street,
SAN FRANCISCO.
16v16-1y

THE GIANT

POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 25v19

M. M. COOK. H. N. COOK.

M. M. COOK & SON,

MANUFACTURERS OF

LEATHER HOSE,

Belting, and Horse Collars,

801 Battery street, Corner Broadway,
SAN FRANCISCO.

Belt Leather for sale. 26v19-3m

VARNEY'S

PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

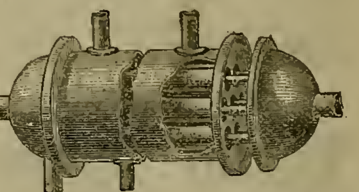
The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,
1v1 San Francisco.

CROSS' COMBINED

Heater & Sediment Collector



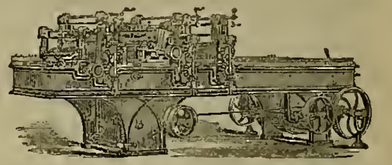
This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

Woodworth Planers,



PLANERS AND MATCHERS,

With patent expansion, feed gear and other improvements made at Worcester, Mass., in the most finished and substantial manner; also every description of Richardson Meriam & Co's, Smith's and Wood's celebrated

Wood Working Machinery.

Embracing Mortising, Sash and Moulding, Smith's Stickers, Slat and Door Tenoning, Boring, Shaping, Scroll Sawing, Planing, Rod and Dowell making and Re-sawing Machines, Wood and Engine Lathes, etc., for sale at Eastern prices, at the Machinery Depot of

BERRY & PLACE,
112 and **114** California st., San Francisco.

Agents for Blake's Patent Steam Pump, (warranted the best in the market); Davis & Furber's Woolen Machinery, etc. Being the selling agents for most first class Eastern builders, millmen and others in want of Machinery can save money by giving us a call. Illustrated Catalogues sent free.

SPECIAL NOTICE.

TO DEALERS AND CONSUMERS

—OF THE—

H & L

AXLE GREASE.

Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possible meet the market of our Chicago friends, we have made a great reduction in prices, and from our long experience we will satisfy you that there is none BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,
144 Natoma Street.

Depot, 320 Jackson Street.

N. B.—We are prepared to furnish Bulk Packages to contractors on equally liberal terms.

International Hotel,

JACKSON STREET,
BETWEEN MONTGOMERY AND KEARNY STS.,
SAN FRANCISCO, CAL.

This old established house is in perfect order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.

Prices varying from $1 50 to $2 per day for Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House FREE OF CHARGE, and to any part of the city for **50** cents.

21v12 F. E. WEYGANT, Proprietor.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

To Advertisers.

After January 1st, 1870, the latest hour for receiving mining and other advertisements for the M. AND S. PRESS will be during Thursday evening, as our paper will be printed for the interior mails on Friday morning.

LOST.

Two shares Stock MECHANICS' MILL AND MANUFACTURING CO., No, 25; paid February 3, 1868. The finder will be suitably rewarded by leaving them with the owner,

T. HANDSBURG,
23v19-3m Office Mechanics' M. & M. Co.

WANTED.

A situation in a Quartz Mill to do Millwright and Carpenter work. Address, B, C. B., Fisherman's Bay, Sonoma County.

18v19-1m

DEWEY & Co.

American and Foreign

Patent Agents.

No. 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.

CIRCULARS FREE.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

MAGAZINES.	Per An.
Harpers............	$ 4 00
Atlantic...........	
Godey..............	
New York Ledger.	
Blackwood.........	
Hours at Home....	
Good Words........	
Peterson's..........	3 0
Arthur..............	
Lady's Friend......	
Harper's Weekly..	5 0
Chimney Corner...	
Literary Album...	
London Society....	6 0
All the Year Round	
London Ill. News..	15 0

W. E. LOOMIS,
News Dealer
AND STATIONER,
Southeast corner Sansome and Washington streets,
SUPPLIES ALL
EASTERN
PERIODICALS
By the Year, Month or Number

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and &c.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.
☞ The highest price paid for Scrap Iron 9v143m9p

MANUFACTURING
Room to Let.

We have a large room, about 18 by 36 feet, in second story at 414 Clay street, near Sansome, which we will rent very low, suitable for printing or manufacturing purposes

DEWEY & CO.,
Publishers Scientific Press. 414 Clay street.

GEO. E. ROGERS,

(Successor to G. W. Bell.)

ASSAYER,
512 California st., San Francisco.
J. A. MARS, Assayor.
Ores carefully Assayed. Gold and Silver Ores worked
23v16-qr10pnr

SCIENTIFIC PRESS.—This paper is one of the most valuable published on the Pacific coast for miners, mechanics and farmers. It contains each week illustrations of new machinery, descriptions of new inventions and discoveries, information of scientific developments and mechanical progress, with valuable articles in relation to agricultural and farming interests. All claims of patents issued to inventors on this coast are published in this paper. We can recommend it to our citizens and hope Mr. Murray may meet with success in obtaining subscribers among them.—*Sonora Democrat*

A First-Class Illustrated Newspaper for the Pacific States. Annual Subscription Reduced to $4, January 1, 1870.

The Scientific Press,

A Journal of Mining, Farming, and Mechanic Arts.

PUBLISHED EVERY SATURDAY BY

DEWEY & CO., PATENT AGENTS,

No. 414 CLAY STREET, SAN FRANCISCO.

THE SCIENTIFIC PRESS, devoted to SCIENTIFIC AND MECHANICAL PROGRESS, MINING, FARMING AND MECHANIC ARTS, contains more VALUABLE READING MATTER than any other weekly journal west of the Rocky Mountains. It is the best printed and only finely-illustrated paper on the Coast. Its articles are able, timely, and reliable, and written in a more interesting and easily comprehensive style than scientific papers in general. Now in its twentieth volume, it is printed on superior paper, containing sixteen pages, equal in size to the first-class journals of the Atlantic States and Europe. All our better citizens have an active interest in the new discoveries and in the development and progress of the three great industrial pursuits named above, which are closely allied on this coast and jointly represented in the PRESS, rendering the paper a popular and influential journal with all industrial readers. Subscription reduced to $4 a year Jan. 1, 1870.

The PRESS is the most valuable and best patronized weekly advertising medium in the Pacific States.

To Inventors on the Pacific Coast.

Our U. S. and Foreign PATENT AGENCY presents many and important advantages as a Home Agency over all others, by reason of long establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or description in the SCIENTIFIC PRESS. We transact every branch of patent business, and obtain patents in ALL CIVILIZED COUNTRIES.

The large majority of United States and Foreign Patents granted to inventors on the Pacific Coast during the past few years have been obtained through our Agency. Established in 1860, we have an extensive patent library, with full record of cases on this coast, with complete U. S. reports, and can give the best and most reliable advice as to the patentability of new inventions. Advice and illustrated circulars free. Our prices are now as favorable as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior.

The Illustration of Inventions

In the SCIENTIFIC PRESS is a high recommendation for them, and is the best and cheapest method of bringing them to the notice of the public in a proper manner, besides being the most effectual method of selling valuable patent rights and patented articles.

Engraving on Wood

Of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also engraving on metals.

DEWEY & CO.,
Publishers and Patent Agents, 414 Clay street, San Francisco.

STEEN & CUSHING,

AGENTS FOR THE
PURCHASE AND SALE
—OF—
Patent Rights, Engines, Boilers,
—AND—
MACHINERY OF ALL KINDS.
NO. 9 FIRST STREET, SAN FRANCISCO.

WE HAVE ON HAND IN GREAT VARIETY,

Engines and Boilers,
Steam and Hand Pumps,
Pipe,
Presses,
Shafting,
Pulleys,
Boxes,
Mill Stones,
Portable Mills,
Malt Rolls,
Injectors,
Lathes and Planers,
Governors,
Steam Gauges,
Quicksilver,
Gas Stocks and Dies,
Belting,
Water-tanks, etc.,

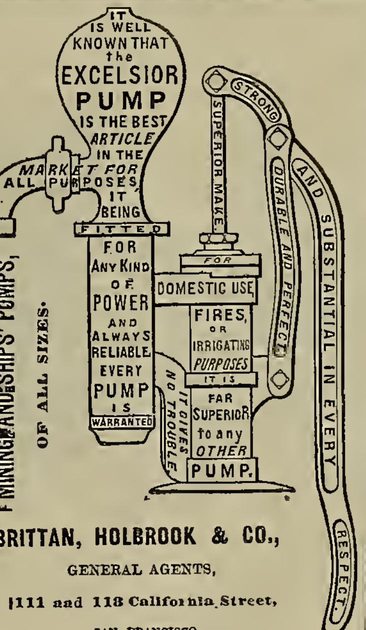
Which we will sell at a discount of 25 to 75 per cent. on cost of new, in this city. Parties having any kind of machinery for sale, may meet with customers by consigning to us. Purchases made on Commission, and prices guaranteed as low or lower than parties can make themselves.

STEEN & CUSHING,
No. 9 First street, San Francisco.

CALIFORNIA
BUSINESS UNIVERSITY

204 Montgomery Street.

Full particulars regarding our Practical Course of Studies may be had by calling at the University, or by addressing
17v17-qy12p E. P. HEALD, San Francisco.


IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES IT BEING FITTED
FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE FIRES, OR IRRIGATING PURPOSES
IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE
SUPERIOR MAKE.
STRONG DURABLE AND PERFECT AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

W. T. GARRATT,
City
BRASS AND BELL FOUNDER

Cor. Mission and Fremont sts.,
SAN FRANCISCO.

Manufacturer of Brass, Zinc, and Anti-Friction or
Babbet Metal Castings:
CHURCH AND STEAMBOAT
BELLS,
TAVERN AND HAND BELLS AND GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS

Steam, Liquor, Soda Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder, and Copper Rivets, &c. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles,
HYDRAULIC PIPES AND NOZZELS
For Mining purposes, Iron Steam Pipe furnished with Fittings, &c. Coupling Joints of all *sizes*. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market price paid for OLD BELLS, COPPER AND BRASS. ☜ 6t1

N W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adlis, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in different specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY. and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus, accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 18v6-1y16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, January 8, 1870.

VOLUME XX.
Number 2.

The Diamond Drill.

Leschot's diamond-pointed drill has been experimenting this week in San Francisco, at the corner of Sansome and Vallejo streets. The machine consists of an oscillating engine, of three to five horse-power, with a screw-shaft with drill passing through it. This drill is of common gas-pipe with a steel boring-head, in which are set rows of black diamonds. The drill revolves, cutting out a circular core. Water is forced through the interior of the drill into the hole which is being bored, and this prevents heating, and washes out the pulp as it is produced. We have previously given full descriptions of the apparatus. The machine was invented by M. Rodolphe Leschot, a civil engineer of Paris, in the year 1863. On its first introduction into the United States, it did not, however, prove a very decided success; at least it was never extensively used. Messrs. Severance and Holt bought out the patent, and have been at work for several years in trying to improve the original apparatus, and claim that they have succeeded in making a practical machine.

We were present at what was announced as a trial of the machine on Thursday, but do not feel able to give a decided opinion from seeing it work only one or two minutes at a time. It is necessary in such cases, to satisfy the public, to give actual working tests. These, however, it is claimed, have been made in the East. As an example, it is asserted that holes of 2⅛ inches in diameter have been bored in Vermont marble at the uniform rate of 13¼ inches per minute. Our general idea is that it will prove a success for boring in slates and similar rocks, but we have some doubts as to its efficiency in hard rocks, as granites, etc. We shall, however, keep our readers informed of any working success of the drill.

* * *

HONORABLE COMPETITION.—An Iowa farmer has offered to be one of twenty or more to give $10, in order to make up a purse to be given to the person who can raise the greatest amount of corn on a given area of ground. Each person to plant any variety he may choose and cultivate in any way he may like. It would be a good idea for some one on this coast to get up a similar purse for a similar object.

* * *

IN the assay of Morning Star ore, reported by W. T. Rickard, in our issue of Dec. 18th, the value per ton of gold and silver were inadvertently transposed. They should read: Gold, $10.04, and silver, $62.83 per ton. In the article "Stetefeldt Furnace vs. Capital," printed Dec. 25th, the sentence "capital can offer no successful resistance to its decrees" should be read, instead of "decrease."

* * *

CALIFORNIA SILK-WORM EGGS WANTED IN FRANCE.—Two gentlemen of the city of Bességes in France, have written to Mayor Selhy, of this city, stating that they have heard that superior silk-worm eggs can be obtained in this State, and asking for information in regard to the matter.

Improved Scroll Saw.

We gave, a few weeks ago, an illustration of an improved planing machine, as an example of the inventive spirit of our young State. We give to-day another example, in the improvements made on the "National Saw," by an enterprising mechanic of this city.

In the old sawing machine, it was possible to exert but one degree of tension on the saw, and this was always made proportionate to the largest size used; moreover, the rake was unchangeably fixed, and the ways were immovable, rendering necessary always a certain length of the saws used. The improvements made in the machine will be easily understood from the accompanying illustration.

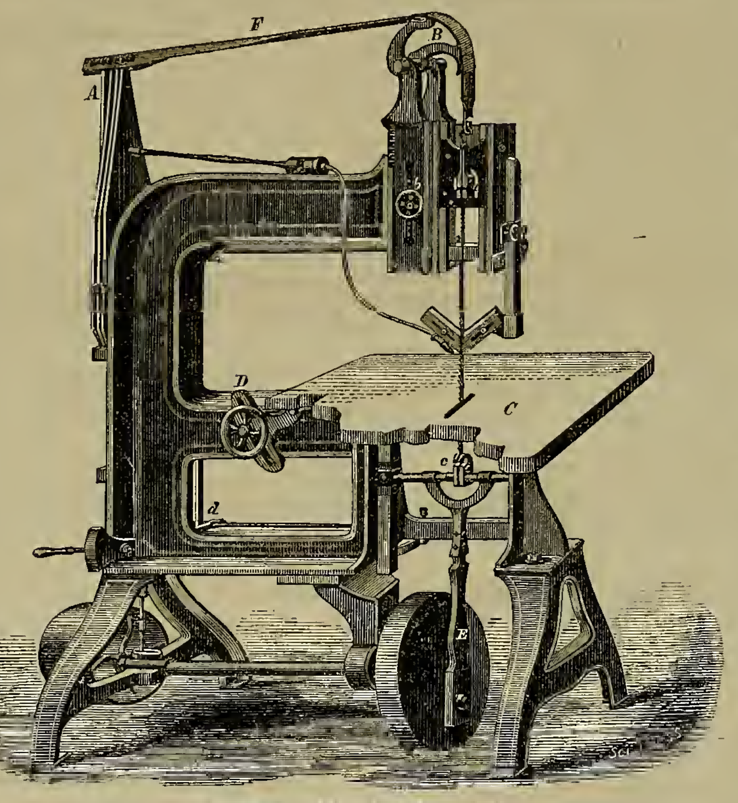
To change the tension upon the saws so as to accommodate it to the various sizes used, there are several springs, A, which are bent at their upper ends so as to hook into slots in the belt, F, which connects them with the oscillating segment, B. By detaching one or more of these springs the strain is much diminished, and that in a degree which is proportionate to the size of the saws, that is, to the thickness of the wood which is being worked.

The upper end of the saw has a short pin passing through it, which is slipped into a curved slot in the block, at *a*. The lower end of the saw is similarly connected at *c*. But in the use of very small sizes of saws, they may simply be placed between the two parts of the blocks (either the upper or the lower), which, being screwed together by means of the nuts shown in the illustration, hold the saw by compression.

The upper block is connected with the segment, B, and receives its upward motion through this from the springs, A. The motive power is applied to the saw by means of the pitman, E.

The upper set of ways are movable, and can be raised or lowered by a rack and pinion operated by a hand-wheel, *b*. By means of this device the use of different lengths of saws is rendered possible.

The handle, shown in the lower left hand corner of the cut, is attached to a series of levers (a portion of which are shown at *d*, the rest being hidden by the body of the machine), by means of which the angle of the ways may be varied, and any desirable change in the rake of the saw may be effected.



T. STEBINS' IMPROVED SCROLL SAW.

In order to give the table, C, any desired inclination sideways, without making necessary too large a slot for the passage of the saw, the journals are so constructed that their center of motion is just at the upper surface of the table. The table is held in any position by means of the hand-wheel and the slotted segment shown at D.

This machine was exhibited at the Mechanics' Fair, and cut out forms and patterns which were almost marvels of jig sawing. It is operated with great ease and simplicity, and is less liable to break in the hands of an inexperienced workmen than other saws. The inventor intends making a smaller size machine for small job work. His aim is to accommodate the home demand for scroll saws in regard to style and price, and insure purchasers a durable and efficient tool.

The inventor of these improvements is Mr. Timothy Stehins, 15 Fremont street, San Francisco.

* * *

Rocky Mountain Heights.

We noted at the time the fact that Prof. Whitney, with a party of about a dozen persons, mostly from the Harvard Mining School, was making, last summer, a topographical survey of the South Park of Colorado. A short time ago Prof. Whitney gave an account of the explorations made, and of some of the results obtained, before the Academy of Sciences.

A careful topographical survey was made of the South Park, and of the adjacent mountains as far north as Gray's Peak. The elevations of various points are determined by the barometer, as compared with the elevation of Denver. The rain interfered much with the work, but still a very considerable amount was accomplished.

It would appear that there is a considerable number of peaks around South Park, which vary in height from 14,000 to 14,500 feet. The highest peak ascended by the party was named Mt. Harvard, which was determined to be about 100 feet higher than Gray's Peak, the highest point east of the Arkansas river. Mt. Yale and Mt. Lincoln are a little lower than Gray's Peak. There are quite a number of heights in this range with nearly equal or even greater elevations, perhaps, than those named; but more extensive investigations are necessary before the dominant peak can be determined.

As soon as the elevation of Denver is correctly determined by the completion of the railroad survey to that place, the different heights above the sea of the several mountains can be accurately estimated.

* * *

SETTLEMENT IN COLORADO.—In New York they are getting up a colony for settling in Colorado. Horace Greeley figures prominently as the President. The colony is to number about 800 persons, with a fair cash capital with which to purchase lands, erect buildings, and make necessary improvements. The locality has not been decided upon, and a committee is to be sent out to select the best possible site.

This getting up of colonies is becoming quite popular in places, the object being not to form exclusive communities, but simply to economize and to avoid mistakes which might result from individual, unconcerted action. The principal trouble must be to get good managers, and thus make a fair beginning. Once really settled, a colony can care for itself.

* * *

WE have received a pamphlet on "Oregon, its Resources, Soil, Climate and Productions" from the Board of Statistics, Immigration and Labor Exchange, of Portland, Oregon. Its object is to disseminate knowledge of the resources of the State, and induce immigration. The pamphlet is very concisely written, containing a large amount of information in a small space, and presents a very pleasant picture.

Communications.

Mills and Mines of Colorado.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

Editors Press:—During my sojourn in Colorado, I propose to give the country a critical examination, more, however, in a milling, than in a mineralogical sense. It has been the seat of much "scientific" experimental milling, and hence there is much to see that is interesting, and I am satisfied, something to learn.

Being so much nearer to New York, Boston, and other of our Eastern cities, where laboratory experiments have proved so wonderful in the production of the precious metals, *savans* have centered here more than in California or Nevada, and, as you may suppose, there are heaps of ruined hopes and fallen castles. I shall review them, not in a spirit of contempt or arrogance, but that Coloradoans may get California ideas, and that your miners may see what Colorado has done in the interests of mining. It must not be thought that there are not good works and experienced miners in this community, as there is displayed in many instances much judgment and skill, and I think in some things we can imitate them with profit.

I will commence at

North Empire,

Situated some 10,000 feet or more above the level of the sea, and from thence travel down to the plains via Georgetown, Idaho, Central City, Nevada and Black Hawk. Upper Empire contains some seventy-five houses, and not over that number of individuals at present. There are two mills directly in the town, one of which was running at the time of my visit.

The Peck Company's Mill

Is of quite an odd pattern to a California eye. The stamps, twelve in number, being very long and narrow, 1¾ stems, look rather antiquated; but this is not the important feature. It was in this mill that the Williams, M. D., *alias* "Quilp," *alias* Jefferds process, was introduced. Here are four reverberatory furnaces so constructed that an intense heat is given to the hearth on which the ore rests, and the flame further utilized by passing it over the surface of the ore in the chamber above. By the side of and connected with the furnace is an apparatus for the generation of chlorine gas, a stream of which passes into the ore chamber. The argument was, that chlorine, being heavier than the vapors of gold, which are supposed to be created in desulphurizing, would press down on the surface and hold the metal for amalgamation.

From the looks of things, I judge something was at fault—either the chlorine would not hold on to the gold, or the gold was not in the ore for the gold to hold on to. Connected with the process were several wooden barrels, into which the ore was placed for amalgamation, and into which were introduced, as precipitating agents, sulphates of iron for gold, and metallic iron for silver. One cannot but feel sorry to see so much capital, enterprise and ingenuity prove unprofitable.

The Ores

In this vicinity are very rebellious, carrying a great deal of iron, in fact, in some instances, being almost solid bodies of it, in which also is intermixed more or less copper. Notwithstanding that the ores are so difficult to work, large amounts of gold have been taken out of the several mines hereabouts, which are now being worked to a fair profit.

The second mill referred to is known as that of

The Equitable Company

Of Philadelphia. This contains a rock-breaker, two Chili mills and copper plates. There were previously in the mill four tubs as settlers, but these have been taken out. The fact that the mill was running, proved that the rock must contain metal, and, to my mind, must be pretty good ore to pay with such simple, and, I may say, poor, amalgamating contrivances.

There is a great lesson in glancing at these two mills, standing within a stone's throw of each other—one the seat of the highest order of scientific metallurgy, the other of the most simple and practical system; one killed by too much science, the other not paying as well as it should, from having too little. The formation hereabouts is granite—mountains irregular and very high, ranging from 9,000 to 12,000 feet above the level of the sea.

Among the Mines,

I will mention the Conqueror, a vein some fourteen feet in width, carrying gold and sulphurets of iron and some copper. The Rosecranz has about the same character as the Conqueror, with veins some eight feet in width.

Silver Mountain lode is a vein ranging from two to five feet in width, and has produced considerable metal, and, in fact, has the best looking ore which I have seen. Though the title is Silver Mountain, the precious metal is mainly gold.

The Starr Company

Own the next mill in line. Here are twenty-four stamps of about 500 pounds each, with some six amalgamating pans. The pan is of the style known here as the "Freiberg," being five feet in diameter, with very heavy wooden mullers with iron shoes, of the style used by some mills in Washoe in 1862. There is a style in both stamps, cams and pans, which has rather an odd look to a California miner; there is not that perfection in symmetry and boldness in appearance as with us. I would say to my readers, they must not judge too rashly, however, as to Colorado milling, as the mills spoken of were amongst the earliest constructed in the Territory.

Sketches of El Dorado County.

[Written for the Scientific Press.]

Editors Press:—Coon Hollow Hill, of which I made mention in my last, has been one of the richest mining localities in the State. From the surface of less than 150 acres worked, not less than $5,000,000 have been mined out since 1850. I have seen $515 washed from one pan of gravel taken from the bottom of a shaft, in 1851.

The Alderson Claim.

The Alderson Brothers have been operating here for some ten years with hydraulic pipe. The face of their bank is now over 125 feet in height, of which only about 25 feet pay. They purchase from the South Fork Canal about 400 inches of water, which is conducted through an 11-inch pipe to the foot of the bank, and thrown in five streams through nozzles varying from two to four inches in size. This firm has absorbed most of the claims adjoining their original ground. The amount of money taken out by them can only be *guessed* at, as they keep their own secrets; but they are judged by the community to be wealthy.

The green and blue gypsum in which the gold is found, when separated from the gravel, is a great fertilizer for gardens, vineyards and fruit trees; and prodigious growth has been the result when applied to fruits.

Opposite to Coon Hollow, on the north side of Hangtown Hill, and within the corporate limits of this city, is

Oregon Hill,

A spur similar to Coon Hill, which has been remarkably rich. Only the surface from two to five feet in depth has been worked. A large amount of float quartz at one time was taken from the hill by Col. Jones and others, which, on being worked, paid remarkably well. Much labor was spent in an effort to discover

The Quartz Ledge

From which it was believed the float came. This reward was left to an enterprising miner, who has had a miner's "ups and downs" for a number of years, but who, when bad luck befell him, strove the harder to overcome. Last summer, after making inquiry in regard to this quartz, he concluded to make an effort to discover it. Fixing his starting point on what seemed to be a little vein of broken quartz, not two inches in width, he followed this, and soon was rewarded by its widening to several feet of rich rock. The old Pacific mill has been crushing for him for several months, with results so satisfactory that he is about to erect a 10-stamp mill (hurdy-gurdy wheel) on the claim. When the parties become less reticent, I will give you statistics.

The Pacific Mill and Claim,

Which paid enormous dividends monthly to its stockholders prior to 1850, is situated but a few hundred feet below this claim. Their shaft is 325 feet deep, and good rock is obtained, but the expense of mining it is too great for profitable operations, hence their idleness. About one hundred rods above Oregon Hill is located the

Dickerhoff & Gain Claim,

Which has been worked a number of years by tunneling into the hill, taking out the cement gravel in cars, washing it through sluices, and then letting it lie in the air and slack or soften, when it is reduced by mill, and pays from two to four dollars a car load. The owners have a 10-stamp mill (hurdy-gurdy wheel) nearly completed. They have at the *tail* of their sluice some 6,000 car loads, which paid, I am told, an average of $2 per load. Other claims on this ridge will be mentioned in future.

The U. S. Grant Quartz Company,

On Butte Cañon, nine miles east of this place, has ceased all work except sinking on the ledge. The quartz is of that kind called "rebellious," and much trouble is experienced in amalgamating. Assays show much better results than milling.

Hurdy-Gurdy Wheel Test.

A little question arose here as to whether a 4-foot hurdy-gurdy wheel would produce the same amount of power, with a like amount of water, as one of eight feet. By test it was shown that the only difference was in the friction, which was more in the small than in the large wheel.

A Railroad

Is now contemplated, connecting this place with Sacramento and San Francisco, by way of Vallejo. I am informed by one of the owners of the South Fork Canal, if this road is built, that a canal of sufficient capacity to float lumber will be constructed to the American river. Then we shall have plenty of water, lumber and gold; for a full supply of water is all that is needed to make this city as flourishing as in the palmy days of 1862-3-4. E. N. S.

Placerville, Jan. 1st, 1870.

American Style of Railroad Building. In an article upon railways in India, *Engineering*, after commenting upon the misrepresentations and exaggerated statements which have been made in regard to the "reckless" style in which American railroads are built, makes the following remarks: "Long ago we pointed out, and have often repeated our assertions and arguments in favor of, the American system of railway construction being adopted in India and our other colonies. It is exactly suitable for the purpose. Having to run for hundreds of miles, it may be, through unprofitable country to ultimate objective points, it follows that such lines should be constructed as cheaply as is consistent with safety and moderate speeds. These are not permanent roads; they are but the precursors of the more durable lines, the pioneer ways by which all parts of the country may be united, and which, as the growth of trade and the value of the lands increase, will be slowly reconstructed solidly and at greater cost, so that ultimately the trunk lines of the future railways of India will be what the engineers intended the railways to be in the outset. This is the whole secret of the so-called 'American railway system,' to construct only such works as are absolutely necessary, and to construct them under proper organization."

No More Churns Wanted.—"A singular method of making butter has lately come into quite extensive use in France, based upon the fact, that cream is changed into butter by being simply buried in the earth. The theory is not very intelligible, though the fact is stated to be beyond question; and in Normandy and other parts of France, butter is actually prepared on a large scale in this way. The process consists in placing the cream in a linen bag of moderate thickness, which is carefully closed; then burying the bag about a foot and a half deep in the earth, and allowing it to remain from twenty-four to twenty-five hours. After the expiration of this period the cream is found to have become hard, and it is then broken up by means of a wooden beater into small pieces, and enough water poured upon it to wash out the buttermilk. To prevent any mixture of earth, it is advisable to enclose the bag in a second one of larger size and coarser quality. This method separates the butter more perfectly than the ordinary process; and we are assured that butter thus prepared is of most excellent quality."—*Courant.*

From Liverpool to London.

[From our European Correspondent.]

I think that Americans will all agree that a ride through England is one of the most charming imaginable. To be sure there is not grandeur of scenery, nor wide views of landscape; yet there is a quiet beauty in the green fields and long hedge rows, and in the groves of English walnuts and its quaint old thatched-roof cottages, that the most matter-of-fact person must perceive. The climate of England being one continued rain-storm, with now and then an hour's intermission, make the fields very green, and give to the landscape a magnificent appearance. Add to this a high state of cultivation for several centuries, and it is not so wonderful that the contrast is great, compared to our new and sparsely-settled country.

Sights in Liverpool.

But before going on with my journey through England, I must tell you of the sights that interested me in Liverpool. I noticed what seemed like a small locomotive, with a donkey attached to draw it. Its novelty attracted my attention; and I was curious to know what it could be. There was the boiler and smoke-stack, and smoke coming out of it, and the resemblance to a locomotive on a small scale was almost perfect. As I approached nearer, I saw the poorer class going to and coming from it; and as I stood beside it, I saw these poor people come up and give their half penny, and get one or two steamed potatoes and a little salt, and then go away to eat their scanty meal. It was, then, a potato boiler on a large scale; but it told a tale of that wretched poverty that we in our own free land know little of. And afterwards, as I was dazzled by the splendor of royalty, did these sorrowing faces come up before my eyes and break the charm of the scene. And often have I thought while in England, away with your privileged class, your titled nobility, your fixedness of rank! Have done with the right of primogeniture! If a man is fool enough to spend all his property, let him do so; let him find his proper level. If he has genius enough to rise, let him rise. Break up your vast estates, and let it no longer be said "once a peasant, always a peasant'"

English Railways.

But to return to our ride to London. Of the English railway I will say but little. The cars are much smaller than ours—not more than one-third the size I should judge; and, as Dr. Holland says, made as nearly like a stage coach as possible. They have no conception of the beauty and comfort of our drawing-room cars. We were locked into our compartment, and obliged to stay till the guard opened the door. I will say this much, however: the road seemed to be good and solid, and we rode very smoothly at the rate of thirty-five miles an hour. The engines were plain, without the least bit of decoration, yet strong, and unquestionably serviceable. I noticed that the carriage road, almost without an exception, passed over or under the railroad. With our fine cars, I would pronounce the English roads almost perfect. We passed through Crew, a railroad town, built according to a plan—a new idea in Europe. The houses are all very much alike, and owned by the Northwestern R. W. Co. And then through Staffordshire, famed for its pottery. It was, without exception, the most interesting ride I ever took. It was in early harvest, and men and women were busy with scythe and sickle gathering the crops. The only reaping machine that I have seen in Europe was in Prussia. The cattle and sheep were fattening in the richest pastures. There seemed to be nothing lacking to make the ride as charming as possible.

Arrive in London.

We were for the first time going to London—the largest city in the civilized world—and the novelty of the thought may have added a charm to the ride that no words can describe. On we went, through vast estates, under the highest of cultivation, and we could see the group of peasant cottages—many in the Elizabethian style, with steep, thatched roofs, moss-grown, with narrow windows; and the old chapel, built before the Reformation and often used as a fort, covered with ivy; and the mansion, standing in an artificial grove, with carriage road and entrance gate and porter's lodge. And we passed through Bark Hempstead, and saw the place where Cowper was christened, and close by the moat of John of Runey Mead. But soon we saw the number of houses began to increase, and we found ourselves landed in London.

Mechanical Progress.

The Engines of Those Gunboats.

In *Engineering* for Dec. 3d, we find described and illustrated the engines of the Spanish gunboats built by Capt. Ericsson, the dimensions of which we gave in our last. We quote a paragraph:

"It has frequently been urged as an objection against the twin screw system that the double set of engines, four steam cylinders with duplicates of all the working parts called for on this system, render the whole too complicated and heavy for small vessels, preventing at the same time the application of surface condensation. In the engines of the Spanish gunboats, the designer has overcome these objections by introducing a surface condenser, which, while it performs the function of condensing the steam to be returned to the boiler in the form of fresh water, serves as the principal support of the engines, dispensing entirely with the usual frame work. Besides this expedient, each pair of cylinders have their slide frames for guiding the movements of the piston rods cast in one piece. Altogether the combination is such that the total weight and space occupied by these novel twin screw engines do not exceed the ordinary single screw engines of equal power. Several improvements connected with the working gear have been introduced. The outer bearings of the propeller shafts, always difficult to regulate and keep in order on the twin screw system, are self-adjusting and accommodate themselves to every change of the direction of the shafts. This is effected by their being spherical externally, and resting in corresponding cavities in the stern braces or hangers. The spring bearings for supporting the middle of the shafts are also arranged on a similar self-adjusting principle. The thrust bearing is of peculiar construction, the arrangement being such that the bearing surfaces remain in perfect contact, however much the shaft may be out of line. The reversing gear likewise is quite peculiar, insuring complete control over the movement of the two propellers under all circumstances."

Iron for Specific Purposes.—"The quality of bar iron may differ according to the purpose for which it is to be employed. Wire iron is manufactured in the charcoal forge, and the double puddling furnace with iron boshes. Easily welded iron is made by allowing a small portion of carbon to remain in the metal, and by expelling, as far as possible, foreign matter. But this, by destroying the fibre, will make iron of large dimensions cold-short. By reheating and rolling small rods the carbon will evaporate. If we want fibrous railway, or heavy bar iron, we must employ a metal from which the carbon is easily expelled, as that from the run-out fires. This is to be puddled in a very warm furnace. Wire iron should be of the same quality, but the puddling by which it is produced would be inapplicable for railway iron, for the latter would become cold-short. Iron for small rods, hoops, gas-pipes and wire, ought to exhibit a crystalline fracture, a steel-like grain, which is produced by carbon. But of all other foreign matter it should be free. Silex and phosphorus will not evaporate like carbon on repeated exposure to heat; and iron which contains either in a nonvitrified state will be cold under all circumstances, and will be useless for wire or any other purpose for which strength is required."—*Osborne.*

Notes for Photographers.—Don't meddle with the bath if you can help it. "If it work well at starting, and failures shortly afterwards occur, do not tamper with the nitrate of silver solution by doctoring it, as recommended in many books on photography; the probability is that the fault lies in some other direction, and experience shows that the best plan of action is to interfere with the bath as little as possible. Always preserve the nitrate of silver solution so that it never comes into contact with fragments of cork, dirt, or other organic matter, and take care that at the outset it is made of pure material. When the purchased nitrate of silver crystals are large, transparent, and glassy looking, the probability is that they contain much acid, have not been recrystallized, and are worthless for the nitrate bath. Pure crystals have an opaque whiteness, and when very pure have a slightly dirty look, because the absence of free acid enables them to blacken slightly in contact with the traces of organic matter always present in the atmosphere."—*The Engineer.*

Blast Furnaces.—Mr. I. Lowthian Bell has given to the Iron and Steel Institute,—says *Engineering*,—the results of some investigations in reference to the theory and practice of iron smelting. He considers that the maximum economy which is derivable from the height or capacity of the blast furnace is attained with furnaces of 16,000 cubic feet capacity, and that any increase in height or capacity is unattended by any corresponding economy of fuel. Also with a furnace of 16,000 cubic feet capacity, the temperature of 1,200° Fah. for the blast cannot be exceeded with advantage. These conclusions, derived as they are from a great mass of experimental and theoretical research, will form one of the most important subjects of discussion and investigation for some time to come. The opinions expressed at the meeting by Mr. C. W. Siemens, Mr. B. Samuelson, and others, were divergent in many respects from those expressed by Mr. Bell.

Concentrating Sulphuric Acid.—The *Journal de Pharmacie et Chimie* describes a new method devised by M. Cotello. A column, lined inside with fire-bricks, and made outside of good ordinary bricks, rests on a large pedestal. This column is open at both top and bottom; but in these openings are fitted fire-clay stoppers. The inside is fitted with calcined pumice stone; inside the lower portion, openings are made between the bricks, through which a current of highly heated air is forced. From the top, the acid to be concentrated is made to trickle on the pumice-stone, and, meeting with a current of highly-heated air, the superfluous water is driven off, and the acid, on arriving at the bottom, is in a concentrated state, and runs off in properly arranged vessels.

Mica for Blue Spectacles.—We some little time since alluded to the use of mica spectacles by iron founders, to protect the eyes from the heat and glare to which they were exposed. Masks of the same are now used, and even cylinders enveloping the head. But the latest improvement is the placing a plate of transparent blue gelatin between two layers of mica, thus rendering the spectacles *blue*, a color more grateful to the eyes than white. Attempts to color the mica itself, failed.

Ward's New Steam Engine.—A steam engine, built on a new principle, which was invented by Wm. H. Ward, of Auburn, has just been completed by the Cayuga Chief Manufacturing Company, of that city. It is a 50-horse power engine, weighs but 2,500 pounds, and uses only 5,200 cubic inches of steam per revolution, while a crank engine of equal power would weigh at least 15,000 pounds and use 10,600 cubic inches of steam. It is stated that a 1,000-horse power engine of this pattern will cost only $5,000.—*U. S. Railroad Register, Dec. 25th.*

New Car Stove.—The Whitman stove is made of wrought iron, so strongly put together that it cannot be broken, and surrounded by an outer cylinder of Russia iron, which prevents scorching. But the chief peculiarity of the stove is an arrangement for instantly closing the draft and funnel apertures, when the stove is thrown out of position, by gravitation acting on a simple mechanical device. The stove door is locked, the key remaining in possession of the brakeman.

Forging Bronze.—In the course of some experiments made at the French Mint, M. Riche has found that bell metal, or bronze containing 22 per cent. of tin, can be forged and hammered into plates at a dull red heat,—while it is brittle both above and below that temperature. It is said that the Chinese gongs are made in this way.

Iron Laths—"We have iron roofs, iron fronts, brackets, window-heads and sills, joists, and now we have the additional item of laths, which are made of number twenty iron, wire gauge, and one and a half inches wide, resembling one-and-a half-inch hoop-iron, with a small ridge or head in the middle to stiffen it. The laths are cut into proper lengths, and afford additional security from fire."—*Iron Age, Dec. 23d.*

Ten Years Ago.—In 1859 there was only one blast furnace in Pittsburg. Now there are seven, with an aggregate capacity of 54,600 tons per year. The largest of these has a 14-foot bosh, 50-foot stock, and a capacity of 175 tons per week.

Scientific Progress.

Life in the Deep Sea.

We have more than once alluded to the recent explorations at the bottom of the ocean, and the new geological revelations made thereby. Not only is the once common belief that animals could not live at great depths now proved to be a fallacy, but species supposed to be extinct are furnishing living representatives to the contrary. At the December meeting of the Connecticut Academy of Sciences, Prof. Verrill read a paper upon the subject, which we find reported in the *Yale Courant*, and from which we quote briefly:

"In 1867 an expedition under Count Pourtales was fitted out by the U. S. Coast Survey. Since then two other expeditions have been sent. They dredged mainly in the Gulf Stream region between Florida and Cuba. Collections of exceeding interest were thus made, which are deposited in the Museum of Comparative Zoölogy in Cambridge, and which have been as yet only partly described. The corals (in part) the hydroids, holothurians, crinoids, bryozoa, and brachiopods have been examined by Pourtales, the star-fishes and sea-urchins by Alex. Agassiz, and the Ophiurians by Theodore Lyman. The shells, worms, crustacea and other corals in large numbers remain to be described. The most remarkable things obtained was a cyathophyllum coral of an order supposed to have become extinct in the Carboniferous—a living Paleozoic form! Several species of large Brachiopods, itself an early form, added to the ancient look of this fauna. A Voluta junonia, large and brilliant in color, came from a depth of 350 fathoms. * * * The bearing of these discoveries upon the science of Geology is evident. Many of its theories will have to be at once remodeled. We may no longer regard color in a fossil shell as evidence of a shallow water deposit, nor may we believe any longer that fossiliferous rocks must themselves have been formed in water not over three hundred fathoms in depth. So, too, the discovery of Tertiary, Cretaceous and even of Paleozic forms of animals still living, shows us on the one hand, how unsafe it is to pronounce on the identity of two widely separated formations in age because of a few species common to both; and on the other, it impresses us with the remarkable permanence of species in nature. Sir Wyville Thompson believes that the foraminiferous deposit he examined, and which is now forming, is a continuation of the English Cretaceous; and he expects that the Eozöon, the oldest form of animal life existing in the rocks, but which is also reported to exist in the Tertiary, will ere long be dredged, still living. Lastly, in the region north of Scotland, we see two depositions going on side by side, the one forming a sandstone, the other chalk; and the sole condition which determines the character of the rock as well as of its fossils is a difference of temperature of 15 to 20°, a result entirely opposed to all geological hypotheses heretofore accepted."

Jargonia.—Mr. H. Sorby has observed the spectra obtained from light transmitted through certain specimens of zircon, and has inferred the existence of a new element which he has called jargonium. In the Proceedings of the Royal Society, certain remarkable properties of jargonia are mentioned. We quote: "Its compounds may exist in three different crystalline states, giving three wholly different spectra. The spectrum of the borax bead after flaming may easily be seen with the spectrum microscope, which thus enables us to detect less than one per cent. of jargonia in zircons. The spectrum, however, is different according to the temperature to which the bead has been subjected. Jargons from Ceylon of density 4.70 contain very little jargonia, but those of density 4.20 contain about 10 per cent., in a form which gives hardly a trace of absorption bands. On keeping such a specimen for some time at a high red heat the density increases to 4.60. The mineral then gives a spectrum with 13 narrow black bands and one broader line. No such changes occur with zircons from Miask which are free from jargonia. Mr. Sorby and Mr. David Forbes have both succeeded in making an approximate separation of jargonia by purely chemical methods, but their results must be considered as first attempts and necessarily imperfect."

Albertite and Grahamite.

In our issue of Oct. 30th, we gave Prof. Wurtz's views upon the probable origin of Grahamite. In *Silliman's Journal* for November, Prof. S. F. Peckham notes the different opinions which have been advanced upon the subject of this mineral and those allied. He agrees with Prof. W. in the belief that they are not inspissated petroleum; and after describing the asphaltic sand found in the neighborhood of Santa Barbara, he says:

"This stratum of asphaltic sand lies uncomformably upon the upturned edges of the oil shales, from which the tarry maltha exudes and gradually saturates the sand. Judging from a section of both shales and sand, which appears for nearly a mile along the coast, the saturating process is still in progress.

We have only to suppose this process to take place beneath sixty feet of semi-indurated sandstone, instead of ten feet of sand and soil, and we have the action which preceded the injection of the vein. Again, we have only to imagine a metamorphosis of deep-seated bituminous strata, producing a distillate a thousand or more feet beneath Silurian or Devonian rocks, which gathered in their crevices, and we can readily account for the gathering of the mass of Grahamite or Albertite previous to injection. An earthquake, shrinkage, or the expansive force of pent up gases, may have caused an upheaval and fracture of the superincumbent mass. It makes no difference whether the fractured mass were a thousand, five hundred, sixty or ten feet in thickness; in either case when it fell, it would force a part of the plastic mass into the fissures and hold it there.

At this time only specific names have been given to those bituminous minerals occurring in veins, which are evidently derived from the metamorphosis of bituminous strata. They possess many properties in common, and are essentially unlike the true asphalts, which are derived from petroleum. I think it was Dr. Taylor, of Philadelphia, who several years since proposed the name of 'Meta-Asphalt' as a generic name for minerals of this class."

The Mosasauroids.—These fossil reptiles of the Cretaceous take the place, in America, of the *Ichthyosaurus* and *Plesiosaurus* in Europe. The two groups last named are wanting in the New World, while the first is rare in the Old. Prof. O. C. Marsh, whose description of the *Dinophis grandis*, we have alluded to in a former issue, describes in *Silliman's Journal* a new species of this group, which he calls *Mosasaurus princeps*, the remains of which were found last July in the lower bed of Cretaceous greensand in Monmouth county, New Jersey. These remains were in an excellent state of preservation. Among them were the greater portion of the skull, a number of teeth, about twenty vertebræ, and several bones of the extremities. The skeleton to which they belonged is,—says Prof. Marsh,—"perhaps the largest hitherto found in this country, as when entire, the animal was probably not less than seventy-five feet in length."

Phosphorus the Real Philosopher's Stone.—The December number of the *American Exchange and Review* thus closes an article on this subject: "A particle of phosphorus thus traced from its initial point in the soil to those producers of organic matter and storers of physical forces—plants—and thence to the animal which destroys organic matter and liberates force, becomes, from the functions it fills and the part it plays, possessed of more interest than falls to the share of most chemical elements. The alchemist, now nearly two centuries dead, was doomed to disappointment when he thought to transform, by its agency, the base metals into noble gold, but there was a glimmering of truth in his view of its convertive powers. It helps to change inert, inorganic matter into nutritive vegetable forms; it fulfils a wonderful destiny in the human brain, and the result it there brings about makes it indeed the 'philosopher's stone' in the world's progress."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Scandinavian Claim.—*Chronicle*, Dec. 25th: After a resting spell of three years, the owners have again commenced work, and are clearing the tunnel of the debris. As soon as they finish timbering, the ledge will be cut into.

Globe.—*Miner*, 25th: About 15 feet a week is made in this tunnel, and the quartz indications are still flattering, though the lode is not yet reached.

AMADOR COUNTY.

Kennedy.—*Ledger*, Jan. 1st: This mine is being worked vigorously, and is promising handsomely. The men are now taking out rock sufficient to keep the mill running with one-half the force heretofore employed. They are in a body of ore, a piece of which before us exhibits plenty of free gold, with sulphurets.

CALAVERAS COUNTY.

Polomo.—*Chronicle*, Jan. 1st: Work is progressing favorably. The shaft is down 290 feet, showing a lead 13 feet in width at the bottom. A large force of hands are taking out rock sufficient to keep the mill in operation day and night. We learn from good authority that the mine is paying handsome dividends.

Railroad Flat.—Cor. of the same: The Petticoat mill will soon be completed, a large force of hands being employed day and night. Several hundred tons of ore are on the dump, and an extensive body of first-class is ready for stoping.

Chapman & Co. have crushed a portion of the rock they had out—some 150 tons. Lack of water, caused by the cold weather, prevented the crushing of the entire lot.

Sanderson & Co. are still running their 120-foot level. No scarcity of $50 rock. J. Herzer has 40 tons of fair ore on his dump. Twenty tons recently crushed at Harris' mill yielded $55 per ton. "Salty" & Co. have 80 tons ready for the mill. The Lewis brothers are still sinking. Rock rich as ever.

INYO COUNTY.

Cerro Gordo.—Los Angeles dispatch says: About one hundred tons of argentiferous gelena were shipped from the Cerro Gordo mines, through here, in December, for San Francisco—valued at over $100,000.

NEVADA COUNTY.

Forest Springs.—*Transcript*, Dec. 28th: The old Norambagua mine is being opened by Wm. Sutton & Co., under a five years' lease. The mine is still as good as when purchased by Cronise & Co. for $100,000; but on account of mismanagement in Cronise's hands, it failed to pay, and was closed down nearly two years ago. There is a tunnel of 1,100 feet in length, which was run at an average expense of $35 per foot, from which the present company propose taking the rock instead of hoisting it up the old incline. The tunnel will be extended 85 ft., tapping the ledge at water level. There is no doubt the mine will pay under the present management, Mr. Sutton having worked in it for 11 years, and knowing just where the pay rock lies. The old mill will be put in order soon.

Perrin's mine, near by, has been paying large profits. Two other ledges which have always paid, but have not been worked regularly for want of capital, are going to work in the spring.

Water Plenty.—The storms have given abundance of water in all the ditches. Should such weather as yesterday continue for a short time, the ice would melt and the miners would be able to go to work in every part of the county.

Rough and Ready.—The mines in this vicinity have a go d su[p y of water and are getting ready for work. Rix & Barker have continued work through the season, and Barnhart & Thomas started up on Monday.

The Banner Mine.—Same of 30th: The Star Spangled Banner Co. are taking out splendid rock. They are employing 40 men, and the mill is kept running night and day. Up to within a week, they run the mill with 20 stamps, but the late rain has given sufficient water to run the forty. They have a large quantity of rock ahead.

Orleans.—This old claim is being prospected by Mein, Parrington & Co. They sunk a shaft, which, when completed, disclosed a ledge four feet in thickness. The rock, estimated at the lowest, will yield $40 per ton, and there are some who are willing to bet that it will go $100. This ledge is only one of many that might be worked in this vicinity at a profit.

McClellan.—Grass Valley *Union*, Jan. 1st: This company is working with success. The ledge is a large one, carrying large quantities of sulphurets, and showing free gold all through the rock.

PLUMAS COUNTY.

Indian Valley.—Quincy *National*, Dec. 25th: Mr. Pulsifer a short time since, discovered a very rich quartz ledge near Crescent mills. From a few pounds of rock worked in a hand-mortar, Mr. P. extracted $370, and some of the rock, exhibited in Taylorville, would pay at the rate of $50 to the pound.

North Arm.—Cor. of the same: The miners in Light's Cañon are hard at work, and the prospects are favorable. Reynolds & Co. are setting their sluices, and will soon commence piping. Fant & Co. are piping, and their prospects are good. Pierce & Co. are making fair wages.

Twelve-mile Bar.—Some of the miners have experienced backsets, on account of the cold weather. Hallsted & Co. cleaned up $400 from a little strip of bed-rock, last week, in which was a nugget weighing eight ounces.

SIERRA COUNTY.

Struck Pay.—Downieville *Messenger*, Jan. 1st: Last Monday the Mike Redding Co., which has been sinking a shaft at the foot of Bald Mountain, above Forest City, struck the bed-rock at a depth of 289 feet, finding excellent prospects. They were sinking for the old Forest City lead, and the indications are that they have found it.

Kanaka.—At this mine a back-lead was struck, on the level of the lowest tunnel, six feet wide, all picking quartz and prospecting well. This vein is 12 feet from the old Kanaka ledge, and gives the opportunity to start up the mill next month on paying ore.

SISKIYOU COUNTY.

Eliza.—Yreka *Union*, Dec. 24th: The quality of rock is daily improving. The owners have entered into a contract with Mr. Taylor, for the erection of a 10-stamp mill, giving him a certain ownership in the mine therefor. Last week an offer of $25,000 was made for the mine by a former resident of this place, but he was too late. The owners had closed the contract with Taylor, who refused to listen to overtures for the sale of any part of the mine.

Good Pay.—Riley & Co. have struck a rich stratum of gravel in their tunnel under the bed of the Klamath river, near Groat's Ferry. Twenty cents to the pan is not unusual in the bed-rock.

YUBA COUNTY.

The Pennsylvania.—*Appeal*, Dec. 31st: The delinquents in this mine, at Brown's Valley, covering about 900 shares, allowed their stock to be sold yesterday. The owners are now reduced to less than a dozen, and we understand that they propose to lease the mine for a season.

Alaska.

Prospecting Expedition.—Sitka *Times*, Nov. 13th: If reports are true, and we have no reason to doubt them, gold is to be found in paying quantities but a short distance from Sitka. The Indians told Capt. Keene, that those who brought gold to Sitka have now got about $30,000, which they took out of the river a short distance from Frederick's Sound.

Arizona.

Big Bug.—Prescott *Miner*, Dec. 18th: L. C. Gray, one of the owners of the Big Bug mill, and C. V. Beseler, Supt. of the Sterling mine, started for Big Bug during the week. The mill was started up Saturday. Parties who own mining claims in the district, upon which the required amount of work has not been done, are bestirring themselves.

Mining Items.—During the week, several miners have come to town from Lynx Creek, and brought dust. One piece weighed $14. It was found in the old Johnson bar....A party of miners are in town to procure an outfit for Black Cañon. ....The Upper Hassayampa is alive with placer miners and all doing well.

British Columbia.

A Victoria telegram, dated Jan. 4th says: Authentic news has been received of placer diggings having been opened in the Peace river country. Not much prospecting has as yet been done, but strong hopes are built upon the first prospects obtained—two ounces per day to the hand—that the new diggings will turn out the richest and most extensive ever struck in British Columbia.

Colorado.

Clear Creek.—Central City *Register*, Dec. 25th: Alexander Cameron shut down five weeks ago. His total yield for the summer was 33 pounds 8 ounces troy, worth $18.13 per ounce in coin. Mr. C. has a mile and 1,200 feet running up the creek, and proposes to commence in March to put in a 20 by 40 inch flume. During the summer he has worked seven hands, and the yield has been $11 per day to the hand.

Ten-Mile District.—The contractors running the diamond drill have reached a distance of 220 feet from the heading. Under favorable circumstances they find no difficulty in boring at the rate of 100 feet in 24 hours. They have crossed one vein of sulphurets 6 inches in width, and three other veins showing crevice material.

Georgetown.—Correspondence of same: The cold weather has put a stop to most of the mining....Bennett & Co. have struck silver ore in Virginia Cañon, where they were before getting gold....In Baker's claim one man is taking out $15 per day with a hand-mortar and pan....An English Company are working, three miles up Fall River, on a large silver lode....In Spring Gulch, Mr. Gray, of Philadelphia, is having a lode developed. The people about Mill City are doing some mining; several valuable lodes having been discovered about there during the summer.

South Pass.—*News*: We have seen the retorted gold from N. Roberts' mill, from Saturday's clean-up. There was $3,500 worth. This is the result of five and a half day's run, of six stamps, on rock from the Cariso lode....A run of 70 tons from the Mammoth, which is from 12 to 20 feet wide, yielded $600, a profit of $6.20 per ton.

Baker Company.—Georgetown *Miner*, Dec. 23d: Two new bullion pulverizers are being placed in the mill. The road from the mine is in good condition for hauling ore. The Company shipped, on Tuesday, a silver brick weighing 1,230 ounces, .708 fine, coin value, $1,125.82.

Idaho District.—Updegraff & Kinney are taking out ore from the Veto lode. There are two shafts run together, one eighty, and the other one hundred feet in depth. The mineral vein is from eight inches to one foot in width. This mine is yielding a profit in the Washington lode, owned by a company in Chicago. The crevice is four feet wide, and the main shaft one hundred and fifty feet deep. A large quantity of good quartz is on the dump at No. 6, Seaton lode. Two weeks ago, there were four tons of first-class ore on the dump.

Griffith Mountain.—The shaft on the Major Anderson is 58 feet deep, and the crevice averages 6 feet. Another shaft is 40 feet. There are ten tons of first-class hammer-dressed ore on the dump. The assay of average rock and select ore are as follows: $239.18, $850.08, and $1,722.28 per ton.

Sherman Mountain.—The shaft on the Eureka is where the Toronto crosses it, and is 34 feet deep. There is ore enough on the dump to pay for all the work done. An assay of select ore gave a yield of $2,116 per ton.

Alpine Mountain.—One large lead lode, called the Fulkerson, is developed in the Daniel Drew tunnel, the average rock of which assay one hundred ounces in silver per ton.

Leavenworth Mountain.—The total product of the Equator mine from the first of April to the first of November, inclusive, was $77,282.14. The whole distance driven on the Linn tunnel is 195 feet. The width of the lode where the tunnel crosses it is 26 feet.

Montana.

Rich Strike.—Helena *Gazette*, Dec. 23d: The Parkinson Bros., on Wednesday, struck a vein of quartz in their new shaft, from three to five feet in thickness.

Clear Water.—Gallatin Cor. of same: Three men sunk a prospect hole 2½ feet deep, and struck bedrock; washed a pan of dirt, and got a 50-cent nugget; washed several more pans of dirt, and got $2.59 to the pan. A Frenchman prospecting one mile from there on Crazy Woman's Fork, came back in a few hours with $10 which he had panned out. The two commenced to build a cabin, and before they could complete it they were driven off by the Sioux Indians. Such is the report.

The New Cedar Creek Diggings.—The *Gazette* gives the following extract from a private letter, dated Dec. 12th: "I have just returned from the discovery, and it is good. Our party prospected three miles from the discovery, and found 39 cents in two pans. Since our return reports have come of $2 to the pan above discovery. The representation day is the 15th of next May, and three days for filing; no claim can be taken for a man without his filing in person. There has an immense crowd gone in.

James Haney,—says the *Gazette*,—writes Dec. 8th, from Burn's Gulch, of ground prospecting from five to fifteen cents to the pan. The gulch is 12 miles long, and the gravel from six to eight feet deep. He advises his brother not to move from here until he hears from him again.

The Virginia *Times* advises everybody to keep quiet until more is known of the new diggings, and names several well-known and reliable men who have gone thither, and will report.

The *New North West* says of the Missoula stampede: "Personally we see no cause yet to disbelieve that good mines have been struck, but exaggerated stories are inevitable in such cases. We expect full advices in a few days. It is midwinter, and the reported mines are 160 or 170 miles from Deer Lodge. Deep snows are liable to fall, and severe weather must be expected."

Phillipsburg.—Same of 27th: There is a controversy between two parties in regard to the lease of the James Stuart mill, which will be amicably adjusted, and the mill will be run on custom work, whichever obtains it. Messrs. Dance, Stuart & Co. have in the mill 70 tons of Hope ore, which will be crushed at once. Possession will be given the lessee on January 1st. The mill will then start up on Mountain Queen ore—of which 400 tons, owned by Merrill, Ullery & Co., are now out. After that, ores from Comanche Extension will be crushed. Messrs. Ullery, Cogswell, Drennan & Heal, Calderwood and Brown will furnish 1,000 tons from 50 feet of No. 3, 300 tons are now out, and 10 men are at work. It has a 40-foot tunnel striking the ledge at a depth of 25 feet, and a 45-foot shaft. Messrs. Cameron, Brown, Waterbury, Drennan & Heal, who have a 72-foot shaft on No. 2, same ledge, showing a 7½ foot crevice, are engaged in taking out ore to follow or precede No. 3.

Latest from the New Mines.—The Virginia *Times* of Dec. 27th gives part of a Missoula letter just received in that city: I have managed to secure a gulch and a bar claim. Seventeen pans that I washed yielded $7.25. There has been as high as $16 to the pan got. To my notion it will be a second Alder gulch. Cedar creek, on which the mines are situated, is about 20 miles long. Good prospects have been obtained on twelve or thirteen miles of it, but the whole creek is staked off and claimed. The mines are seventy-five miles from Missoula, down the river. Tell the boys there is not the slightest use to start for these diggings until Spring, as it is impossible to do anything in the way of work this Winter.

Idaho.

Loon Creek.—The *New North-West* gives these items from a returned miner: About 30 claims are opened. The diggings vary in depth from two and a half to nine feet, all the dirt being shoveled in. Four miles below No. 70, prospecting is going on, and as high as $1.85 to the pan has been taken out on rim rock, but no bed-rock yet struck. The largest nugget yet taken out weighed $265. Ten or twelve companies, owning from 200 to 1,000 feet each, will put in flume early next season twelve feet wide by three feet high. * * There were about 300 people in camp. The ground was frozen, and was "laid over" until June, 1870.

The Dalles *Mountaineer* says: A letter to a Boise paper says: "Within 15 miles of Boise City I have seen rocking out from $24 to $30 per day for the last 20 days, and wheel the pay gravel 400 yards. I expect to make $110 to the hand when I get water to ground sluice next spring,"

Nevada.

COPE DISTRICT.

Placer Mines.—Elko *Independent*, January 1st: A ditch from the Owyhee river is being crowded ahead. Considerable gold has been taken out, and it has been ascertained that the mines will pay from five to twenty dollars per day to the hand.

Bull Run.—Samples of ore from the Porter lode were brought in the other day, which will assay from $6,000 to $10,000 per ton, in silver. The weather has been severe, and but little work could be done.

The Virginia *Enterprise* has seen a box of specimens from Cope. Some of the lumps of ore are almost pure chloride. The box contained also half an ounce of beautiful placer gold in ragged grains,—indicating the near neighborhood of the veins from which it was released. So far, only Chinamen work the placers. They lease them from the white miners, who are all prospecting for quartz.

ESMERALDA.

Silver Peak and Palmetto.—A correspondent of the Sacramento *Union* writing from Aurora says: The mill at Palmetto has been repaired, and is running. The mine is improving, and they are shipping bullion weekly direct to San Francisco. The thirty-stamp mill at Silver Peak has been, since last May, crushing rich gold-bearing rock. The company are about putting up another mill to work silver rock.

HUMBOLDT.

Battle Mountain.—*Register*, January 1st: Thomas Thompson has been negotiating for the sale of ore from the Butte mine. A sample lot taken below, containing five and one-quarter tons, sold for $802.52, or a fraction of $152 per ton. The ledge averages three feet of ore.

A Galena letter to same gives these items from the same district: Mr. Hogan, of Virginia City, is about to lease the Shiloh mine, and contemplates putting on a large force. Work on the Avalanche has been suspended for a few days, owing the illness of the Supt. They have a large quantity of ore sacked and ready for shipment. The air shaft of the Buena Vista is near completion, and the ore house is ready. The Butte owners expect to tap their ledge in a few days. Cotton is shipping a large lot of copper ore from his mine. The B. M. M. Co. (English) have just made a shipment of rich copper ore.

Strike.—A week ago the workmen running a tunnel to the Cumberland ledge, Gold Run, struck a vein of ore. It is three feet wide, and contains two and one-half feet of ore that will yield $300 to the ton by mill process. The owners are Charley Hassen and T. V. Julien.

A Late Discovery.—Messrs. Kunkle and Layson, while prospecting recently, discovered that a ledge which crops out 1,000 feet contained silver. Upon blasting they discovered an immense mass of argentiferous galena, which assays $130 per ton. This ledge had been run over hundreds of times by early prospectors.

REESE RIVER.

Silver Bend.—*Reveille*, Dec. 27th: Last week nine tons of ore from the Arizona mine were hauled to the Manhattan mill for reduction, the average yield of which was $350 per ton. This morning, twenty tons from the Eldorado mine were delivered at the mill.

Ophir Canon.—We learned yesterday that the Cambridge Co. had stopped work on the Murphy. The property looked well, and the closing appears inexplicable. Last week some Mexicans discovered an outcropping mass of ore on the summit of the mountain south, which is represented to be remarkable.

Secret Valley.—Yesterday a pack train brought to the Manhattan mill three tons of first-class ore from the Page and Corwin mine. Twelve more tons of the same are to be brought. Secret Valley, eight miles southwest of Eureka, will produce a sensation next year.

Manhattan.—The total shipment of bullion for December was $88,000.

WASHOE.

Ophir.—Gold Hill *News*, Dec. 31st: Water in new shaft 200 feet deep, and being only slowly reduced by reason of the late earthquake. Another week will make all right,—barring more shocks.

Imperial-Empire.—The little streak toward the Alpha, is a foot wide. They attempted to work upward on it, but were prevented by the heat. The Alpha, Imperial, and Empire are working together in effecting a winze communication. This will give excellent ventilation.

Hale & Norcross.—About 140 tons per day being extracted. The great ore body at the lowest level is looking better and better. Winzes sunk below that show the body to continue at least 50 feet deeper. They employ an additional mill in the reduction of ore.

Chollar-Potosi.—Yielding 200 tons per day; average assays $43 per ton. The new hoisting works operate well, and on the 22d the bottom of the shaft was reached by the cage. The timbering at the head of the head of the incline was found to be in fair condition.

Crown Point.—The drift east at the 1,100-foot level, is in 597 feet from the shaft. The drift east at the 1,000-foot level is in 439 feet. The side drift from it northward is in 171 feet. Nothing encouraging.

Savage.—This mine shows a small improvement within the last few days. Chas. Bonner, the former superintendent. takes his old position to-morrow.

Gould & Curry.—Yield improved a little in quantity and quality. Work is progressing satisfactorily at the lower level drifts, but with no new developments.

Yellow Jacket.—Large quantities of both high and low grade ore being extracted. The mine generally shows a little improvement.

Belcher.—Present yield from 35 to 40 tons of ore per day, car samples of which average from $30 to $90 per ton. This is from the upper levels, where there is good ore enough in sight to last a year.

Virginia Consolidated.—Ross & Co. have completed the shaft to the depth of 500 feet. They are now sinking 25 feet deeper for a sump.

Sierra Nevada.—Mill running all right on ore from the mine, of which there is plenty in sight to last for the next year or two.

Occidental.—Nothing new as yet. Lower tunnel progressing as usual, and the old mine looking well.

Overman.—Yielding 75 tons per day, but this will be doubled, as the main west body of ore has been cut by a drift at the 226-feet level.

Kentuck.—Flourishing finely, and yielding plentifully, as usual.

WHITE PINE.

Weekly Mining Review.—*Empire*, Jan. 1st: Two claims have suspended operations during the week, aside from which, about the usual number of men find employment. The mills are all well supplied with ore, and every stamp has been kept in constant motion. In most cases the supply of ore in front of the batteries will not be exhausted before the first of March. In this will be found the real cause of the suspension of work by few of the leading companies on Treasure Hill. The immense piles of ore that have been shipped to mill neccessitated heavy expenditures. The returns in bullion comes slow, and to continue operations would have made heavy assessments necessary. That these have not been levied, is a conclusive argument against the idea, that San Francisco operators have entered into a scheme to "bear" the leading stocks of the district.

The *News* of same date says. In six weeks from now the awakening will commence, and all business will be galvanized into new life. It is certain that a large immigration will come from California, and a considerable movement of the sort from the East. Chicago and San Francisco have each had substantial evidences, the past few months, of the capacity of our mines; and the effect will be perceptible as soon as movements looking to spring operations commence.

Bullion.—*News:* The total shipments for the week, exclusive of coarse bullion, figure $43,911.37. This falling off is ascribable to the general lower range of the ore value per ton.

The *Empire* gives the total bullion of the year as $2,658,990; and adds that before the middle of June the entire milling capacity of the district did not exceed 40 stamps. With the present facilities, the present year will turn out $8,000,000.

Smelting.—*Empire:* The greatest activity prevails among the operators in base metal. Most of the furnaces have been kept in full blast, and the results are highly gratifying. The exports of base metal bullion are now about 50,000 pounds per week, to be increased to 100,000 pounds within the next 60 days, should the weather continue at all favorable, as there are several extensive smelting works now in course of construction.

Items.—*News:* Aurora Consolidated sends 20 tons of ore to mill daily....The drifts north in the Iceberg mine have developed a body of ore (milling from $75 to $100 the ton) 100 feet wide, and running easterly, as far as known, 80 feet.....Mr. Osborn, of the Chloride Co., expects to do a good winters work....Work on Original Hidden Treasure stopped last night. Tregloan mill, 10 stamps, turns out $2,000 bullion daily....Work on the Little Bilk will be resumed on Monday....Forsythe, of the Mineral Point mine, Base Range, sends ore to the smelters and pays $30 per ton for reduction. It returns from $90 to $200 per ton....The boys on the Rio Grande intend sinking until they find a ledge if it takes a year....Sunbeam has a considerable face of $30-ore....A New York company broke ground on the Blue Hill Tunnel on Thursday.

Items.—*Empire:* Manhattan is putting up an ore house....Eberhardt is operating with a small force, The mine never looked better....California is still shipping ore to Stanford mill....Hartwell has been incorporated with a capital stock of $186,000...Henderson mill has started up again....Wyland's furnace has turned out 10 tons of base metal bricks since Tuesday. The furnace is now lined with sandstone from near Five-mile house.

Oregon.

Big Nugget.—*Sentinel*, Dec. 25: A Chinaman, mining on Succor creek, Josephine county, recently found a solid lump of gold, which weighs $307.

San Francisco Mining Stock Market.

[From the Commercial Herald.]

City Stocks.

We report a dull market for miscellaneous securities. We note a sale of 4 shares California Steam Navigation Co. at 50 per cent., and 21 shares Spring Valley Water Co. at $62 per share. This company will disburse its usual dividend on the 10th inst.——North Beach and Mission Railroad Co. paid its regular ½ per cent. dividend on the 3d.——Sacramento Gas Co. paid its usual monthly dividend on the 1st.——San Francisco Gas Co. disbursed its customary ¾ per cent. dividend since the 1st inst. The annual meeting of stockholders takes place on the 17th inst.——The Farmers' and Mechanics' Bank of Savings announce a dividend of 1 per cent. per month, for the six months ending December 31st, on first-class term deposits, payable on and after the 10th inst.——The Pacific Bank disbursed its usual monthly dividend on the 3d inst.——The Merchants' Mutual Marine Insurance Co. will pay its usual monthly dividend of 1 per cent. on the 10th.——The Occidental Insurance Co. declared a dividend of 1 per cent. per month for the quarter ending December 31st, payable on and after the 8th inst.——Union Insurance Co. also announce a dividend of 1 per cent. per month for the last quarter in 1869, payable on the 12th of the present month.——The Sacramento Savings Bank on January 1, held $1,510,954 on deposit, and had a cash balance that day of $146,606. The savings for the six months ending with December, amounted to $162,787. The deposit accounts number 3,257. They pay a dividend of 1 per cent. for the six months just closed.——The Marysville Savings Bank has announced a dividend of 1 per cent. for the last half of 1869.——The Pacific Insurance Company has declared a dividend of 1½ per cent. per month for the fourth quarter of 1869, payable on the 12th inst.

Mining Share Market.

No very great degree of activity prevailed in the mining share market during the past week, the transactions being confined to fewer stocks, and less volume. A number of leading stocks met with rather free offers, the sales perfected showing a recession from prices obtained the previous week. Generally speaking, there is rather an apathetic feeling in mining stock circles.

Hale & Norcross—was in the market to a moderate extent. During the week ending January 1st, 66½ tons of ore were taken from the upper mine, and 958¾ from the lower mine, making a total of 1,025¼ tons, against 971½ the previous week. Their dumps contain 5,994¾ tons of ore, of which 2,081 tons is low grade. On the 4th inst. they were cleaning out the south drift on the sixth level, preparatory to running cross-cut No. 4. The ore supply from this section of the mine will be increased through facilities which are nearly completed. The ore breasts throughout this level are reported to be looking exceedingly favorable.

Chollar-Potosi—sold as freely as the previous week, at a well maintained price. For the week ending Dec. 31st, they extracted 704½ tons of ore; previous week, 1,155. The Blue Wing locality of this mine is reported to look as well as previous week, showing a slight improvement in the quality of the ore. Made a shipment of $15,480 in bullion on the above day. A dividend of $1 per share is payable on the 10th.——Gold Hill Quartz shows a bullion product of $5,710 73 during the month of December.——Ophir sold at a decreased rate. On the 4th inst., the new shaft contained 145 feet of water. At the old mine, the new shaft has gained a depth of 85 feet.

Gould & Curry—was in lessened request, at a considerable decline. During the week closing Jan. 3d, 346 tons of ore were extracted, and 664¼ sent to reduction works. It is reported that the prospects in the El Dorado section are fair as to the discovery of deposits of ore near where they are at present working. At the 7th station, the main drift north is in 200 feet, running in a heavy body of clay. The west drift has passed through the clay, and has what is termed bird's-eye porphyry somewhat mixed with barren quartz. The main drift south is 230 feet in length, the face showing green porphyry.

Amador (Cal.)—will disburse a dividend of $12 per share from and after the 7th inst.——Kentuck announces a dividend of $10 per share, payable on and after the 10th.——Crown Point levied an assessment of $7 50 per share on the 5th.

Latest Mining Stock Prices Bid and Asked.

AT THE S. F. STOCK AND EXCHANGE BOARD

Friday, January 7, 1870.

WASHOE DISTRICT, NEV.	Bid.	Asked.
Alpha	16¼	16¾
Belcher	15	15¼
Bullion, G. H.	—	10
Crown Point	15	15⅞
Cole (Va.)	—	—
Confidence	—	15
Chollar-Potosi	18¼	18½
Daney	10c	15c
Exchequer	8	8½
Empire M. & M. Co.	20	25
Gould & Curry	65	66
Gold Hill Quartz	30	35
Hale & Norcross	151	155
Imperial	47	—
Julia	—	—
Justice and Independent	—	1
Kentuck	143	144
Lady Bryan	6	6½
American	—	—
Occidental	13	13¼
Ophir	14½	—
Overman	—	70
Segregated Belcher	7	8
Savage	43	43½
Sierra Nevada	9	9¼
Yellow Jacket	52¼	52¾
MISCELLANEOUS DISTRICTS.		
Amador (California)	320	—
Aurora, White Pine	9	10
Eureka, (California)	249	250
Golden Chariot (Idaho)	—	15

To Encourage Iron Mining.—Mr. Maclay has given notice of the introduction of a bill into the Legislature to encourage iron mining in California. Some encouragement in this direction should be given.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Mining and Scientific Press and other Journals.]

ASSESSMENTS.

Name, location, amount, and date of assessment.	Day delinquent.	Day of sale
Alleghany, Sierra co., Dec. 20, 50c	Feb. 7	Feb. 28*
Cons. Chloride Flat, W. P., Dec. 14, $1	Jan. 29	Feb. 24
Crown Point, Storey co., Jan. 5, $7.50	Feb. 8	Feb. 28
Daney, Lyon co., Nev., Dec. 7, $1	Jan 9	Jan. 27
Flowery, Storey co., Nov. 12, $1	Dec. 16	Jan. 7
Glenwood, El Dorado co., Dec. 13, 20c	Jan. 10	Feb. 1
Gold Hill Tunnel, Dec. 17, $1.50	Jan. 19	Feb. 5
Hope Gravel, Nevada co., Dec. 10, $1	Jan. 17	Feb. 7
Imperial, Storey co., Nov 15, $10	Dec 20	Jan. 14
Julia, Storey co., Dec. 23, 50c	Jan 25	Feb. 12
Kincaid Flat, Tuolumne co., Dec. 9, $2.50	Jan. 12	Jan. 29*
Kearsarge, Inyo co., Dec. 29, $5	Jan. 31	Feb. 19
La Blanca, Mexico, Nov. 5, $1	Dec. 4	Dec. 27*
Latawana, W. P., Nov. 22, 10c	Jan. 29	Feb. 19
Manchester, Alpine co., July 16, 10c	Dec. 4	Dec. 27*
Meadow Valley, Lincoln co., Dec. 1, 25c	Jan. 5	Jan 25
Mammoth, White Pine, Jan 4, 20c	Feb. 14	March 7
Noonday, W. P., Nov. 13, 30	Dec. 20	Jan. 15
Pilot, W. P., Nov. 23, 10c	Jan. 3	Feb. 21*
Pocahontas, El Dorado co., Nov 12, $5	Dec. 20	Jan 12.*
Pinto, White Pine, Jan. 3, 15c	Jan. 15	March 7*
Rising Star, Idaho, Nov. 5, 50c	Dec. 18	Jan. 15.
Rocky Bar, Nev. co., Nov. 23, $300	Dec. 27	Jan. 13
Sacramento and Meredith, Nov. 15, $1	Dec. 22	Jan. 10
Sierra, Douglas co., Nev., Dec. 3, $1.25	Jan. 6	Feb. 4
Silver Vault, W. P., Nov. 22, 5c	Jan. 11	Feb. 7
Tallulah, Nev., Nov. 22, $2	Dec. 31	Jan. 25
Taylor, El Dorado co., Jan 5, 60c	Feb. 7	Feb. 28*
White Pine Mutual, Sept. 29, 50c	Nov. 22	Jan. 20
Yellow Jacket, Storey co., Nov 25, $5	Dec. 28	Jan. 31

MEETINGS TO BE HELD.

Amador	Meeting Jan. 17
Sierra Nevada	Meeting Jan. 10

LATEST DIVIDENDS—(Within Three Months).

Amador Co., div. $12 per share	Payable Jan. 7, 1870
Chollar-Potosi, div., $1	Payable Dec. 6, 1869
Eureka, div. $7 50	Payable Dec. 6, 1869
Golden Rule, Tuolumne co, div 50c ℔ sh	Pay. Oct. 26, 1869
Ida Elmore, div. $1	Payable Dec. 14, 1869
Kentuck, div., $10 per share	Payable Jan. 5, 1870
Sierra Nev., Storey co., Nev., div. 50c	Pay. Oct 10, 1869

——*Advertised in this journal.

San Francisco Prices of Copper Ores.

San Francisco, Jan. 7, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 12 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	26 65	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

New Incorporations.

Hartwell M. Co.—San Francisco, Dec. 29. Capital stock, $1,680,000; 16,800 shares of $100 each.

Joe. Walker M. Co.—San Francisco. Dec. 29. Capital stock, $1,200,000; 12,000 shares of $100 each,

The Farmers' Wharf and Dock Co.—San Francisco. Dec. 29. Capital stock, $200,000; 1,000 shares of $200 each. Trustees: J. H. Bostwick, Wm. Hamilton and F. E. Corcoran.

Occidental Canal Co.—Kern County. Dec. 24. Capital stock, $1,000,000. Trustees: W. W. Hudson, J. W. Freeman and L. F. Humiston.

San Diego River Water Co.—New San Diego. Dec. 24. Capital stock, $150,000. Trustees: A. Klauber, T. J. Frisbie and L. Scott.

California Coöperative Boot and Shoe Co.—San Francisco. Jan. 3. Capital stock, $100,000, in 20,000 shares of $50 each. Trustees: W. M. Farrell, C. Sullivan, E. Bourjinquon, D. McSweeney, J. Miller, J. Laseer and B. O'Donovan.

Meetings, Elections, Etc.

The Academy of Science.—Jan. 3d. The following officers were elected for the ensuing year: Dr. James Blake, President (reëlected); Dr. Kellogg, Vice-President; Leo Eloesser, Corresponding Secretary (reëlected); H. P. Carlton, Recording Secretary, (reëlected); Elisha Brooks, Treasurer (reëlected); Dr. J. G. Cooper, Librarian; H. G. Bloomer, Director of Museum.

Adriatic G. & S. M. Co.—Jan. 4th. Trustees: Camilo Martin, Charles Hirschfeld, James Bole, J. Lewis Schroder, Simon Mayer. Subsequently, Simon Mayer was chosen President, and Paul Neumann, Secretary.

Gould & Curry.—Dec. 27th. Trustees elected: Messrs. Steinhart and Wormser in place of Messrs. Fry and Sunderland; Alpheus Bull, M. Morgenthall, A. K. P. Harmon, I. Steinhart, A. Hayward, Thos. Bell and Isidor Wormser. The officers are: Alpheus Bull, President; Isaac L. Requa, Superintendent, Wm. C. Ralston, Treasurer and Alfred K. Durbrow, Secretary.

Savage Mining Company.—Mr. T. B. Shamp, the superintendent of this company during the past year, has resigned his position. Mr. C. Bonner, who has been superintendent before, is appointed his successor.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

The California Milk-Weed.

Much interest appears to have been excited in this State by the recent appearance of a circular, from an English produce broker, Alexander Macrae, of Liverpool, in which, speaking of the California milk-weed—*Asclepias Syriaca*—he says: "There can be no question that this article, now allowed to run wild and uncollected in the State of California, can be readily made a valuable article of commerce." He further suggests that "there is a fortune in the gathering of this weed and its exportation to this country [England], and the sooner it begins the better."

Its Growth and Appearance.

The variety of milk-weed indigenous to California, grows in great abundance in almost every county in the State, and particularly in San Joaquin. It prefers low, moist ground, and thrives especially on river banks and in marshy places. Mr. J. T. Murphy, in the Sacramento *Bee*, says:

> It generally grows from one to two feet in height, and when in bloom presents a most striking appearance; yet nothing to be compared in liveliness and beauty to when its seed pods are ripe. You will see, as each pod bursts open, a large and beautiful bunch of silky white fiber about the size of a hen egg, and as white as snow. I should judge from the pureness and delicacy of this milk-weed that it far exceeds in quality East Indian hemp, Istle or Mexican fiber, Palmetto leaves of America, China grass of Japan and Mexico, and I am quite satisfied can be spun to imitate the Japanese silk, like the China grass, etc. It is a perennial plant, and belongs to the papernecia class, its stools or roots lasting for several years. Botanists differ as to its place of nativity.

Experiments with the Plant.

Mr. Felix Gillet, of Nevada, furnishes the *Transcript* of that city with some very interesting facts in relation to some experiments which he has been making with the "silk" or pod contents of this plant, which he prefers to call a *silk plant*, rather than a *milk-weed*. It appears that Mr. G. gathered a number of pods, in 1867, took out the silk and sent it to a Lyons' silk merchant in France to be tested.

His correspondent makes returns that he distributed the sample among several of the leading manufacturers in Lyons, all of whom had failed in their efforts to convert it into a thread suitable for weaving—the staple is too short. Mr. Gillet is now endeavoring to so improve the staple of the pod, by careful cultivation, as to render it possible to spin and weave it. He has made no experiments with the fiber of the stem; but says that he shall endeavor to collect sufficient next season to have it thoroughly tested.

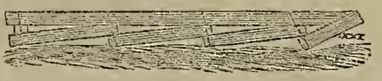
We have a statement before us, from Mr. Alex. Kirkwood, in the Canada *Farmer*, of some three or four years since, that the down of the Canadian milk-weed had then been "manufactured into fabrics of beautiful appearance and texture," and that *paper* had also been made from both the down and fiber.

Flax, after all, is no doubt the safest fiber, after cotton, upon which we can rely at present; as that, in addition to its value as a fiber, also furnishes a seed which, at the present prices, pays for the entire culture. We presume, however, that experiments will be made with the milk-weed until its textile value is fully determined. We shall watch its development with much interest, and report progress as fast as anything noteworthy transpires.

It should be recollected that Mr. Macrae makes no offer, in his circular, of any price to be paid for the "milk weed,"—from which we infer that he is desirous that some one should collect and forward to him or some other person a sufficient quantity to secure for the same a thorough test. That end will no doubt be accomplished by the especial attention which has been called to the matter.

A Good and Cheap Clod-Crusher.

Harrowing, in many instances, will not effectually break up the clods in a plowed field, while the roller, worse still, presses them into the soil. We give herewith, from the *Rural New-Yorker*, a sketch of a clod-crusher much used in many places, which is said to be far more effectual than either. It is made by taking two pieces of 4x4 scantling, about eight or ten feet long, and three pieces of plank, each one foot wide and lapping the latter underneath, as shown in the figure. The scantling should run past the planks in front, a few inches, and after being properly beveled, should be connected by a cross-piece made of plank, also beveled, like the front of a runner or sled. This cross-piece should lap upon the first of the series of planks, as shown. These sections of planks should be securely spiked to their places, and the heads of the spikes carefully sunk into the wood. A ring on each corner, with a chain running through both, so as to form a bite or loop in the center, is the most convenient form for hitching. In order to prevent the forward end from drawing too high, the rings should be placed a few inches back of the extreme front of the drag. A drag of this description will, in many instances, be found much better than any other device employed for breaking up clods or otherwise smoothing over the surface of a plowed field. It rubs the lumps to pieces, instead of burying or pressing them into the soil. The device is extremely simple, and can be readily constructed by any farmer. It is common property—no patent having been asked for it.



Improved Cotton Culture.—With the new order of things at the South, there appears to be a decided disposition to introduce improvements in agriculture. We made a notice, a few weeks since, of the gain in the yield and quality of cotton, by improved culture. Improved varieties are also being introduced, one of which, known as the "Peeler Cotton," is said to be giving much satisfaction. The Georgia *News* says: "It is rapid in its growth, matures early, is very prolific, and the staple is long, silky and strong. It ought to, and probably will, sell for ten or fifteen cents more than the ordinary cotton. It will be largely cultivated in this section next season."

No plant of equal value in the world has been more completely left to take its chances, than cotton; yet there is no reason why careful culture and selection may not do as much for this as for almost any other plant that has been cultivated either for pleasure or profit.

A Hardy Breed of Sheep.—We devote a large space in this issue to an article on the Herdwick breed of sheep, which are about to be introduced into Missouri, and the introduction of which into this State is already a matter of consideration. What has already been said in previous and the present issue of the Press will no doubt prepare such as may feel interested in this matter to look for further facts in this direction, which have been promised us by Prof. Rowlandson.

To Destroy Weevils and other Insects in Grain.—M. Gand, Agricultural Engineer of Belgium, gives his method for destroying the weevil and other insects in grain. His plan is to deposit the grain for seed in barrels fumigated with burning sulphur. Coarse threads of twine are drawn through melted brimstone, suspended in the barrels intended for the grain, and burned there. The seed is then thrown into the casks amid the fume, and covered up for a quarter of an hour, when the operation is complete, and the seed ready for sowing.

Applying Manure to Seed.

The Chinese, who excel all other nations in the economy of agricultural operations, aside from the employment of machinery, seldom sow or plant a crop of any kind without having previously soaked their seeds in a diluted manurial preparation of some kind. They hold that this operation not only gives the plant an early start, but preserves both the seed and plant from worms, bugs and flies. They have made this a common practice for thousands of years, and fully learned its value from experience; while its practice by Europeans and Americans dates back scarcely half a century. The practical results of Chinese agriculture are too important to be spoken of with contempt by even the most advanced American agriculturists of the present day.

Experiments.

It is only within a very few years that any very careful experiments have been made in this direction by either European or American farmers. Some twenty years ago, Mr. Ronald, of Glasgow, commenced a series of such experiments on wheat, which he continued for ten years, and which fully sustained the value of the practice. The chief elementary substances which he employed were lime and water, and solutions of hen manure, city sewage, and soot and water. He also used *sugar* with great advantage, not only as a useful manure, but also on account of its glutinous nature in adhering to the seed and holding there other substances with which it was mixed. His method of coating seed was as follows:

> Take a tub, say thirty inches in diameter and two feet deep; empty into it four bushels of wheat; take four pounds of sugar, bruise any lumps that may be in it, and sprinkle it on the top of the wheat. Take another tub, two feet in diameter and one and a half feet deep; put into it six gallons of water, and mix soot with it until it is as thick as good cream; then, with a jug, distribute the solution slowly on the top of the sugar and wheat. The liquid will then be about two inches above the level of the wheat, and the whole mass is to be stirred several times during the first four hours. After remaining fourteen hours the liquid is entirely absorbed, and the grain is sowed without loss of time.

Soon after Mr. Ronald had finished his experiments, the plan was tried upon oats by a gentleman, who communicated *his* results to the London *Farmer*. The result in this instance was equivalent to an additional yield of six and a half bushels to the acre.

Professor Johnson, Agricultural Professor at the Sheffield Scientific School of Yale College, strongly recommends this practice as one, the advantages of which have been fully proven by numerous experiments.

Use of Blue-stone, Etc.

The practice of steeping wheat in "bluestone" (sulphate of iron), etc., for preventing smut, grub, etc., is now largely practiced both in this State and at the East, and with good results. The idea, however, connected with this practice, that the benefit derived is due to the fact that the chemicals employed prevent attacks upon the seeds by insects, or kill the germs of fungi which harbor them, and which would otherwise enter into the composition of the plant, is quite erroneous; the benefit is solely due to the manurial (stimulating) action of the chemical in securing a vigorous growth to the plant in the earliest stages of its development. Now if other ingredients were added to the "blue stone," such as those employed by Ronald, the benefits would no doubt be still greater at a mere nominal addition to the cost.

The Philosophy of Manuring Seeds.

The plan of causing every seed to carry with it to its bed in the earth some good manure stands to reason; and the fact that saccharine matter is developed in the germinating process, leads naturally to the conclusion that an increased supply of this substance would be beneficial. But even although the scheme were not based on specious principles, or although its actions were incapable of a scientific explanation, that would be no good ground for abandoning experiments or relinquishing all research in that direction. The writer in the London *Farmer*, above alluded to, says:

> In the progress of the growth of the crop, the superiority of the dressed grain is in most cases very marked. In early sown fields, on weak soils, with barren weather, corn yellows in the *swoon*—that is, when the nourishment of the pickle is exhausted. At this stage in the growth of the plant, the benefit of the coating is at once apparent, especially if sugar has been one of the ingredients used in the dressing. The embryo plant otherwise languishes in its first searches after food.
>
> The sight of the sickly plant at this period, under the conditions assumed, as compared with manured seed, would convince the most incredulous that good was to be derived from the scheme. To assert, as some sanguine advocates have done, that, by adopting this process, the farmer may dispense with the ordinary manurial applications, and yet have a large crop, is quite absurd. A grain of alimentary matter in contact with the seed cannot extend its influence through the whole period of the growth of the crop. It can only be rationally viewed as an *auxiliary*, and not as a *substitute*, for ordinary farm-yard manure, or such artificials as are in other circumstances applied to the crop.
>
> The main obstacle to the constant success of the experiments in this direction is an excess of rain before and down to the stage of the growth of the plant to which we refer, by which the ingredients used pass away by solution and filtration at too early a day.

The Rain and the Crops.

The recent rains have been timely, and will constitute much in aid of the growing crops. In some portions of the State the early-sown grain was already languishing for want of moisture. In Tulare county the previous rains had soaked the nutriment out of the old grass, but did not start the new; and the cattle were suffering severely for the lack of feed—some in a famishing condition. Many farmers on the west bank of the San Joaquin had commenced seeding their ground for the second time, as the seed sown in the early part of the season had failed to come up at all.

In every direction where the ground has not been seeded, the plows are active. In the Sacramento Valley, more grain has been sown up to the present time than ever before; probably this is also true of every part of the State, Though the measure of grain has been less than usual up to the present period of the season, it has been sufficient for all requirements so far; and the prospect is good that we may yet come up to a fair average. Still a good, old-fashioned California rain-storm would be of great value to the country at this time—to the miner, as well as to the farmer. The fall thus far has been about 4½ inches in this city, and about 5½ in the neighborhood of Mount Diablo.

Dairy Farming in Monterey County.—The Monterey *Democrat* furnishes the following particulars with reference to the dairy farm of Mr. C. S. Abbott, in that county: "The farm consists of 3,600 acres of land, on which are kept 450 cows. Corn is sown in drills, and beets are cultivated to be used as feed in the winter. It is said that milch cows will rent, to persons who desire to manufacture butter and cheese, for from $25 to $30 per head. At the latter price, the 450 cows would bring an annual revenue of $13,500. It is not necessary, in order to enter upon successful dairy farming, to have so large a tract of land or so many cows. Forty or eighty acres of tolerable land, accessible to market, would make a fine business for a family of moderate expectations. Cows can be kept almost everywhere while vegetation is growing, and the cultivation of root crops, or a little grain, to be fed with hay or straw, will do the whole business."

Herdwick Sheep for the Sierras.

In our issue of September 11th, 1868, we made mention of the fact that parties were making an effort to introduce into Missouri a hardy breed of sheep from the mountains of Navarro, in Spain, which, it was thought, might also be successfully introduced into the mountain regions of this State. That notice brought out a communication from Prof. Thomas Rowlandson, of this city, which appeared in our issue of November 6th, following, in which the Professor suggested that, from the similar characteristics ascribed to the Navarro breed, they might be identical with the "Herdwick sheep," deemed so valuable in the mountainous districts of England, and which the Professor had already recommended to the attention of the residents of the alpine districts of California. He also gave the tradition of the origin of this breed of sheep—that they were supposed to have descended from a flock which escaped from a ship wrecked many years ago on the southern coast of Cumberland.

The Professor has since placed in our hands the tenth volume of the *Journal of the Royal Agricultural Society of England*, published in 1849, in which we find a Prize Essay, written by him, "On the Breeds of Sheep Best Adapted to Different Localities," containing the following additional reference to this interesting breed of sheep:

They were small, active, polled [without horns] and their faces and legs speckled. They evinced a peculiar sagacity in foreseeing the approach of a snow-storm, as it was invariably seen that a little before its coming, they clustered together on the most exposed side of the mountain, where the violence of the wind usually prevented the snow from lodging. This instinct caused them to be regarded with a degree of interest amounting to superstition; and their excellent qualities and adaptation to their new situation became speedily evident; some portions of the fleece were considerably finer than that of the black-faced sheep, whilst the matted quality of the wool enabled them to endure any severity of weather. * * * Great endeavors are now [1849] being made by the farmers in the district named to procure flocks of pure Herdwicks; some of whom have been constantly aiming at this point for upwards of twenty years, and are still under the impression that they have not got their flock to the proper degree of purity of blood; it is is certainly an indirect proof of the great value of this breed for its own peculiar locality, that farmers should strain and devote themselves to a point so apparently simple, but there are difficulties to surmount of no ordinary nature in order to procure a genuine flock, which serves in a like manner to indicate their great worth. These sheep, not being at first properly appreciated, got more or less crossed with the prevailing black-faced breed, and to restore the breed to its original purity is one of the difficulties that a Herdwick flockmaster has to overcome. * * When we see a set of careful farmers, than whom there is not a more thrifty and hard-working body in the United Kingdom, is found thus strenuously and perseveringly bending itself to the one object—the improvement of the breed under consideration—we may rest assured that their superiority over the old black-faced race for elevated districts, is of no ordinary description.

As a proof of the value set upon this breed of sheep, we briefly summarize from the Professor's essay the fact there stated, that ninety-four competitors came forward for the various prizes offered at the Ennerdale Bridge Fair for 1848, varying from the highest, for the best Herdwick tup or buck, down to two dollars, the lowest. Twenty-two prizes were subscribed for by the breeders, and six premiums were given by the Keswich manufacturers—viz: three for the best white-fleeced tup or buck, for which there were twenty-three competitors, and three ditto for the best pair of five white-fleeced ewes; evincing no mean amount of emulation, when it is reflected that this local association existed only for an area of not more than 200 square miles of mountain land, and not above one-fifth of that now occupied almost wholly by this peculiar breed of sheep.

The following are the characteristics of the Herdwicks, as given in the essay above named:

The Herdwicks of the present day are characterized by being polled, and have brownish or speckled black and white or mottled faces; some few have black faces, and also some have horns, but neither of these are considered genuine; they are also known from the circumstance that, as they get older, they assume a white or grey appearance about the nose or legs (in the shepherd's phrase they grow raggy). The ewes should always be polled; on a few wethers and rams small smooth horns make their appearance—a proof of intermixture of blood; the wool is fine, only about the neck and fore-quarters often intermixed with kemps. The wool on the body is open and very kempy, assuming in some instances the appearance of hair, and is only used for the coarsest purposes, such as horse-rugs, etc., and consequently obtains only a low price, notwithstanding which, Herdwick flock-proprietors prefer this sort of fleece to one of better quality, as it is found from experience that stock with coats, as described, withstand the severe winter weather on the bleak mountains which they inhabit much better than sheep with a better fleece. A singular anatomical character is also found amongst many of them, viz: that of having a rib more than any other breed—fourteen instead of thirteen. If "they keep their ground well," as it is locally termed, the ewes are kept as long as they will breed, which is often until they are ten or fifteen years of age, and some few have been known to attain the age of twenty years. The wethers go off at four and a half to five and a half years old, and are generally killed without being placed on any better pasture, being found sufficiently fat off the mountain; in fact, they have been tried on turnips, clover, and other artificial food, without any commensurate advantage, and sometimes with an evident loss of crop and deterioration in the weight of the sheep. When fat, they weigh from ten pounds to twelve pounds per quarter, and are the finest mutton produced in England, assimilating in flavor closely to venison; they also, when at the fattest, possess a larger portion of lean meat than any other sheep; and, when the legs are cured in the same way that pigs' hams are, make a most exquisitely-flavored grill. The ewes are frequently sold to graziers in the vales, and are put to Leicester and Southdown rams; and, if put on good fair land, will fatten a lamb as large as themselves, being excellent mothers and possessing an abundant flow of milk. No hay is given to Herdwicks during the winter; they support themselves in the deepest snow by scratching down to the herbage, and if any part is blown bare they are sure to discover it. The lambs are dropped about the 12th of May, and are well covered with wool when dropped; sometimes the lambs are taken to the lower grounds the first winter. The ewes are not put to the ram until they are two years and a half or three years and a half old. There is a striking peculiarity in connection with the Herdwick sheep, viz: that when once domesticated, as it may be termed, to any particular portion of mountain land, the shepherd is always sure to find them on their proper locality, unlike the black-faced sheep, who are desperate wanderers. This valuable quality in mountain sheep has, however, this disadvantage, that the ewes, if removed from the place where they were reared, will be invariably found to return to their native locality at the lambing season. This renders it almost impossible to procure a flock of Herdwicks except by purchasing lambs, at which early stage of their growth this fixed attachment to the place of their birth may be presumed to be not so strong.

ABOUT SEEDS.—The fact that old seeds yield week plants is taken advantage of by the florist in producing new varieties. It is said that while the one-year-old seeds of Ten-weeks Stock yield single flowers, those which have been kept four years give mostly double flowers. In case of melons, the experience of gardeners goes to show that seeds which have been kept several, even seven years, though less certain to come up, yield plants that give the greatest returns of fruit; while new seeds run excessively to vines.

APPROACHING THE SEA.—It is said that the proposed ship canal near Stockton will place that city within eighty miles of San Francisco, by deep-water communication, and less than four hours' time by means of fast steamers.

The Santa Cruz Farmers' Club.

Deep or Shallow Plowing.

This club held its first regular meeting, on Saturday, Dec. 18th, when the question of deep or shallow plowing was discussed. We learn from the *Sentinel* that the meeting was well attended, and the discussion quite animated. As this subject is of much importance, and as the discussion relates exclusively to California experience and practice, we copy in full so far as reported in the *Sentinel*:

Mr. Alex. Russell was in favor of deep plowing and afterwards using the sub-soil plow; stubble-fields cannot well be plowed too deep. The roots of cereal crops, in dry soil, strike deep, below the plowed surface in dry seasons.

Mr. E. Daken.—In sub-soiled ground he had raised, on terrace-land, 125 sacks of potatoes to the acre; but the same plowing had been a failure for grain. Used the common 13-nch plow, with a 10-inch mould-board plow to furrow and cultivate—when the soil is good, always sub-soil.

Mr. Dana Monteith was in favor of sub-soiling; for that purpose had used only the common plow-share to subsoil for beans; the land was common clay, with alluvial and vegetable mould.

Mr. H. H. Doane said in working down knolls, it requires at least three years to level and cultivate sufficiently to raise good crops.

Mr. M. Kingsley had always plowed deep, and found that the deeper he cultivated the better was the crop; had plowed twelve inches deep, and raised forty bushels of wheat to the acre. Again, in lighter soil, the same plowing had a crop of only twelve bushels to the acre. Had plowed four inches, deep in good soil, with a dry season, and the result was ten bushels to the acre.

Mr. J. S. Mattison.—Had plowed nine inches deep and had forty-five bushels of wheat to the acre; the following year, from the same cultivation, had only twenty bushels to the acre. In sub-soiling, the heavy rains packed the soil, and the water stood on the surface instead of entering the ground. (Mr. Russell explained, by saying that he did not propose running the sub-soil plow on the surface, but about six inches deep in the regular furrow). Deep plowing was best for drainage, as the water settles below the roots of the grain or runs off by under-drainage. Sub-soiling is most effective for drainage, when the ridge-furrows are shallow and the border furrows very deep.

Mr Monteith had used four yoke of cattle, plowing new upland soil six inches deep, and had a crop of from fifty to sixty bushels of wheat to the acre. The surface was clay-gravelly, with a blue-clay subsoil.

Mr. E. Daken believed shallow plowing, generally, was a failure. He had plowed ten inches deep, which experience had proved the best. His land had averaged four tons of cereal hay to the acre. His plan was to plow deep and round the lands up so as to self-drain. This is necessary on a dead level plateau, such as found adjacent to the sea-shore. When he first commenced plowing, the ground was so hard he could not strike a pick into it, even after the fall rains; now he could plow any of his land before the first rains.

Mr. V. Humphrey inquired of Mr. Daken "how many years have you pursued this plan?" Ans. "Seven years." "Well, then you had a slope of nearly seven feet for under-drainage?" "No," said Mr. D., "the cross-harrowing partially fills up the furrows and decreases the incline of the slope, so I find that the mower acts well and cuts the grain off perfectly smooth from the ridges; although the ground seems uneven, on inspection, it is found practicable to mow it as well as level land."

Mr. V. Humphrey thought that 10 or 12-inch plowing was too deep, in the average soil; it makes a mortar-bed of the land; he was opposed, from reason, theory and practice, to deep plowing, because the soil is too porous. Plowed six inches deep the second year, for oats; the first year plowed from ten to twelve inches deep—this refers to land which requires drainage—considered six inches shallow plowing. The roots of plants will not penetrate below the plowed level, if a field is cultivated at an uniform depth and a crust is permitted to form.

Martin Kinsly said he had this year raised twelve acres of corn, which yielded fifty bushels to the acre—had plowed the field twelve inches deep.

Mr. Humphrey replied he could only speak of his own land or such as he had cultivated himself.

San Francisco Market Rates.

Wholesale Prices.

FRIDAY, January 7, 1870.

Flour, Extra, ₰ bbl.	$5 00	@	$5 50
Do. Superfine	4 25	@	4 50
Corn Meal, ₰ 100 lbs	2 10	@	2 25
Wheat, ₰ 100 lbs	1 15	@	1 65
Oats, ₰ 100 lbs	1 15	@	1 80
Barley, ₰ 100 lbs	1 10	@	1 50
Beans, ₰ 100 lbs	2 40	@	3 50
Potatoes, ₰ 100 lbs	75	@	1 00
Hay, ₰ ton	10 00	@	18 00
Live Oak Wood, ₰ cord	9 00	@	14 00
Beef, extra, dressed, ₰ lb	7	@	10
Sheep, on foot	2 50	@	3
Hogs, on foot, ₰ lb	5	@	
Hogs, dressed, ₰ lb	8	@	

GROCERIES, ETC.

Sugar, crushed, ₰ lb	14	@	14
Do. Hawaiian	8	@	12
Coffee, Costa Rica, ₰ lb	18½	@	19
Do. Rio	18½	@	19
Tea, Japan, ₰ lb	75	@	90
Do. Green	60	@	1 25
Hawaiian Rice, ₰ lb	9½	@	10
China Rice, ₰ lb	5½	@	6
Coal Oil, ₰ gallon	62½	@	65
Candles, ₰ lb	16	@	18
Overland Butter	30	@	42
Ranch Butter, ₰ lb	40	@	50
Isthmus Butter, ₰ lb	25	@	40
Cheese, California, ₰ lb	16	@	20
Eggs, ₰ dozen	50	@	55
Lard, ₰ lb	12½	@	14
Ham and Bacon, ₰ lb	17	@	19
Shoulders, ₰ lb	10	@	12

Retail Prices.

Butter, California, fresh, ₰ lb	50	@	60
do. pickled, ₰ lb	40	@	50
do. Oregon, ₰ lb	25	@	30
do. New York, ₰ lb	40	@	50
Cheese, ₰ lb	20	@	25
Honey, ₰ lb	25	@	30
Eggs, ₰ dozen	60	@	65
Lard, ₰ lb	20	@	25
Hams and Bacon, ₰ lb	22	@	25
Cranberries, ₰ gallon	1 00	@	1 25
Potatoes, ₰ lb	2	@	3
Potatoes, Sweet, ₰ lb	—	@	2
Tomatoes, ₰ lb	2	@	3
Onions, ₰ lb	3	@	5
Apples, No. 1, ₰ lb	4	@	6
Pears, Table, ₰ lb	5	@	
Plums, dried, ₰ lb	10	@	12
Peaches, dried, ₰ lb	10	@	15
Oranges, ₰ dozen	50	@	75
Lemons, ₰ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ₰ lb	—	@	25
Soap, Pale and C. O.		@	12
Soap, Castile, ₰ lb		@	20

How to Feed a Tree.

It is a mistake to suppose that digging and manuring a few inches or a foot around the body of a tree does it any material good, except in the case of one very young. The roots of a full-grown apple tree receive their nourishment about ten or twelve feet away from the trunk. The larger roots nearer the trunk are simply great arteries, which convey to the trunk the nourishment which has been taken up by the smaller roots at their extremities. Of the thousands of hungry mouths of a full-grown tree, but a mere moiety are found until you reach a point under the extreme limit of the most wide-reaching branches. Hence, the tree should have the bulk of its moisture and nourishment placed at some little distance from its trunk.

True, if you are regardless or ignorant of the habits of a tree, and persist for a long time in placing its food close by the trunk, nature, rather than allow the tree to be starved out, will reverse her order, and send out a new net-work of spongioles, with their little mouths, from the trunks, instead of from the opposite extremity of the roots, in order to reach the misplaced food. When you feed a fruit-bearing tree, place the food near its mouths, which are from five to ten feet from the trunk, according to its size and age. Would you place a bag of oats on a horse's back to feed him?

SUGAR FROM BEETS IN CALIFORNIA.—According to the report of the parties directly interested, the result of the late tests in the manufacture of sugar from beets in Sacramento, have fully solved all doubts as to its practicability and economy. It is now stated that the company will enter largely into the business during the coming summer. If the business is once successfully established, it must increase rapidly, and add largely to the home productions of the State. According to the Sacramento *Bee*, parties connected with the beet sugar factory at Fond du Lac, Wisconsin, associated with others in this city, have recently purchased 100 acres of land in Alameda county, which they will lay down to sugar beets this year, and will erect a sugarie on the premises. The successful test made at Sacramento has created an interest in this matter, and it is likely that even this year several sugaries may be erected in the State.

Now that the ramie cultivation is beginning to excite so much attention. Parties are moving in the matter of utilizing the so-called "California milk-weed.

Scientific Press.

W. B. EWER..........................SENIOR EDITOR.

A. T. DEWEY. W. B. EWER.

DEWEY & CO., Publishers.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance................	$4 00
One copy, six months, in advance..................	2 50
Delivered by city carriers, per month..	50

Rates of Advertising.

One square (ten lines agate), one week..........$	1 00
One square, one month........................	3 00
One column, one month.......................	40 00
One column, one year.........................	400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, Jan. 8, 1870.

Table of Contents.

Stebins' Improved Scroll Saw—Ill.............. 17
Mills of Colorado........ 18
El Dorado Co. Sketches.. 18
From Liverpool to London................... 18
American Style of Railroad Building.............. 18
The State Agricultural Society................... 25
The Coal Fields of Southern Russia. 25
Rocky Mountain Heights 17
Barrel Making by Machinery..................... 25
Friendly Criticism...... 24
The Diamond Drill...... 17
New Incorporations.... 21
Notices of Recent Patents 24
S. F. Stock Market...... 21
S. F. Shareholders' Directory..................... 21
READING FOR THE HOUR.—Something About the Winds; Winter-Dwellings of Alaska; An Execution by Hara-Kiri; San Francisco Directory, etc.... 28
FARMING AND GARDENING.—The California Milk-Weed; A Cheap Clod-Crusher—Ill.; Applying Manure to Seed; The Rain and the Crops; The Santa Cruz Farmers' Club; The Herdwick Breed of Sheep; S. F. Market Rates, etc.. 22
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Alaska, British Columbia, Colorado, Idaho, Montana, Nevada and Oregon 20
MECHANICAL PROGRESS — The Engines of Those Gunboats; Iron for Specific Purposes; Notes for Photographers; Blast Furnaces, etc 19
SCIENTIFIC PROGRESS — Life in the Deep Sea; Jargonis; Albertite and Grahamite; The Mosasauroids; Phosphorus the Philosopher's Stone... 19

ALPINE COUNTY MINES.—Mr. Lewis Chalmers, of Bulliona, Alpine Co., writes us the following items: "The Imperial tunnel is now in 1,320 feet. Time occupied, 22 months, 235 feet from the perpendicular of the famous Florence ledge. Tunnel face indicates proximity to ledge matter. Have succeeded in forming an influential company in London to develop Buckeye No. 2, in the county. (The Exchequer G. and S. M. Co., Capital, $300,000). Board: the Earl Poulett, the Earl of Buchan, Lord South, S. King Church and H. Syme Esqs. Can get ore from the present tunnel assaying $100 to $540 per ton; antimonial sulphide chiefly. Shall commence work immediately." [The mineral sent will be described with others next week.]

* * *

TO FARMERS AND LAND HOLDERS.—Do you wish to sell your farm, or do you wish to dispose of one or more sections of your extensive landed possessions? If you do, you can sooner find customers by advertising in the SCIENTIFIC PRESS, which has a large circulation among the miners in every part of the State, who, at the present time, are the largest buyers of lands, for farming purposes, of any class of people in the State. Sellers should remember that it is a hard matter to dispose of property when nobody knows you wish to sell.

* * *

WHEAT SHIPMENTS FROM VALLEJO.—Twenty-two ships have loaded with wheat at Vallejo since July 1st., which have received cargoes aggregating $1,188,198 in value. Ships in going to that port to load have [to first take on board a portion of their cargo at this city, as ballast, to enable them to cross the bay safely—from 100 to 400 tons, according to the size of the ship. This amount of ballast, we presume, is to be deducted from the above aggregate of value.

* * *

THE LIGHTNING PRESS.—The first newspaper which was ever printed on an eight-cylinder lightning press in California, was the Thursday evening edition of the San Francisco *Bulletin*. We congratulate our neighbors on their enterprise, and hope that the activity of their brains may continue to keep pace with the activity of their new press.

Friendly Criticism.

Americans generally, and those of the Pacific coast especially, one might almost say, are peculiarly sensitive to outside criticism, and resent quickly any statement they consider in the least derogatory, although it may be true, if published by a stranger. Here in San Francisco, for instance, a storm of indignation is easily raised by any article which criticizes us, if printed or circulated at the East; while on the other hand, we laughingly accede to the remarks made in the *News Letter*, which at times reflect pretty severely on our failings.

The residents of mining regions seem especially alive to any statements which are made about them. Let an intelligent man visit any mining region, and publish a candid opinion of its advantages, and its short-comings, and the papers of that vicinity, overlooking his praise, immediately assail vehemently the critical remarks, and too often demean themselves by personal attacks on the unlucky writer. This is verified every year by actual occurrences.

To defend ourselves is natural, and to be always prompt to vindicate the reputation of one's city, district or country, is eminently praiseworthy, if conducted within proper limits. But to go to extremes, and to transgress the bounds of truth in such a case, is merely stultifying, and is raising a bar to our progress. We ought to be ready to acknowledge humbly our faults, and to profit by their being pointed out; not to deny them when they actually exist.

The practice of attacking any writer who ventures to speak candidly about a place, is resulting in a great measure in depriving us of correct information with regard to other localities; for a good-natured, easy-going person will show nothing but the best side. Who, for instance, can form any *correct* idea of California from Todd's book, lately published, or of the western countries from Bowles' very interesting but highly-colored narratives? Very old-fashioned and out of date is Burns' prayer getting to be: "O wad some power the giftie gie us, to see oursels as others see us! It wad frae monie a blunder free us, and foolish notion."

Our thoughts have been led in this direction by some remarks in Mr. Paul's letter on the Mines and Mills of Colorado, which we publish in another column. Mr. Paul is a gentleman of the most varied experience, and, as it seems to us, of a disposition to look at a country with impartial eyes. We would, therefore, call attention to his remarks, that he does not utterly condemn a place because he finds some faults in it, and that, on the other hand, Californians should not despise the land because such faults are commented on. We desire and expect further communications from Mr. P., and believe that they will be written with candor, but, as is expressly stated, with "Californian eyes."

Colorado is a most promising young Territory, with the brightest of mining prospects, as Mr. Raymond asserts, and as our own experiences there lead us to believe. It has had many drawbacks, however, the wild speculations of '64 having done an incalculable amount of damage. The mill-men in many places have too blindly followed the lead of others, and thus subjected themselves to unnecessary loss; in many places, we say, not in all. Crowds of so-called "scientific" men, with no science except that of drawing money from the pockets of others, have caused foolish expense, and brought discredit on the profession. But from what we have heard and seen this last year, we believe that a change is taking place, and that great advances have been and are being made, advances which Californians ought to watch attentively. Our remembrances of the country are very pleasant, for besides the bright hopes we were led to form of the prospects, we think fondly of [the unparalleled hospitality we received, although a stranger and unknown. And this pleasant memory alone would cause us to refrain from damning with indiscriminate praise.

* * *

Railroad Progress.

The present year promises to be even a more important one for railroad progress on this coast than the one just closed. It certainly opens well. The Oregon road is being pushed forward with the energy always characteristic of the managers of the Pacific Central. Rails and ties for this road are being rapidly forwarded along the line of work. The same company has also laid out and commenced work on the San Joaquin Valley road, which starts for the line of the San Francisco and Stockton road near Mossdale.

The Placerville and Sacramento Valley Railroad Co. have reorganized in a manner which looks like business—the effort being to effect an arrangement by which the Vallejo road may throw out a branch to Placerville.

The project of connecting the Salinas valley with the railroad system of the State is fast taking a practical shape. The latest reports from that direction connect Mr. Holliday's name with that enterprise. The citizens of Monterey county should do all in their power to encourage capitalists in such an undertaking.

Nevada and Grass Valley appear to be moving in earnest to secure a railroad connection with tide water. The importance of the quartz mining interest centering in those localities, calls loudly for such facilities. A connection via Marysville seems to be just now the favorite idea. Engineers have already been engaged to make the preliminary survey. The Vallejo and Marysville Railroad Company seem to be at the bottom of the movement, the object with this as well as with the Placerville road being to bring business to their main road.

The Suisun and Berryessa road is already in process of being graded, and there is a fair probability that the projected road up the Sacramento valley, west of the river, will soon be a fixed fact.

The first 20-mile section of the Oregon end of the road to connect that State with California is just about, if not already, completed.

* * *

AN INTERESTING legal decision has lately been made. A steamboat owner on the San Joaquin river made a written contract with a farmer to transport a certain lot of wheat at $3 per ton. The farmer failed to deliver the wheat according to contract, and was sued for the whole sum to which the contract would have amounted. The defendant proved that the plaintiff could get all the freight he wanted as long as the water was sufficiently deep for the passage of the boat, and that the plaintiff had freight for part of the season at $2.50 per ton, for shorter distances. The Court held that the plaintiff could recover only the actual pecuniary loss which he incurred, and that he could be considered to have suffered no damage, if he could get as much or more from others; that a carrier cannot refuse to work and claim full wages for his time in such a case.

* * *

THE SAN BERNARDINO TIN DISCOVERY. It is said that the discoverers of the reported tin deposits in Sweetwater Cañon, some 40 miles north of San Bernardino, are jubilant over their prospects. There is said to be a well-defined tin-bearing ledge, from which ore [specimens?] has been taken, assaying 30 per cent. of tin. There is very good reason to believe tin will, ere long, become one of the important mineral productions of California.

Silver has also been discovered near Camp Cady, on the Fort Mohave road, about half-way between San Bernardino and the Colorado river.

New Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING DECEMBER 28TH.

PROPELLING APPARATUS.—E. Averill, Sacramento, Cal.

PISTON AND PISTON-PACKING.—O. Collier, Sacramento, Cal.

BALL-AND-SOCKET JOINT.—Randolph Raby Craig and Joseph Craig, Nevada, Cal.

HYDRAULIC NOZZLE.—Aaron Harris, La Porte, Cal.

BRAKE FOR CARRIAGES.—Benj. F. Leet, Dayton, Nevada.

GANG-PLOW.—Emerson E. Gore, Phœnix, Oregon.

SALVE.—William W. Ogleshey, Benton Oregon.

MACHINE FOR BORING BLIND-STILES.—Albert M. Winn, Jefferson Kindleberger, and William Augustus Arnold, San Francisco, assignors to "The Inventors' Association," same place.

HARVESTER-CUTTER.—Frederick Wittram, San Francisco.

REISSUE.

CARBURETTING AIR FOR THE PRODUCTION OF LIGHT AND HEAT.—Blakey Pilkington, Oakland, Cal., assignee, by mesne assignments, of James D. Jenkins. Antedated January 28th, 1868.

* * *

Notices of Recent Patents.

Among the interesting and important patents recently issued to Pacific coast inventors, the following are worthy of mention:

MACHINE FOR BORING BLIND-STILES.—A. M. Winn, J. Kindleberger and W. A. Arnold.—In the old way of boring the holes one by one much time was necessarily consumed. This machine is then a great advance, as by it all the holes in one stile are bored at one operation. It, moreover, has a spacer by means of which the distance between the holes to be bored is rapidly adjusted at will, after the size of the blind has been decided upon. It consists of a frame which has two pulleys at each end. The augers for boring the stiles are driven by tranverse rollers, in the center of one end of which they are fastened. There are two sets of rollers, one above the other, so arranged that those in the upper set stand over the spaces between those of the lower. These rollers are driven by a belt, passing from one of the above-mentioned pulleys to the other, and extending between them, the upper surface of the belt driving the upper, and the lower surface the lower set. A table for holding the stiles extends along the front of the machine, and is operated by a cam in such a way that it presents the stile first to one set of augurs, by which the alternate holes are bored, and then to the other set, which bores the remainder. The whole machine is very neat, and the simplicity of the arrangement is evident at a glance. This patent, and several other valuable inventions by Kindleberger & Arnold, have been assigned to the San Francisco Inventors' Association. K. & A. were awarded a gold medal for their inventions exhibited at the last Mechanics' Fair.

MACHINE FOR UPSETTING BANDS OR TIRES.—Albert S. Hart, S. F.—This apparatus is for the purpose of shrinking or upsetting the tires of wheels, or more particularly small bands. It consists in providing the jaws, which retain the band or tire, with a projecting head, so that, when the band is keyed to the machine, the wedge will have an equal bearing the entire width of the band (or tire). The wedges themselves are so arranged in a slot in the jaws, that, as they are withdrawn, they are gradually raised, so as to free the band and present no obstacle to the ready introduction of the next heated tire. Attached to the fixed jaw is a projection, which fits in a suitable opening in the movable jaw, when they are closed, and which prevents the band from buckling or bending down during the process of shrinking. The heads are placed far enough apart to admit the stroke of a hammer, should the band bend upward during the strain. The apparatus particularly facilitates the introduction of a band immediately after it is heated—an important feature, as bands cool very quickly, owing to the thinness of the material of which they are made.

The Coal Fields of Southern Russia.

As we naturally are interested in those matters in which we are directly concerned, and as our western coal workings are every day assuming larger proportions, and are sure to play a most prominent part in the development of our country, we think it will be interesting to our readers to hear of some very important researches lately made with regard to the coal mines in a far distant part of the world.

The Deposits of Anthracite.

As yet known, have been confined principally to districts in Pennsylvania. Rhode Island has produced limited amounts; France and Wales, comparatively small quantities; while the beds in Russia have hitherto been known only as existing to the world in general. B. von Cotta, Professor of Geology at Freiberg, has, however, lately visited the Russian mines, and gives some very interesting particulars with regard to the fuel deposits.

Position and Extent of the Beds.

In the southern part of Russia, in the Don Cossack country, there is a coal formation which extends, on the surface, north of the river Don and of the Sea of Azov, some thirty geographical miles in length, and eight to ten miles in width. The formation is bounded on the west by elder crystalline slates, covered on all sides by newer formations, under whose horizontal strata, however, beyond the boundaries of the principal coal district, inclined or tilted strata of the coal formation come to the surface at several places, indicating a much greater subterranean extension. From examinations of these stratifications, it would appear that the coal measures have a tremendous thickness of about one-half geographical mile. Of course, the deepest parts cannot be mined, but those which can be reached will afford supplies large enough to last a long time.

Appearance of the Country.

The surface of the whole district is gently undulating and devoid of trees. The generally uniformity is interrupted only by thousands of mounds or tumuli, ten to twenty feet high, which occur everywhere, singly or in groups of two to five. Similar mounds exist over all Southern Russsia, in Germany, Hungary, Southern France, Spain, Portugal and Northern Africa.

The Rocks.

Consist of alternating clay slates and gray sandstones, with intervening strata of limestone and beds of anthracite one-fourth to four feet thick. The place of the last is taken in the northwest, however, by beds of bituminous coal. Small amounts of sphærosiderite or carbonate of iron occur, enough, however, to give grounds for believing that careful prospecting will show sufficient for an extensive development of the iron industry.

Geological [Puzzles.

It is a remarkable fact that in this sedimentary region there is an oft-repeated alternation—running into the thirties—of limestone strata, which are entirely of *marine* origin, and slates and sandstones, which hold only remains of *land plants*, and that, moreover, these land plants denote a *more recent* origin than the intervening marine limestones. It would appear from this that here, during the coal period, not only was there a frequent alternation of sea and swamp land (sinking and rising of the surface), but also that, under these circumstances, no definite limits in time can be drawn between the carbonaceous limestone formations and the coal measures.

It is, moreover, very remarkable that all the coal in the southern parts of the region of the Donetz river is the finest quality of anthracite, while in the northwestern parts it is still bituminous coal, and that, too, without any apparent geological cause; for eruptive rocks, which would have an influence on the character of the coal, are entirely wanting. Further north, some seventy geographical miles, near Tula, there is coal of the same age, which is, in fact, partly in the condition of brown coal (lignite), and which holds considerable amounts of honey-stone. It appears, then, from this, that the condition of coal-beds—the degree in which they are changed—does not depend exactly on their age.

Quality of the Coal.

The anthracite of the Donetz district is in part so pure and so compact that small ornamental articles can be made out of it. In Novo-Tscherkast (the capital of the Don Cossacks country) the Professor saw a vase some three feet high, and a casket more than one foot long, which had been made out of the coal, as a present for the successor to the throne and his spouse.

Government Titles to Mines.—A patent has recently been issued to J. N. Aiken, for the Virginia quartz claims at Coulterville, Mariposa county. This, says the *Independent*, is only the third which has as yet been issued and recived in the U. S. Land Office for the Stockton District. We believe that very few applications for titles have as yet been made in any part of this State. Miners are evidently holding back in expectation of some change being introduced into the law for securing such titles, from which they hope to profit more than they can from the present law. We believe the same is also true of the mines near Virginia City.

We see it stated, however, that many of the leading companies on Treasure Hill, White Pine, are moving in the matter of securing government titles to their claims. The Eberhardt, South Aurora, Aurora Consolidated, and Iceberg, have all made the necessary surveys to that end, and many others are soon to take the same steps.

The State Agricultural Society.

The annual meeting of the State Agricultural Society for the election of officers, will be held on the 26th of this month. We are pleased to note that the Society is entirely out of debt, with some money in the treasury. We also fully endorse the following from the Oakland *News:*

Now, if ever, the society should turn over a new leaf, and give more attention to the legitimate purpose of the organization. In view of the very extensive Fairs given under the auspices of the Mechanics' Institute, of San Francisco, for the exhibition and promotion of all kinds of manufactures, we think the Agricultural Society might consistently give less attention to that interest and more to farm production The improvement of live stock ought to be encouraged, but speed in horses should not be fostered above all other merits in the list of domestic animals. Speed in a horse is more a luxury than a necessity, and Agricultural Societies should not be chiefly kept up to improve a species of luxury that few can induge in—except "in their eye"—and in that case it is a question whether such exhibitions have a higher moral tendency than a faro bank. The excuse for making racing a specialty has been, that in no other way could an attendance be secured whereby the Fair could be made a financial success. If this be really true, then it is perfectly useless to hold fairs, and the quicker the State withdraws its aid, and the few men properly interested in hogs, cattle, sheep and the various productions of the soil, cease to countenance them, the better for agriculture.

A Fine Specimen of ore from Colorado is thus described by the *Register:* The piece is about the size of a man's hand, and one side is covered with crystals of quartz one-fourth to three-fourths of an inch in length, with fine crystals of iron pyrites dotted in among them, and the whole woven together with a network of fine, bright gold in delicate wires. Some of the iron crystals are covered with a thin coating of white, drusy quartz with minute crystals of gold over the surface, and others have fine wires of gold attached immediately to the iron. Many of the wires of gold also have minute crystals of quartz attached to them.

Our Home Industries.

Barrel-Making by Machinery.

Did you ever reflect how ingeniously and neatly constructed an article a barrel is? How nicely adapted is its shape, combining strength and lightness, the arched arrangement of its staves resisting pressure from without, the encircling hoops securing it from pressure from within! How convenient is its form for transportation, admitting of the vessels being rolled, or rapidly swung by means of hooks placed under the edges of the staves! It must have taken considerable talent to have constructed the first barrel. Ingenious as they have the reputation of being in general, the Chinese are said never to have made one of these articles.

There is a considerable amount of work to be expended on the wood before the complete barrel is formed. The staves must be cut or sawn to the required size, the edges beveled, the ends properly shaped, the grooves made, the heads rightly formed, etc. All this takes considerable time if done by hand. But the irrepressible Yankee, who invents time- and labor-saving machines, has not neglected the barrel, as you may see any day by going out to the Potrero to

The Pacific Barrel and Keg Factory.

Here are barrels and casks, or their separate parts, in quantities sufficient, one would think, to supply the whole coast for a long time; yet the work seems to go on continuously week after week and month after month, with a capacity of producing some 16,000 to 20,000 barrel staves daily. Taking sixteen staves as the number requisite for a barrel of the ordinary size, we have then at least 1,000 barrels daily. What an amount of liquids and solids we must indulge in to keep this one factory going!

The Wood.

Cotton wood for sugar and flour barrels; oak and fir for liquors, vinegar, etc.; sugar pine for the refineries, and various other woods from Humboldt Bay, the Sierra Nevada, Puget Sound and various parts of the coast, are brought in blocks and logs to the wharf. These are cut to the proper size, ready for the following processes:

Steaming and Cutting.

The wood for "slack work"—*i. e.*, for barrels where it is not requisite to have the staves so nicely joined as to prevent leakage—is put into a large tank, and subjected for some time to the action of steam. Having been brought to the proper state, the blocks are carried to a curved knife, which rapidly slices off the individual staves, giving them the requisite transverse curve. With this knife a skilled workman can cut some 80 to 100 staves every minute.

If the barrels are to be perfectly water-tight, the wood is not steamed, and, therefore, cannot be so readily cut in this way with a knife. So the blocks for tight-work are sawn into the proper shape by means of circular saws.

Rolling, Beveling, Etc.

When it is desired, the staves are bent longitudinally to the right curve, thus saving considerable labor in setting them up to make the barrel or cask. For this purpose, after the treatment previously described, the staves are carried up stairs in an endless chain, through a steam-chamber, and deposited near a rolling machine. This catches the staves, and passes them through a series of rollers so constructed that the staves now have both curves—transverse and longitudinal.

They are now set up, one by one, on end in a frame, which holds the stave securely in its proper bend; by swinging this around to one side against cutters fixed in a revolving wheel, one end is jointed to its right bevel; swinging it around to the other side, the other edge is served in the same way—the chamfering of the ends and sawing them off being done by cutters at the same time. Some twenty staves can be shaped thus in one minute.

Cutting Out the Heads.

Our staves are now complete—except grooving, which most coopers, who buy the staves from the factory, prefer to do themselves. We have the heads still to shape. The wood is cut by saws to the right thickness and about the right length. The number of pieces necessary are put in a frame, which holds them fast, and, revolving, subjects them to the action of two circular saws, placed at such angles that the proper edges are cut and the circular head thus made in one operation.

Our staves and heads are now ready to be set up into barrels or casks of any size; for these machines, which we have seen, are adjustable, and will prepare whatever is necessary. The majority of the staves are sold to coopers, who do the rest of the work requisite to produce a marketable article. The factory will, however, make the barrel or cask complete, if desired, and, in fact, keeps a number of coopers constantly employed.

By our new machines and improved processes we are every day getting further from the poetical and nearer to the purely practical. When we have a mechanical apparatus for setting up the staves and fully completing the barrel, the good, slow, old days of the cooper's song will have passed away; but the world will be the gainer.

More About the California Milk-Weed.—Since the article on this subject, in another column, went to press, we have received a later number of the Nevada *Transcript*, in which Mr. Gillett says he has just learned from a work on silk, published 30 years ago, that flannels, superior to English, have been obtained from the silk of this weed, treated in the following manner: The pod is gathered when ripe, dried and separated from the seed. On account of its lightness, it has to be subjected to the action of steam, and mixed with cotton, to give it a sufficient body for carding. It dyes readily, and can be spun and woven, or used instead of cotton as a padding for garments. It has been used in the manufacture of certain East India and China cloths.

A correspondent of the Monterey *Republican* says the plant is now known to botanists as *Asclepias* "*Cornuti*," instead of "*Syriaca*," for the reason that the latter term indicates it to be a native of Syria, where it is never found.

Fish Culture.—A Sacramentan, according to the *Bee*, has received by rail from the East a large quantity of fish spawn, consisting of white fish, salmon trout, speckled brook trout, fresh-water herring and shiners, which will be deposited in some of the lakes on the Sierras, where such fish are not found. If this spawn quickens into life, more and other varieties will follow, until all our mountain lakes are stocked with every possible variety of fish. This work is being done gratuitously by a gentleman piscatorially inclined.

Culver & Lewis, model makers and machinists, have opened a shop at No. 20 Fremont street, where they are prepared to accommodate inventors with careful work, and assist in perfecting the devices of those who may not have their plans entirely completed. Mr. Culver has had experience in this line of business.

A Valuable Present.—What more useful present could be made to the "folks at home" than a year's subscription to the Scientific Press? It will save much letter writing, and will convey, from week to week, a better idea of what is going on in California, of general interest, than any other paper published in the State.

Dr. Livingstone.

John Kirk, English Consul at Zanzibar, received on Sept. 7th a letter from Dr. Livingstone, dated "July 8th, near Lake Bangweolo." He has found what he believes the sources of the Nile, between 10° and 12° south,—or nearly in the position assigned to them by Ptolemy. We quote a part of the letter: "It is not one source from a lake, but upwards of twenty of them. Lake Liemba, which possibly is an arm of Tanganyika, has four rivers flowing into it. One I measured, and found it to be 29½ feet, say 100 yards wide, and waist deep, and flowing fast in September. No rain had fallen since the 12th of May; elsewhere it almost requires canoes. This has eleven good-sized 'buons' flowing into it. Taking these four rivers as one line of drainage (a fifth from Marengo must be added), then the Chambezi flows from the side into one center of the great valley and receives there streams as large as the Isis at Oxford, or Avon at Hamilton. Chambezi enters Bangweolo Lake and receives two streams, then changes its name to Luapula, and, flowing north, receives two streams about fifty yards each. Luapula receives one and enters Moero Lake to receive five streams; one is eighty yards broad and always requires canoes; on leaving Moero it is called Luababa, which receives two good-sized streams, and it forms Ulenge, either a lake with many islands or a division with many streams, which are taken up by the Bufira, a large river, which by five branches drains the west side of the great valley, which probably is that of the Nile.

I have still to follow down the Luababa and see whether, as the natives assert, it passes Tanganyika to the west, or enters it and finds an exit by the river called Locinda into Lake Chowambe, which I conjecture to be that discovered by Mr. Baker."

CHINESE SURVEYING.—M. Skatchkoff, a Russian, who has been a resident in China, recently published in St. Petersburg a small volume upon "Chinese Rural Economy," from which *The Engineer* gives the following description of the method of leveling employed by the Chiness surveyor:

"The instrument employed is a modification of the water-level—an oblong trough of buckthorn or other similar wood, clamped with iron, and open at the ends. The interior surfaces of the sides are ruled horizontally with fine parallel lines in red or black paint, to serve as guides to the observer's eye. The trough is suspended by a single cord from a hook fastened beneath the apex of a wooden tripod stand. The usual height of the latter is 4½ feet. The instrument is adjusted by pouring water into the trough—which is deeper in the center than at the extremities—and then shifting the suspending cord or the legs of the tripod until the surface of the water coincides with a pair of the horizontal lines. With this level, and with the measuring-line and pins before described, all the requisite "field work" is readily and effectually if not very expeditiously performed."

TURRET SHIPS FOR THE ENGLISH NAVY. The English, after much delay, and a vast expense in experimenting upon other plans, have finally adopted the American turret system for their iron-clads. The keel of the first ship of this build, which is intended to be typical of the first-class British war ships of the future, has recently been laid at Portsmouth, and a second is to follow immediately. They are to be constructed on the genuine turret principle, without any attempt to unite, by the addition of masts and sails, the characteristics of two distinct classes of fighting ships.

A REMARKABLE FACT.—The Carson *Appeal*, of December 23d, has the following: It is a very singular fact, and one which is well worth the study of scientific men, that the body of no person that has been drowned in Lake Tahoe has ever come to the surface. No appearance of the three men who were drowned there a few days since has been discovered, and we learn that it is in contemplation to attempt their resurrection by the discharge of Giant powder into the waters near where they are supposed to have gone down—something upon the old principle of firing cannon over the place where dead bodies lie buried by water, to make them rise.

PHYSICAL CONSTITUTION OF THE SUN.—"Frankland and Lockyer remark that the facts observed lead to important modifications of the received theory of the physical constitution of the sun—that proposed by Kirchhoff. According to this theory, the photosphere is either solid or liquid, and is surrounded by an atmosphere composed of the gases and vapors of the substances incandescent in the photosphere. Instead of this we find that the outer atmosphere consists mainly of hydrogen, and that the photosphere is cloudy, or gaseous, or both. Thus it has been shown that a gaseous condition of the photosphere is consistent with its continuous spectrum; that the spectrum of the photosphere contains bright lines when the limb is observed, indicating an outer gaseous shell; that a sun spot is a region of greater absorption, and that occasionally photospheric matter appears to be injected into the chromosphere."—*American Journal of Science and Arts for November.*

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

WM. H. MURRAY, California and Nevada.
E. M. DEWEY—California.
S. H. HERRING—California.

Resident Agents.

CENTERVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
SACRAMENTO.—M. S. Senter.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—Thos. Starr.
CARSON CITY, Nev.—John G. Fox.
TREASURE CITY, Nev.—J. L. Robertson.
SHERMANTOWN, NEV.—P. C. Renfrew.
SILVER CITY AND IDAHO TER.—Sam. Heidelberger.
SILVER CITY, Idaho—J. Caples.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orahood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Barkalow & Brothers.
LONDON—George Street, 30 Cornhill, E. C.
HEDSON & MENET, 41 Park Row, New York.
A. C. KNOX, City Soliciting and Collecting Agent.

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM
PRINTING ESTABLISHMENT.
Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

Business Cards.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

T. D. YOUNG,
PORTER OF MACHINISTS' TOOLS
113 and 114 Beale St., San Francisco
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent. and upwards. 23v17qr

LEA & PERRINS'
CELEBRATED
Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c.; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

EYE
AND
EAR
DISEASES.

DR. ABORN'S
CONSULTING AND OPERATING APARTMENTS,
NO. 22 KEARNY STREET,
For the most modern and scientific treatment of the diseases of the EYE, EAR, HEAD, THROAT and LUNGS.
18v19-3m

For Miners, Millmen and Metallurgists.

KUSTEL'S NEW WORK,
CONCENTRATION
Of all kinds of Ores, and the
CHLORINATION PROCESS,
For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price, - - - - $7.50

A liberal discount to the Trade. For sale by the Booksellers
Sent to any part of the United States, postage paid, on receipt of the price. Address,
DEWEY & CO., Publishers,
Office of the Scientific Press, 414 Clay street,
1v16tf SAN FRANCISCO. 1868

Metallurgy.

MOSHEIMER'S
Pioneer Mining School
—AND—
METALLURGIC WORKS.
ESTABLISHED........................1858.

Having established the first Practical Mining and Metallurgical School in the United States, I would call the attention of gentlemen who may wish to obtain a practical knowledge of
Chemistry, Assaying and Metallurgy,
That I am prepared to teach all the above branches in less time than in any European School.
I also undertake to work any kind of ore, or mineral substances.
Special attention I would call to all parties who have the so-called rebellious ores, that I undertake the construction of any kind of Smelting, Chlorination, Amalgamating, Refining, or Manufacturing Works.
I refer not to single persons, but to all the works which I build in the States of Nevada and California, all of which are in successful operation.
For terms, apply to JOS. MOSHEIMER,
Practical Chemist and Metallurgist.
Office, 328 Montgomery street; Metallurgic Works, 2005 Powell street, San Francisco. 16v19-3m.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at
No. 36 FREMONT STREET,
And WORKS at H. J. BOOTH & CO'S FOUNDRY, north-east corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.
Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.
By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public.
☞ Mines Examined and Reports made.
REFERENCES.—William Bosworth, Thomas Varney, Egbert Judson, E. T. Steen, Wm. Bellshaw, P. Reichling, W. O. Sleeper, J. L. N. Shepard, Norbert Landry.
CHAS. PLETZ & CO.
CHAS. PLETZ, Analytical Chemist.
FRED. MORRIS, Amalgamator and Millman. 25v19-3m

G. W. STRONG,
ASSAYER AND WORKER OF ORES,
No. 10 Stevenson street, near First, San Francisco.
Highest price paid for choice lots of Orés, Sulphurets, Assay Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14v15qr.

H. W. GRAY. J. ROSEBERRY. D. S. LOOMIS.
Ores of all Kinds Crushed and Sampled.
H. W. GRAY & CO.,
YOLO MILLS.
Corner Market and Beale Sts., San Francisco.
24v19-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers,
505 Clay street. (southwest cor. Sansome),
16v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS.
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.
24v18-1m

J. J. JONES,
CARPENTER and BUILDER,
No. 324 Jackson street, between Sansome and Battery,
Stores and Offices fitted up with neatness and dispatch.
7v18tf

W. C. CAMPBELL,
PATTERN AND MODEL MAKER,
No. 20 Fremont street, over Phœnix Iron Works, San Francisco.
Particular attention given to MODELS for the Patent Office—Brands and Pattern Letters Cut. 4v18mtf

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

SCIENTIFIC PRESS.—To the miner, farmer and mechanic—the three great interests that form the base and ground-work of all our prosperity—this paper should be considered as almost indispensable. We wish the PRESS boundless success in the future.—*Placer Herald.*

Valuable Books on Mining, Mineralogy, Geology, Metallurgy, Etc.

ANTISELL.—Tho Manufacture of Photogenic or Hydro-Carbon Oils, from Coal and other Bituminous Substances, capable of supplying Burning Fluids. By Thomas Antisell, M. D. 1 vol. 8vo..	3 00
AARON (CHAS. H.)—Treatment of Rebellious Silver Ores. 8 pp.; pamphlet. S. F., 1869. Postage free	25
BROWN (H. T.)—507 Mechanical Movements. Dewey & Co's Scientific Press Edition, S. F., 1869. The most complete publication of illustrated mechanical powers with replete descriptions. 131 pp. Cloth bound; postage free	1 00
BARSTOW—Sulphurets; What they are, How Concentrated, How Assayed, and How Worked; With a Chapter on the Blow-pipe Assay of Minerals: 1 vol. 12mo. cloth	1 00
BLAKE, W. P.—Annotated Catalogue of California Minerals. 8vo	50
BLAKE, (W. P.)—Report on the Precious Metals at the Paris Ex., 1869. (To be had through Members of Congress.)	
BROWNE, ROSS—Mineral Resources of the Pacific States. San Francisco, 1868	4 00
BOURNE (John)—Handbook of the Steam Engine, Illustrated. 2 vol. 12mo, cloth	2 25
CONGDON.—Mining Laws and Forms of California and Nevada, and the Mining Ordinances of Mexico. 181 pp. 8vo; flexible cloth; 1864	2 50
CRONISE (W. H. V.)—Natural Wealth of California	6 00
DANA'S Manual of Geology. Numerous Illustrations. 8vo. half morocco. Philadelphia, 1867.	6 75
DANA'S Text-Book of Geology. Illustrated. 12mo, cloth. Philadelphia, (School Edition) 1861...	2 25
DANA'S System of Mineralogy. New Edition. 8vo. cloth	10 00
DANA'S Manual of Mineralogy. Revised edition, 1868	10 00
ELDERHORST'S Blowpipe.—Analysis and Determinative Mineralogy. Third edition, revised. 8vo. cloth. Philadelphia, 1866	2 50
FEUCHTWANGER — Treatise on Gems.	6 00
GOODYEAR'S Translation. A Treatise on the Assaying of Copper, Silver, Lead, Gold and Mercury, from the German of Th. Bodeman and Bruno Kerl. 1 vol. 12mo. cloth	2 50
HITTEL'S (JOHN S.)—Resources of California; comprising Agriculture, Mining, Geography, Climate, Commerce, etc., etc; the Past and Future Development of the State. 12m., cloth.	1 50
HOSKOLD'S Practical Treatise on Mining Land and Railway Surveying, Engineering, Etc. 1 vol. 8vo. cloth	16 00
KUSTEL.—Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada; also, a description of the General Metallurgy of Silver Ores. By Guido Kustel, Mining Engineer. Illustrated by accurate engraving. 1 vol. 8vo. cloth	5 00
KUSTEL.—A Treatise on Concentration of all Kinds of Ores: Including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores Generally. By Guido Kustel, Mining Engineer and Metallurgist. Illustrated with 120 diagrams on 7 plates. 1 vol. 8vo. cloth	7 50
LAYRES (A.)—Elements of Composition (for schools or self instruction). 166 pp, Cloth	1 00
LAMBORN.—Rudimental Treatise on the Metallurgy of Copper. 1 vol. 12mo. limp cloth. Illustrated	1 00
MITCHELL'S Manual of Practical Assaying. 1 vol. 8vo. cloth	10 50
MAKINS.—A Manual of Metallurgy, more particularly of the Precious Metals, including the Methods of Assaying them. By G. H. Makins, 1 vol. 12mo. cloth. Illustrated by upwards of 50 engravings	3 50
OVERMAN (Fred.)—A Treatise on Metallurgy; comprising Mining, and General and Particular Metallurgical Operations. 1 vol. 8vo. cloth.	7 50
PHILLIPS (J. ARTHUR) — Mining and Metallurgy of Gold and Silver. New edition.) 8vo. Cloth	15 00
PERCY (John). — Metallurgy; the Art of Extracting Metals from their Ores, and adapting them to various Purposes of Manufacture. Iron and Steel. 1 vol. 8vo. cloth.	13 50
ROWLANDSON (THOS.)—Treatise on Earthquake Dangers, Causes and Palliatives. 96 pp.; pamphlet. S. F., 1869. Postage free	50
SCOFFERN'S Useful Metals and their Alloys. 1 vol. cloth	5 50
SIMONIN, L.—Underground Life; or, Mines and Miners. Edited by H. W. Barstow, F. R. S. 160 wood engravings, 20 maps (colored), and 10 plates of metals and minerals in chromo-lithography	18 00
URE'S Dictionary of Arts, Manufactures, and Mines. 2,300 Engravings. From last London edition. 3 vols. 8vo. cloth. New York	16 50
WHEELER & RANDALL'S Quartz Operator's Handbook. Flexible cloth, 12mo. San Francisco 1865	1 00
WHITNEY.—A Geological Survey of California. Report of Field Work from 1860 to 1861. By J. D. Whitney. Per. vol. quarto	6 00
YALE'S Mining Claims and Water Rights. 8vo	7 50

Any of the above Books will be furnished by return mail or express, on receipt of price, in coin, postage added. Any other books desired will also be furnished at the lowest San Francisco retail prices. Address,

DEWEY & Co.,
Scientific Press Office, San Francisco.

OCCIDENTAL Insurance Company,

OF SAN FRANCISCO.]

Cash Capital, - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

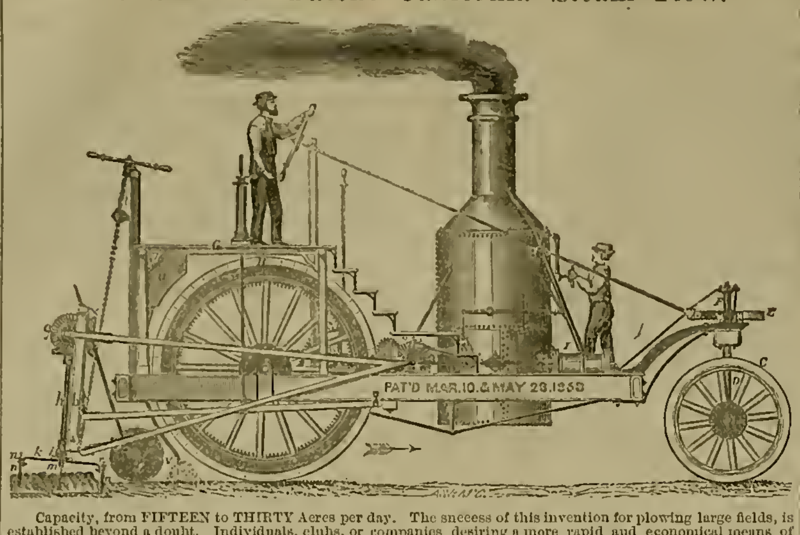
Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

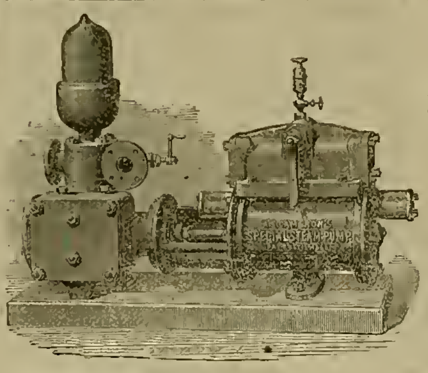
CHR. CHRISTIANSEN, President

B. Rothschild, Secretary. 20v17-3m

The Standish Patent California Steam Plow.



Capacity, from FIFTEEN to THIRTY Acres per day. The success of this invention for plowing large fields, is established beyond a doubt. Individuals, clubs, or companies desiring a more rapid and economical means of cultivating their farms, are invited to call upon the inventor, PHILANDER H. STANDISH, or address him by mail, Box 17, San Francisco. Single Machines for sale. Also, State rights, and patents for England, France, and Russia.



CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

GIFFARD'S
INJECTORS.

MARINE
ENGINES.

SURFACE
CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

SAN FRANCISCO Gold and Silver Plating Works.

ATTENTION. Quartz Mill Men, MINERS, HOTEL KEEPERS, — AND — OTHERS. ATTENTION.

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

WONDERFUL
Scientific Discovery.
THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years You are quite at liberty to use this intimation as you please. Yours truly,

John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

---

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods cheaply, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent. off to the trade. Address,

HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

HIBBERD, SANBORN & CO.,

STAIR BUILDERS.

South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

SPAULDING & BARTO,

BOOK AND JOB PRINTERS,

Scientific Press Office,
NO. 414 CLAY STREET,
SAN FRANCISCO.

CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,
AND
PRINTING OF ALL KINDS FOR BUSINESS MEN
BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,
Neatly, Correctly and Promptly Printed.

Notice to Miners, Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
3v13 ly Stove Store, No. 1 Clay Street, below Davis.

Professional Cards.

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street.......... ....San Francisco

(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chloridizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blow-pipe, Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,

HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v15-1y

JOHN ROACH, Optician,

Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-5m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.
2v15-lqy

GILES H. GRAY. JAMES M. HAVEN.

GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

Oil Cake Meal.

THE BEST FEED KNOWN
For Live Stock.

We desire to call attention to OIL CAKE MEAL, which we are now manufacturing. No description of feed so greatly promotes the health of animals as Oil Cake Meal, and we urgently request all engaged in the dairy business, raising and fattening stock, or wool growing, to give it a trial, feeling confident that they will find it of very great value. By those who have used it thoroughly, ONE pound is pronounced to be equal to two pounds of Corn Meal; and in the U. S. Government Report of the Department of Agriculture for 1865 it stands in the following relation to other feeds as to the percentage of flesh produced from a hundred pounds of feed, viz.: Indian Corn Meal, 11 pr. ct.; Barley Meal, 13 pr. ct.; Oat Meal, 18 pr. ct.; Oil Cake Meal, 22 2-100 pr. ct. For life-sustaining properties for all stock exposed to sudden changes of weather or over-driving it has no equal,

FOR MILCH COWS it is particularly valuable, increasing the quantity of milk and improving its quality to a far greater extent than any other feed known. A suitable quantity for them at the commencement is one quart in the morning and one quart at night, either alone or mixed with any other food; generally mixed with the mash of bran, slops, roots, or cut feed of any kind. It will improve it to soak it for six or eight hours, the effect being to increase its bulk two or three times. The quantity can be increased gradually, according to the effect produced—ordinarily not exceeding three or four quarts per day.

FOR BEEF CATTLE it has fattening properties which cannot be found in any other feed—the beef always being more tender and juicy and of much finer quality than when fattened on any other feed; and no feed known will so quickly prepare animals for market as Oil Cake Meal.

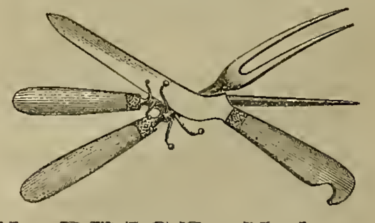
FOR HORSES a small quantity given daily promotes their health, and is especially valuable for them when chilled or injured from over-driving. It is one of the best remedies known for Horses subject to the Heaves or Rheumatism, and greatly increases the cleanliness, evenness and glossiness of the hair.

FOR SHEEP there is no article of feed known that produces such fine mutton or so promotes the growth of wool. A small quantity given to chilled Cattle or Sheep will keep them alive and greatly increase their warmth and vitality.

At present price ($28 per ton) it is the cheapest feed in market. It is now selling in New York at $42 per ton, gold; at $50 per ton in England, where it has been proven for a long time to be in every respect the most profitable feed known for stock of all kinds—one ton being fully equal to three tons of bran.

The increasing demand for this meal from those on this coast by whom it has been thoroughly tested has induced us to increase our facilities for its manufacture, and we are now fully prepared to furnish it in quantities as may be desired. For sale by the Grain and Feed dealers, and at the manufactory, King street, near Third All orders will receive prompt attention. Address—

PACIFIC OIL AND LEAD WORKS,
Nos. 3 and 5 Front street, San Francisco.
20v19-1am3m



M. PRICE, Maker,
No. 415 KEARNY STREET,
Between Pine and California, San Francisco.
20v19-3m

Blake's Patent.

THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's

Patent Steam PUMP

It is simple, compact and powerful, needs no expert to run it, and will start at any point. Is warranted positive under all circumstances. Send for a circular.

BERRY & PLACE, 112 and 114 California st., San Francisco.

Reading for the Hour.

Something About the Winds.

The atmosphere under the tropics is more intensely heated than it is in the temperate zones. The heated air rises and the cold air rushes in from the north and south to take its place. Thus in each hemisphere two aerial currents are formed—one near the earth's surface, of cold air tending towards the equator, one higher up, of warmer air tending towards the poles. Several causes, however, combine to prevent their blowing due north and south.

Trade Winds.

In the first place, on account of the rotation of the globe, the mass of air moving towards the equator is constantly arriving at a point on the earth's surface, which is moving more rapidly towards the east than the point the air has just left. As the mass cannot instantaneously acquire the increased velocity, it is left a little behind—a little to the west—at every step. Hence, the lower currents, as they approach the equator, bend continually towards the west, and the two currents—one from the north, and the other from the south—meeting at the equator, combine to produce the trade wind, which in the Pacific Ocean blows constantly from east to west, and would blow regularly in this direction around the globe, if no continents intervened.

Irregular Winds of Temperate Climes.

The upper currents are, of course, affected by the earth's rotation, as they pass towards the poles, in the reverse direction. As they, however, approach the north and get cooler, they sink, and when they meet the lower currents coming south, a strife for the mastery ensues, and this is a chief cause of the irregularity of the winds of the temperate climates.

Land and Sea Breezes.

The land is heated more by the sun's rays than the sea, and cools more rapidly when the sun's heat is withdrawn. Hence, on an island in a warm climate, there is in the daytime a current of warm air rising from the surface of the ground, and of cooled air flowing in on all sides from the ocean, while after sundown the current is reversed. This causes the well known daily alternation of land and sea breezes.

Monsoons.

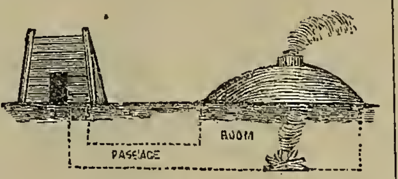
A similar action between continents and oceans are produced by the alternations of the seasons, as is exemplified in the monsoons of the Indian Ocean. This sea, shut in by continents, is thereby removed from the influences of the general trade-winds, and has a system of currents peculiar to itself, which blow six months in one direction and six months in the other. These are set in motion by the unequal heating of the continents of Asia and Africa in the extreme seasons. In the winter months, the part of Africa south of the equator is intensely heated, while southern Asia is comparatively cold. The current sets then from Asia to Africa. When the sun comes north of the equator, the conditions are reversed, the currents change, and the change is always attended by variable winds and raging storms.

THE "COMING PHILANTHROPIST" has appeared, and is publishing a new paper which is entitled *Truth*, and issued "to benefit mankin ." The first number is so promising that we hasten to get ourselves put down on the free list, by stating that it "can be had, three months on trial, for only ten cents, of news agents, or by addressing Truth Association, Hammontown, New Jersey." This paper expresses its opinions in a forcible manner, and "strikes out" right and left with a hearty will. We are glad to see it make such a stand, and pat it patronizingly on the back, hoping that it will not indulge too largely in its "announcements."

Winter-Dwellings of Alaska.

The ideal of comfort is purely comparative. What in the ruder stages of civilization is considered a luxury, has grown now-a-days to be held as a necessity. And here in our pleasant homes we hardly realize how roughly others are living, unless, indeed, the memory of the earlier days of the country have left a more than commonly vivid impression on our minds.

Our countrymen—for so they must now be termed, must they not?—of the frigid regions of our newly acquired Territory, Alaska, reside in mansions similar to that roughly delineated below, if they are fortunate enough to do so well. If fortunate enough, we say, for Mr. F. Whymper, who traveled pretty extensively in Alaska, in connection with the telegraph enterprise undertaken in 1866 with the view of laying lines from San Francisco to London, via the Russias, considers a settlement, which is made up of such dwellings, a rather favorable sample of an Indian village in that country.



In building such a house, a little shanty is first erected, under which a small shaft is sunk a short distance. From this, a passage is dug several yards to one side, so small that one must crawl through on hands and knees to reach the dwelling proper, which is a square hole in the earth, over which is erected a low roof with a small hole in the top for the escape of the smoke of the fire, which is built directly beneath. In this narrow space live as many persons as can well be crowded in. When the fire gets low, a skin is spread over the smoke-hole to retain the heat, which it does, and also the various perfumes arising from the not over-clean household. The roof, being heated to a certain extent, is a favorite resort for the dogs, who occasionally vary the monotony of the underground life by tumbling down through the smoke-hole on to the fire, scattering the burning sticks, and modifying the odors arising from the old skins, stale fish and other fragrant articles with the perfume of singed hair.

To one unaccustomed to the Indian manner of living, existence in one of these places is at first all but impossible, and staying out in the biting cold seems preferable. Nature has given man, however, wonderful powers of adaptation, and a residence in the country teaches one to accommodate himself to circumstances; and that, moreover, ventilation, however desirable in general, is not apparently absolutely necessary to mere animal existence.

WORTH KNOWING, IF TRUE.—A correspondent of the *Scientific American* says: "I have used the compound of glycerin, oxide f lead, and red lead, for mending a large cast iron kettle that had been fractured across the bottom by allowing water to freeze in it, with the happiest results. It takes some little time to dry, but turns almost as hard as stone, and is fire and water proof. For mending cracks in stone or cast iron ware, where iron filings can not be had, I think, it is invaluable.

"My method was as follows: Take litharge and red lead, equal parts, mix thoroughly and make into a paste with concentrated glycerin to the consistency of soft putty, fill the crack and smear a thin layer on both sides of the casting so as to completely cover the fracture. This layer can be rubbed off if necessary when nearly dry by an old knife or chisel."

THE latest title of Commodore Vanderbilt is the "Venerable Collossus of Roads."

San Francisco Directory for 1870.

This most valuable book has just been issued in a style which reflects credit on its compiler and publisher. It contains an unusually large amount of interesting matter, together with the carefully prepared statistics.

The condition of San Francisco is but a reflex of the whole coast, so closely connected are the interests of city and country, and the proof contained in the volume of the progress of this place, despite the hard times, must be gratifying to every one.

The number of references is over 65,000, an increase of 14 per cent. since 1868. The population of San Francisco was estimated in September, 1869, at 170,250, including 8,600 Chinese and 9,000 "floating;" a gain in one year of 24,300.

In the past year 850 buildings have been erected, 250 of which are brick; total number in city and county, 18,659. The value of improvements for the year ending June 30, 1869, is estimated at over $9,000,000, besides $1,600,000 expended in street improvements. Among the new buildings, unfinished or completed, may be mentioned the new Mint, to be 225 by 165 feet, and two stories high, to cost $975,000; the Grand Hotel, on New Montgomery and Market streets, nearly completed, and costing some $400,000; the addition to the Occidental Hotel; the Pacific Bank, Harpending's Block, Friedlander's Block, and others.

The value of real and personal property is set down as $106,414,029, as returned for the last fiscal year. Rate of taxation on this is $3.05. The total current expenses for the last year were $2,086,158.

Among other very valuable matter are a series of meteorological observations by Dr. H. Gibbons, made during a series of 19 years. The driest season was 1850 to '51, when only seven inches of rain fell; the next 1863-4, with 8½ inches. The winter of 1867-8 gave the most rain—40 inches. An early beginning and an abundant supply are apt to go together, but there is no infallible rule; the latest beginnings have been followed by an average supply.

There is also a description of the railroads on the coast, a chronological history for the past year, an account of the State University and other institutions, list of municipal authorities, United States and State officials, fire and police directory, etc., etc. There is, moreover, a good map of the city.

A glance at the list of names shows a queer condition of the city. We have but 1 Lawyer and no Clients; 3 Judges, but of Courts only 1; 15 Parsons and 2 Deacons, but only 1 Layman; no Doctors, but 1 Ague, 5 Paines and 2 Fitz; 2 Abbeys with 15 Abbots, 17 Bishops and 3 Monks, but only one Nunn. A monarchical tendency is denoted by the presence of 75 Kings, 12 Princes, 1 Princess, 3 Dukes, 2 Barons and 19 Lords. Hymen evidently holds powerful sway, for there are 13 Benedicts and no Bachelors, although 20 Husseys exist; yet there are 7 Loves and no Lovers. We find 15 Barbers and only 8 Beards; 207 Millers and 21 Mills, but only one specimen of Wheat; 74 Bakers but no Doe, and only 12 Beans; 7 Shepherds and 17 Lambs; 4 Farmers with 2 Cows, 10 Kidds, and a plenty of Hay; with 1 Coal and 1 Bellows we have plenty of Sparks and Ashes, but no Fire; there are 60 Fishers, but only 9 Fishes; 34 Coopers and 14 Barrells; 34 Masons with 50 Stones, and 1 Brick but no Mortar; 22 Carpenters, with 5 Augers, 4 Hammers, 1 Mallet, 5 Planks and lots of Wood; 34 Sawyers, but no Saws; 7 Miners, but no Mines; 2 Butchers, with 7 Hams and 14 Bacons; 3 Barmen, with only 1 case of Port, 1 of Rumm, 2 of Beer and 2 of Bitters. We have lots of Silver, but no Gold, and only 3 Shillings; 9 Hands and 1 Mitten; 1 Foot and 1 Legge, and a pair of Bootz. The peculiarity of our climate is denoted by our having in the past year 5 Springs, 3 Summers, 2 Falls and 18 Winters, while there have occurred 5 cases of Frost, 15 of Snow, 18 of Hale, 3 Storms and 1 Rain.

We have 20 Porters and 3 Bags; 4 Robins, 1 Jay, 30 Cox, 1 Henn, 24 Cranes, 1 Stork, 5 Crows, 1 Peacock, 5 Sparrows, 8 Hawks and 1 Duck, count up apparently to only 12 Birds. We raise 25 Berries, 7 Lemons, 3 Plums, 2 Peaches, 2 Mellons, and 6 Appels. Our standing army consists of only 1 Major, with 53 Cannon and 25 Guns, yet 20 Savages roam unmolested about the streets. Little Jack Horner is still alive, and 610 Smiths, 44 of them known simply as John, flourish in our midst.

An Execution by Hara-Kiri.

This ceremony is practiced in Japan as an honorable expiation of crime, by which all disgrace is blotted out. It is of a strictly judicial character and recognized as such; and the executioner who deals the final blow is selected from the friends of the victim.

Lately an official was condemned to perform the Hara-Kiri for firing on a foreign settlement. A secretary of the British Legation to Japan was sent officially to witness the execution, and has furnished an account to a London magazine. The word Hara-Kiri, it may be observed, means "belly-cutting," or self-immolation by disembowelling.

The witnesses, representatives of the authorities, of the victim's family, and of the foreigners, were led to the main hall of a large temple. The condemned man, accompanied by the executioner, one of his pupils, who had been selected on account of his skill in swordsmanship, soon entered, saluted those present with great deference; then mounted on a raised platform before the altar, prostrated himself before this twice, and seated himself on the carpet with his back to the altar. An official presented him with a dirk, nine inches long and as sharp as a razor, with which the act is to be performed.

After a confession of his guilt, and asking those present to honor him by witnessing his immolation, the man slipped his garments down to his waist, tucking his sleeves under his knees that he might fall forward in death, as becomes a noble Japanese. Then with deliberation and coolness, he stabbed himself deeply below the waist on the left hand side, drawing the dirk slowly across to the right side, and turning it in the wound to give a slight cut upwards. When he drew the dirk out he leaned forward and stretched out his neck; an expression of pain flitted across his face for the first time, but he uttered no sound. At this moment his pupil, who, crouched by his side, had keenly watched every movement, sprang to his feet, poised his sword a second in the air; there was a flash, a dull, ugly *thud*, a crashing fall; with one blow the head had been severed from the body.

A dead silence followed, broken only by the noise of the blood gushing out on the floor. Then the executioner bowed low, wiped his sword and retired. With extreme dignity and solemnity, the government representatives rose, crossed over to the foreign witnesses, called them to witness that the sentence of death had been faithfully carried out, and left the hall. Slowly and solemnly the others followed, leaving the still warm body alone in the place where it had fallen.

THE EAST RIVER BRIDGE.—Work has already been commenced on the East river bridge at New York, on the construction of the caisson which is to be sunk for a foundation at the base of the Brooklyn tower. The work is already well under way.

Price Reduced, Jan. 1st, 1870.

The Scientific Press, a first-class finely-printed and illustrated paper, is now furnished at $4 a year, which is exceedingly low-priced for a journal of its class and reputation on this coast.

During the past year the publishers of this journal have largely increased the reading space in the paper, introduced a leading department relating to farming and gardening, and published more articles relating to mechanic arts and miscellaneous subjects, both instructive and interesting for the hour. We find this course is well approved by our intelligent patrons everywhere. Located in the mines, cities or agricultural districts, many prefer a journal which brings them information of the more important discoveries in sciences, of inventions and developments in the progress of the leading arts and industries on this coast, to a periodical technically and more specially devoted to either science, mining, or farming alone—whether issued at home or abroad.

With this number we adopt an abbreviated and more convenient title for our paper, but wish it distinctly understood that we shall not abate our mining advocacy—or change other leading departments embraced in our past volumes, except to increase and improve them. The three leading interests represented in the Scientific Press,—Mining, Farming and Mechanic Arts,—closely allied and associated on this coast, "form the base and groundwork of prosperity" of the community in the field it occupies.

Our present patrons can assist by advertising its worth and its price to others, and enable us to continue to increase and improve its reading columns.

Respectfully,
DEWEY & CO.,
Publishers and Patent Agents.

◆

Santa Cruz, December 30, 1869.

Messrs. Dewey & Co —*Gentlemen*:—Yours of the 24th December, inclosing my patent for construction of earthquake-proof wall, was duly received last night. I am highly pleased with the way in which the business has been done. The ability which carried it through, and the scrupulous care bestowed on its preparation, are above praise; and I will gladly intrust to your hands any further business I may have to do, which will soon take place on a very useful and important invention.

Very truly yours, A. McPherson.

Neglected Coughs and Colds.—Few are aware of the importance of checking a cough or "common cold" in its first stage, that which in the beginning would yield to a mild remedy, if neglected, soon preys upon the lungs. "*Brown's Bronchial Troches*," or Cough Lozenges, afford instant relief.

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Co-Operative Union Store.—This is becoming one of the most useful Institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block San Francisco. 2tv18--4w

---

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Spectacles, Opera Glasses, Telescopes, Marine Glasses, Magnifying Glasses, etc., are to be found at C. Muller's, 205 Montgomery street. *

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

---

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Returned.—Dr. J. H. Paine, Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

---

Send former address when you wish your paper directed to a new place.

New Mining Notices.

Alleghany Consolidated Gold Mining Company, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirtieth day of December, 1869, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the seventh day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, 37 New Merchants' Exchange, California street, San Francisco. jan8

Pilot Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of November, 1869, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room No. 7, 423 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Monday, the third day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-first day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. M. HARRON, Secretary.

Office, Room No. 7, 423 California street, San Francisco, California. jan8

Pinto Mining Company.—Location of Works: Silverado Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of January, 1870, an assessment of fifteen (15) cents per share was levied upon the capital stock of said Company, payable on the fifth day of January, 1870, in United States gold coin, to the Secretary, No. 426 Montgomery street, San Francisco, Cal., or to Homer S. King, Esq., Agent of Wells, Fargo & Co., Hamilton, Nevada.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the seventh day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street, San Francisco, jan8

Taylor Mill and Mining Company.—Location of Works: Georgetown District, El Dorado Co., State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifth day of January, 1870, an assessment of sixty cents per share was levied upon each and every share of the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 620 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventh day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of February, 1870, to pay the delinquent assessment, together with cost of advertising and expenses of sale, By order of the Board of Trustees.

SAM'L S. MURFEY, Secretary.

Office, No. 520 Montgomery street, over Sather's Bank, San Francisco, Cal. jan8

Mining Notices--Continued.

Arctic Silver Mining Company.—Location of Works: Cortez, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of September, 1869, an assessment of three dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, or to S. Wenban, at Cortez.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Office, 426 Montgomery street, San Francisco. dec18

Cassell Silver Mining Company.—Location of Works: Cortez, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of December, 1869, an assessment of three dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, or to S. Wenban, at Cortez.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Office, 426 Montgomery street, San Francisco. dec18

Glenwood Mill and Mining Co., Greenwood, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth day of December, 1869, an assessment of twenty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, 418 California street.

Any stock upon which said assessment shall remain unpaid on the tenth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the first day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.

Office, No. 418 California street, San Francisco. dec18

Idaho Silver Mining Company.—Location of Works: Cortez, Lander County, Nevada

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day December, 1869, an assessment of three dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to S. Wenban, at Cortez.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Tuesday, the eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Office, 426 Montgomery street, San Francisco. dec18

Kincaid Flat Mining Company, Tuolumne County, California

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of December, 1869, an assessment of two dollars and fifty cents ($2.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twelfth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the twenty ninth day of January, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.

Office, 220 Clay street, San Francisco, Cal. dec11

Latawana Mining Company.---Location: Hamilton City, White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees, held on the twenty-second day of December, 1869, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, or at 526 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the nineteenth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, or 528 California street, San Francisco. dec18

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, State of California.

Notice.—There are delinquent on the following described stock, on account of assessment levied on the twelfth day of November, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A D Moore	28	40	$200 00
I W Raymond	32	40	200 00
I L Requa	31	40	200 00

And in accordance with law and an order of the Board of Trustees, made on the twelfth day of November 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the salesroom of John Middleton & Son, auctioneers, No. 310 Montgomery street, San Francisco, Cal., on Wednesday, the twelfth day of January, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. A. JENNINGS, Secretary,

Office, 419 California street. San Francisco. dec25

Yosemite Mining Company, Oro Fino District, Humboldt County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of December, 1869, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco, or to J. F. McClean, Superintendent, at the mine.

Any stock upon which said assessment shall remain unpaid on the nineteenth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fifth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary pro tem.

Office, 220 Clay street, San Francisco, Cal. dec18

To Mining Secretaries:

You will please take notice that the copy for advertisements in the Scientific Press must be handed in as early as *Thursday* evening. Our paper is published on Saturday, but the last form goes to press early on Friday, in order to afford time for sending out our large edition.

Respectfully,
DEWEY & CO.,
Publishers Scientific Press, 414 Clay street.
San Francisco, Dec. 20, 1869.

N. B.—Companies that insert advertising in our mining journal, where such notices appear, economize ONE-HALF THE COST of daily publication. Attention given to inserting notices correctly and legally. Blanks for filling out notices furnished free to advertisers.

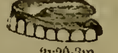
The Aerial Steam Navigation Company.

At a meeting of the stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cazneau, Henry F. Williams and Simon L. Jones were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars, said shares to be *unassessable*. The funds thus raised are to be devoted exclusively to the construction of the first aerial steam carriage, and to be deposited in the Bank of British Columbia, to be disbursed upon requisition of Mr George K. Gluyas, Engineer of Construction. The working, drawings, etc, can be seen at the office of Gen Thomas N. Cazneau, No. 321 California street, where subscriptions will be received. No invention for navigating the air has before received such positive indorsements from engineers of reputation, or so liberal encouragement from prominent capitalists' as Marriott's Avitor, which now seems sure of being thoroughly tested on a large scale. 2v20-my

New Advertisements.

REMOVAL.

DR. BEERS, Dentist,



Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. R. R. ROBERTS,
The Great Magnetizer.

Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all curable Chronic Diseases by Animal Magnetism and the Swedish Movement Cure. 2v20-1y

---

In the Probate Court of the City and County of San Francisco, State of California.

In the matter of the Estate of ABRAHAM CREEMER MESSERVE, deceased.

On reading and filing the petition of Benjamin Shellard, Administrator of the estate of Abraham Creemer Messerve, deceased, setting forth that he has filed an account of his administration upon said Estate in this Court, and that the same has been duly heard, allowed, and confirmed; that more than ten months have elapsed since the publication of notice to creditors, and that no claims against the said deceased have been presented to said Administrator, and the Estate is in a condition to be closed, and that the real property remains to be distributed among the heirs of said deceased; and praying, among other things, for an order of distribution of said real property among the persons entitled,

It is ordered, That all persons interested in the Estate of Abraham Creemer Messerve, deceased, be and appear before the Probate Court of the City and County of San Francisco, at the Court Room of said Court, in the City Hall, in said City and County of San Francisco, on the seventh day of February, A. D. 1870, at eleven o'clock in the forenoon of that day, then and there to show cause why an order of distribution should not be made of the real property of said Estate among the heirs of said deceased according to law.

It is further ordered, That a copy of this order be published at least for four successive weeks before the said seventh day of February, A. D. 1870, in the Scientific Press, a newspaper printed and published in said City and County of San Francisco.

SELDEN S. WRIGHT, Probate Judge.

San Francisco January 5th, A. D. 1870. jan8-4w

$1. Postage Paid. $1.

A CHEAP AND HANDY BOOK
—FOR—
Mechanics, Inventors and Students.

SCIENTIFIC PRESS
NEW EDITION
—OF—
507 MECHANICAL MOVEMENTS.
PUBLISHED BY
DEWEY & CO.

LIST OF CONTENTS.

Æolipile.
Balance, Compensation; Barometer; Blower, Fan; Brake, Friction.
Cams; Capstans; Centrolinead; Clutches; Chasers; Clamps, bench and screw; Cock, four-way; Column, oscillating; Compasses, proportion; Counters of revolutions; Coupling, union; Crank—substitute for the, variable; Cranks, bell and compound; Cyclograph.
Differential Movements; Drag-link; Drill—Fiddle and Persian; Drills, Cramp; Drop; Drum and Rope; Driver, Pile; Dynamometers.
Eccentrics; Ejectors, Bilge; Ellipsograph. Engine, Disk; Engines—Rotary, Steam, Valve Gear for; Epicyclic Trains; Escapements.
Fountain, Hiero's: Fusees.
Gasometers; Gauge, Bisecting; Gauges, Pressure; Gear, Steering; Gearing—Bevel, Brush, Capstan, Conical, Crown, Eccentric, Elliptical, Face, Friction, Internal, Irregular, Multiple, Mutilated, Scroll, Sector, Spur, Step, Stud, Sun and Planet; Gearing—Variable, Worm; Governors; Guides; Gyroscope.
Hammers—Atmospheric, Bell, Compressed Air, Trip, Steam; Helicograph; Hook—Boat-detaching, Releasing; Hooks, Centrifugal Chock; Hyperbolas, Instrument for Drawing.
Intermittent Movements.
Jack—Hydrostatic, Lifting; Joint—Ball and Socket, Bayonet, Universal.
Ladder—Folding, Self-Adjusting; Lazy-tongs; Level, Self-recording; Lever—Bell-crank or Elbow, Knee; Lewis; Link, Detachable Chain.
Machine—Bohnenberger's, Drilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; Meter—Gas (wet and dry), Water: Mill—Barker's, Crushing, Tread, Wind; Miscellaneous Movements; Motion—Alternating Traverse, Rocking, Self-reversing, Shuttle; Motions—Feed, Link, Parallel, Pump, Traverse, Variable Traverse.
Pantograph; Parabolas, Instrument for Drawing: Paradox, Mechanical; Pendulum, Conical; Pendulums, Compensation; Pinion—Lantern, Mutilated, Slotted, Two-toothed; Power, Horse; Presses, Hydrostatic; Propeller, Screw; Pulley—Expanding, Friction: Pulleys—Anti-friction Bearing for, Chain; Pump—Air, Balance, Bellows, Chain, Diaphragm, Steam-siphon; Pumps—Double-acting, Force, Lift, Rotary; Punching Machine.
Rack—Mangle, Mutilated; Racks and Pinions; Ram, Montgolfier's Water; Ratchets and Pawls: Regulator—Gas, Watch, Reversing Motion, Self; Revolver; Rollers, Oblique; Rolls—Anti-friction, Drawing, Feed; Rulers, Parallel.
Saw—Endless Band, Gig, Pendulum; Screw, Archimedes, Differential, Double Reversed, Micrometer; Screws—Endless, Right-and-left Hand; Sectors; See-saw; Shears; Stamps; Stand, Mirror; Stop—for Hoisting Apparatus, for Lantern Wheels, for Ratchet Wheels, for Spur Gear; Stops for Winding Watches.
Test, Friction; Throttle, Spinning; Toggle-joint; Tongs, Lifting; Trap, Steam: Treadles.
Water, Machines for Raising: Weir, Self-acting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Paddle, Water; Windlass—Chinese, Friction; Windmills; Wipers.

This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.

A liberal discount made to the trade. Single copies, $1—sent postage free. Address orders,

DEWEY & CO.,
Patent Agents, San Francisco.

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

GLASGOW
Iron and Metal Importing Company,

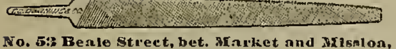
Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.

2v17-3m **T. G. DURNING & CO**

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Miana,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

J. P. GALLAGHER. J. H. WEED V. KINOWELL.

9v13-1y

Phœnix Iron Works.

FIRE-PROOF SAFES.

BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of Housesmith work, Bridge, Prison

FORGING AND MACHINE WORK,

IMPROVED FIRE-PROOF SAFES,

FIRE AND BURGLAR-PROOF SAFES

Of a superior make. Sole manufacturer of the celebrated

MONITOR SAFE.

BANK VAULTS AND SAFES,

Of every description, made to order at short notice. A large stock of SAFES of all kinds constantly on hand. Agency for the ISHAM KEY REGISTER BANK AND SAFE LOCK, the only first class Lock in the United States

1v17tf

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco.

10v14qr

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v. SACRAMENTO CITY

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED..............................APRIL 30, 1868.
CAPITAL..............................$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	James Pollock,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON..............................President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..............................Secretary.

21v17-qy

HUGH H. LAMONT. WM. CALDWELL.

CYCLOPS MACHINE WORKS,

Construct and Repair every description of

Stationary and Marine Engines, Mill and Mining Machinery.

Special attention given to Repairing Machinery.

ap17-3m **113** Beale street, near Mission, S. F.

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

NEW FILES OF EVERY DESCRIPTION

ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended to. 9v19-qy

---

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

FOUNDRY FACINGS.

BENJAMIN ELLIOT,

No. **483** Brannan street......................San Francisco,

Manufactures Foundry Facings constantly, from choice coals. Bituminous, packed in tight sacks. Anthracite and Charcoal ground together or separate, packed in barrels. Black Lead, Coke and Soapstone ground to order.

☞ Foundrymen located far from choice material, can rely on having superior Facings forwarded to order.

10v18qr

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

☞ All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

---

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT.

UNION IRON WORKS,

CORNER FIRST AND MISSION STREETS,

SAN FRANCISCO.

MANUFACTURE

ALL KINDS OF MACHINERY

MARINE, LOCOMOTIVE,

And Stationary Engines,

Booker Patent Locomotive Stack,

ARMSTRONG PATENT

Heater, Condenser and Filter, Combined.

BOILERS, HIGH AND LOW PRESSURE,

Pump, Pipe and Sheet Iron Work of all kinds; Quartz Crushing and Amalgamating Machinery, including High and Low Mortar for wet or dry crushing; Furnaces for roasting ores; Horn, Wheeler's, Patton's, and Belding's Amalgamating Pans and Settlers; Hendy's Concentrator; Hungerford's Concentrator; Hunt's Grinder; Blake's Crushers; Stamp Shoes and Dies of the best white iron; Russia Iron Screens, etc.; Flour Mill and Saw Mill Machinery in every variety; Hendy, Gang, Saw Mill, Pumping and Hoisting Machinery; Excelsior Force Pump, for domestic, ship and mining use—the simplest and best in use; Iron and Brass Castings of every description; Steamboat Repairs; Boiler Making executed with despatch. Steam Engines and Boilers constantly on hand and for sale.

We would call particular attention to our

SCOTT & ECKART CUT-OFF ENGINE.

As a simple, effective, fuel-saving, first-class Engine, it has no equal. We have twenty-five of our Cut-Offs at works on this coast, every one of which gives entire satisfaction. We refer with pleasure to the report of the Committee on Engines at the Sixth Industrial Fair, which we annex. They say:

"*Horizontal Steam Engine of the Union Iron Works.*—This Engine is 16 inches diameter of cylinder, 3-foot stroke of piston, and is provided with Scott & Eckart's Patent Variable Expansion Valve. It is very substantially built, well proportioned, and capable of doing severe duty. This Engine was used every third day to drive the machinery of the Exhibition, *working very smoothly and steadily under all circumstances, and with great economy.* The friction brake was applied to this engine; but owing to the fact that the belt which had been provided for merely driving the machinery of the Exhibition was not of a suitable size to transmit the full power of the engine, the test was not applied above 30-horse power; *and up to this point the power was developed with the greatest possible economy in the expenditure of steam.* In speaking of the performance of this engine, the variable expansion valves of Messrs. Scott & Eckart deserve special mention of the ingenuity displayed in the arrangement of the valves and in the attachment of the same to the governor, whereby the position of the slides is changed so quickly to accommodate any change of load upon the engine *that the correct speed of the engine is maintained with* WONDERFUL UNIFORMITY *under all circumstances.* This engine will work 50 or 60 horse power with ease and economy. Awarded silver medal. Wm. Burnett, Mont'y Fletcher, John Myers."

Pickering Governors, Machinists' Lathes,

Plainers, Shapers, Drills, Etc.

On hand and for sale, Drawings furnished free of cost. Orders promptly attended to. A complete stock of fittings on hand.

☞ We are prepared to furnish all kinds of Machinery at short notice, as our facilities are unequalled on the Pacific Coast.

H. J. BOOTH & CO.

SAN FRANCISCO
Pioneer Screen Works.

JOHN W. QUICK,

203 Fremont street, near Howard, San Francisco.

Screen Punching of all kinds and qualities for Quartz Cement, Flour and Rice Mills, at greatly reduced rates.

ORDERS SOLICITED AND PROMPTLY ATTENDED TO.

I would call special attention to my slot cut and slot punched Screens which are attracting much attention and giving universal satisfaction, both as regards their efficiency and durability. This is the only establishment on the coast devoted entirely to the manufacture of Screens. It has furnished screens for the principal mills and firms on the coast for many years. 10v19tf

---

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

California Steam Navigation
COMPANY,

Steamer CAPITAL..................CAPT. E. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE.................. —
" CORNELIA..................CAPT. W. BROMLEY
" JULIA........................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

E. M. HARTSHORNE, President

13v12

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,
26v19-3m 611 and 613 Front street.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf **414 Front street**, San Francisco.

The Perfection of Prepared Cocoa.

MARAVILLA COCOA.

Sole Proprietors—TAYLOR BROTHERS, London.

The Cocoa (or Cacao) of Maravilla is the true Theobroma of Linnæus. Cocoa is indigenous to South America, of which Maravilla is a favored portion. TAYLOR BROTHERS having secured the exclusive supply of this unrivalled Cocoa have, by the skillful application of their soluble principle and elaborate machinery, produced what is so undeniably the perfection of Prepared Cocoa, that it has not only secured the preference of homœopaths and cocoa-drinkers generally, but many who had hitherto not found any preparation to suit them, have, after one trial, adopted the Maravilla Cocoa as their constant beverage for breakfast, luncheon, etc.

"A SUCCESS UNPRECEDENTED."

[See following extract from the Globe of May 14, 1868.]

"Various importers and manufacturers have attempted to attain a perfection for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage."

Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills, Brick Lane, London.

8v19-6m

Ayer's Cherry Pectoral,

For Diseases of the Throat and Lungs, such as Coughs, Colds, Whooping Cough, Bronchitis, Asthma, and Consumption.

Probably never before in the whole history of medicine, has anything won so widely and so deeply upon the confidence of mankind, as this excellent remedy for pulmonary complaints. Through a long series of years, and among most of the races of men it has risen higher and higher in their estimation, as it has become better known. Its uniform character and power to cure the various affections of the lungs and throat, have made it known as a reliable protector against them. While adapted to milder forms of disease and to young children, it is at the same time the most effectual remedy that can be given for incipient consumption, and the dangerous affections of the throat and lungs. As a provision against sudden attacks of *Croup*, it should be kept on hand in every family, and indeed as all are sometimes subject to colds and coughs, all should be provided with this antidote for them.

Although settled *Consumption* is thought incurable, still great numbers of cases where the disease seemed settled, have been completely cured, and the patient restored to sound health by the *Cherry Pectoral*. So complete is its mastery over the disorders of the Lungs and Throat, that the most obstinate of them yield to it. When nothing else could reach them, under the *Cherry Pectoral* they subside and disappear.

Singers and Public Speakers find great protection from it.

Asthma is always relieved and often wholly cured by it.

Bronchitis is generally cured by taking the *Cherry Pectoral* in small and frequent doses.

So generally are its virtues known that we need not publish the certificates of them here, or do more than assure the public that its qualities are fully maintained.

Ayer's Ague Cure,

For Fever and Ague, Intermittent Fever, Chill Fever, Remittent Fever, Dumb Ague, Periodical or Bilious Fever, &c., and indeed all the affections which arise from malarious, marsh, or miasmatic poisons.

As its name implies, it does *Cure*, and does not fail. Containing neither Arsenic, Quinine, Bismuth, Zinc, nor any other mineral or poisonous substance whatever, it in nowise injures any patient. The number and importance of its cures in the ague districts, are literally beyond account, and we believe without a parallel in the history of Ague medicine. Our pride is gratified by the acknowledgments we receive of the radical cures effected in obstinate cases, and where other remedies had wholly failed.

Unacclimated persons, either resident in, or travelling through miasmatic localities, will be protected by taking the *AGUE CURE* daily.

For *Liver Complaints*, arising from torpidity of the Liver, it is an excellent remedy, stimulating the Liver into healthy activity.

For Bilious Disorders and Liver Complaints, it is an excellent remedy, producing many truly remarkable cures, where other medicines had failed.

Prepared by DR. J. C. AYER & CO., Practical and Analytical Chemists, Lowell, Mass., and sold all round the world.

PRICE, $1.00 PER BOTTLE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 15v19eow-4m

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, January 7, 1870.

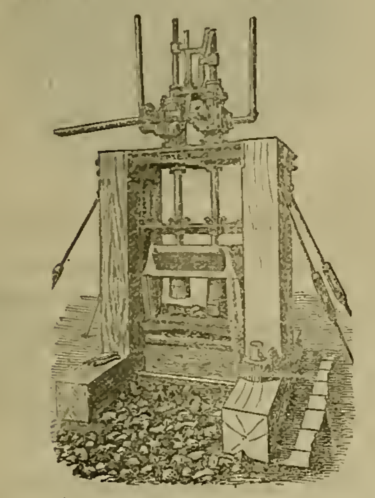
IRON.—Duty: Pig, $9 per ton; Railroad, 60c ₱ 100 ℔s; Bar, 1@1½c ₱ ℔; Sheet, polished, 3c ₱ ℔; common, 1½@1¾c ₱ ℔; Plate, 1½c ₱ ℔; Pipe, 1½c ₱ ℔; Galvanized, 2½c ₱ ℔.

Scotch and English Pig Iron ₱ ton	$32 50	@ 35 00
White Pig ₱ ton	30 00	@ 31 00
Refined Bar, bad assortment ₱ ℔	— 03	@ — —
Refined Bar, good assortment, ₱ ℔	— 04	@ — —
Boiler, No. 1 to 4	— 04½	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 5
Sheet, No. 14 to 20	— 05	@ — 5½
Sheet, No. 24 to 27	— 05	@ — 6½
COPPER.—Duty: Sheathing, 3½c ₱ ℔; Pig and Bar, 2½c ₱ ℔		
Sheathing, ₱ ℔	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
TIN PLATES.—Duty: 25 ₱ cent. ad valorem.		
Plates, Charcoal, IX, ₱ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ₱ ℔	— 40	@ — 42½
STEEL.—English Cast Steel, ₱ ℔	— —	@ — 15
QUICKSILVER.—₱ ℔	— 55	@ — 60
LEAD.—Pig ₱ ℔	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
ZINC.—Sheets, ₱ ℔	— 10½	@ — 11
BORAX.—California, ₱ ℔	— 38	@ — 40

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,

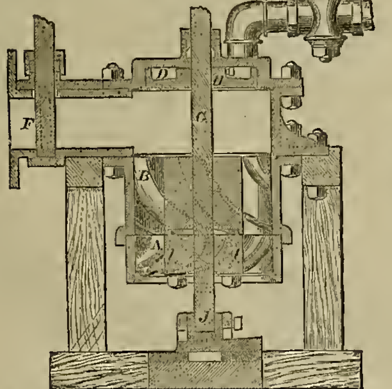
Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

Lind's Improved Water Wheel

Fig. 1



Has given the highest satisfaction to parties using it. We are now prepared to sell it at reduced prices. Will also contract for all kinds of Machinery—Flour, Saw and Quartz Mill. All our work guaranteed. We will send competent men to put up our Wheels and Machinery. We contract for or do it ourselves. Our extensive acquaintance with millwrights on this coast enables us to furnish millmen with the best of workmen at short notice. Drawings for contracts furnished gratis. Send for circular.

A. LIND, Millwright,
Pacific Iron Works, San Francisco.

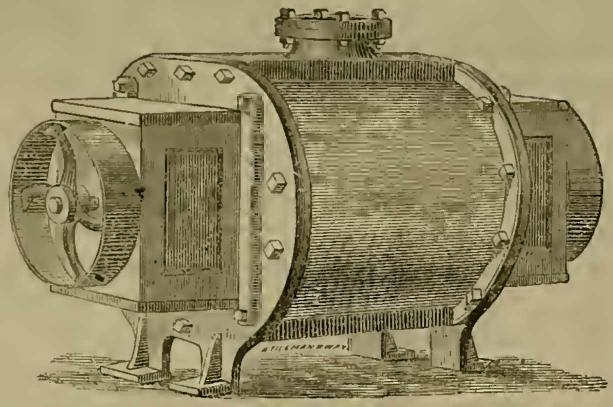
Refer to John Sime and .J. Haley. 19v19

ROOT'S PATENT FORCE BLAST ROTARY BLOWER

MANUFACTURED BY KEEP & BARGION,

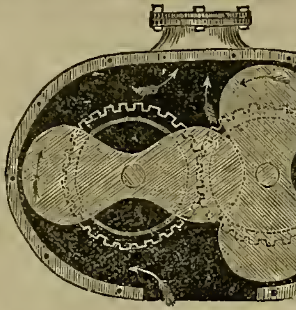
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition,



Patented Nov. 1st, 1864; July 21, 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.



REQUIRES Fifty Per Cent. LESS POWER Than any Blower w in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

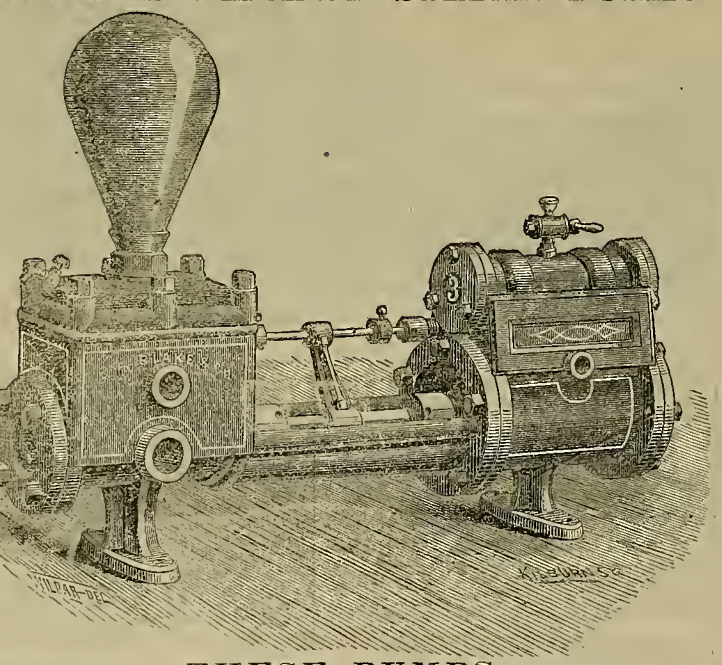
CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**

BLAKE'S PATENT STEAM PUMP.



THESE PUMPS

Have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—specially calculated for SIMPLICITY, DURABILITY and POWER.

Some of the advantages of the Blake Pump may be summed up as follows:

IT IS POSITIVE UNDER ANY PRESSURE. *May be run as slow or fast as may be desired.* Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility. Will start at ANY point of the stroke, and will discharge all the water of condensation.

The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having NO DEAD POINTS, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used

On Railroads and Steamboats; in Hotels; for Mining and Fire Purposes; in Breweries, Tanneries, Sugar Houses, Factories, Mills, Laundries,

And as BOILER FEEDERS, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the

Cheapest and Best Pump that Can be Used.

It is offered to the public as the most perfect independent Steam Pump ever invented. TWELVE DIFFERENT are made, capable of throwing from 1,000 to 180,000 gallons an hour, and adapted to any class of work that might be required. For sale by

BERRY & PLACE,
112 and 114 California Street, San Francisco.

☞ Every pump will be warranted to perform the work required of it by the purchaser, or it may be returned and the money will be cheerfully refunded. 17v19

Awarded a SILVER MEDAL at last Exhibition of Mechanics' Institute, San Francisco, as being the Best Steam Pump on Exhibition.

This was no empty honor, as four of the principal Steam Pumps of the country were on Exhibition as competitors for the prize beside "The Blake," neither of which received any higher recognition than a diploma or certificate of merit.—*See Official Report of Awards.*

VARNEY'S

PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

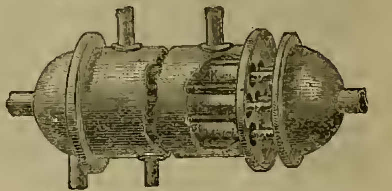
Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, **229** Fremont street,

1v1 San Francisco.

CROSS' COMBINED

Heater & Sediment Collector



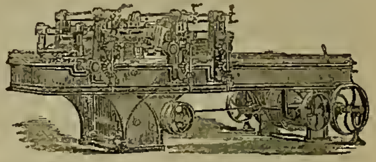
This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

Woodworth Planers,



PLANERS AND MATCHERS,

With patent expansion, feed gear and other improvements made at Worcester, Mass., in the most finished and substantial manner; also every description of Richardson Meriam & Co's, Smith's and Wood's celebrated

Wood Working Machinery.

Embracing Mortising, Sash and Moulding, Smith's Stickers, Slat and Door Tenoning, Boring, Shaping, Scroll Sawing, Planing, Rod and Dowell making and Re-sawing Machines, Wood and Engine Lathes, etc., for sale at Eastern prices, at the Machinery Depot of

BERRY & PLACE,
112 and **114** California st., San Francisco.

☞ Agents for Blake's Patent Steam Pump, (warranted the best in the market); Davis & Furber's Woolen Machinery, etc. Being the selling agents for most first class Eastern builders, millmen and others in want of Machinery can save money by giving us a call. Illustrated Catalogues sent free.

SPECIAL NOTICE.

TO DEALERS AND CONSUMERS

—OF THE—

H & L

AXLE GREASE.

Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possible meet the market of our Chicago friends, we have made a great reduction in prices, and from our long experience we will satisfy you that there is none BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,
144½ Natoma Street.

Depot, 320 Jackson Street.

N. B.—We are prepared to furnish Bulk Packages to contractors on equally liberal terms.

International Hotel,

JACKSON STREET,

BETWEEN MONTGOMERY AND KEARNY STS.,

SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.

Prices varying from $1 50 to $2 per day for Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

☞ Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House FREE OF CHARGE, and to any part of the city for **50** cents

21v12 F. E. WEYGANT, Proprietor.

Oxygen Making for Street Lighting. The New York *Sun* thus describes the manner of preparing oxygen by the Tessie du Motay process, as practiced by the New York Oxygen Gas Co. in their new works: "In making the oxygen, a mixture of manganate of soda and the oxides of copper and manganese is placed in a number of retorts, which are then heated to a cherry-red heat. Common air, previously purified by being passed through a solution of caustic soda, is then forced through the retorts for the period of ten minutes, during which it gives up its oxygen, oxidizing the manganates in the retorts. For a succeeding period of ten minutes dry superheated steam is forced through some of the retorts, which liberates the oxygen previously absorbed from the air, and carries it off to a condenser, where the steam is cooled into water, and the oxygen set free and collected in an ordinary gas-holder. The mixture from which the oxygen was obtained is then again subjected to a current of common air, and absorbs a fresh supply of oxygen, and again is deprived of it by steam; and this process can be carried on for an indefinite length of time without requiring a renewal of the contents of the retorts. The retorts are in fact so many sponges for sucking the oxygen out of the air, which are squeezed as often as they get filled."

[SPECIAL NOTICE].

Steam Pumps.—These Pumps, although as perfected, of quite recent manufacture, are fast being introduced wherever water or other liquids are to be raised in large or small quantities, against heavy or light pressure. There are a number of different styles now in the market, several of which were on exhibition and operation at the last Fair of the Mechanics' Institute. Blake's Patent stands among the best of these Pumps, the advantages of which are set forth on page 31 of this issue. This Steam Pump was awarded a silver medal at the above exhibition, being the only pump of any kind which received so high an award.

The manufacturers, we understand, are taxed to their utmost to supply the demand. Messrs. Berry & Place, their agents in this city, keep an assortment of sizes always on hand, varying from a capacity of 600 to 30,000 gallons per hour. Their store is at 112 and 114 California street.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

To Advertisers.

After January 1st, 1870, the latest hour for receiving mining and other advertisements for the SCIENTIFIC PRESS will be during Thursday evening, as our paper will be printed for the interior mails on Friday morning.

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED
WEED
Machines work *easier, simpler, faster* and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO $500

To Solicitors.

AGENTS WANTED.

One or two active and reliable Agents can obtain permanent and profitable employment by addressing or calling at this office.

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round,	
London Ill. News	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

To Farmers and all Industrial Readers on the Pacific Coast.

The SCIENTIFIC PRESS, devoted to Farming, Mining and Mechanical Arts, was established in San Francisco in 1860, and has been enlarged and improved until it now contains 16 pages of the size of Harper's Weekly, filled with the most interesting and valuable reading matter of any newspaper in the Pacific States.

The interests of the three great branches of industry on the Pacific Coast—viz: Mining, Farming and the Mechanic Arts—are so intimately connected that the most intelligent readers in one division find it highly desirable to be informed in regard to the discoveries and developments and progress of the others. For this reason we are successful in publishing a large and replete journal of greater value to the intelligent citizens of the Pacific Coast than any other weekly in the world.

Each issue contains engravings of new machinery of various kinds applicable to the Pacific States, and pictorial illustrations of new discoveries and remarkable events and occurrences. Its articles are alive with the spirit of the times, addressed in plain terms within the easy comprehension of all ordinarily intelligent readers, imparting instructions which cannot be obtained from books or in other journals of the past or in other journals of the day.

Sample copies sent free. Subscription price reduced to $4 per annum, January 1, 1870.

Our Patent Agency

Transacts every branch of Patent business, securing Patents in the United States and all Foreign Countries with perfect reliability and with a great saving of time to Pacific Coast inventors.

Advice and illustrated circulars containing information for inventors and patentees, free.

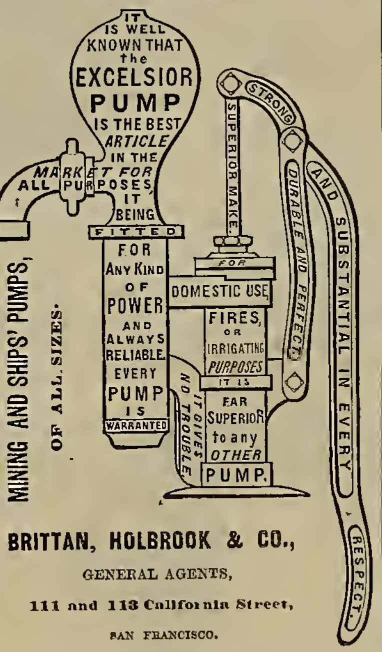
DEWEY & CO.,
Publishers and Patent Agents,
414 Clay street, San Francisco.

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

DEWEY & CO.
American and Foreign
Patent Agents.
No. 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
CIRCULARS FREE.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.


IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES, IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE, FIRES, OR IRRIGATING PURPOSES IT IS FAR SUPERIOR to any OTHER PUMP.
NO TROUBLE
IT GIVES
SUPERIOR MAKE.
STRONG
DURABLE AND PERFECT.
AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

STEEN & CUSHING,
AGENTS FOR THE
PURCHASE AND SALE
—OF—
Patent Rights, Engines, Boilers,
—AND—
MACHINERY OF ALL KINDS.
NO. 9 FIRST STREET, SAN FRANCISCO.

WE HAVE ON HAND IN GREAT VARIETY,

Engines and Boilers,
Steam and Hand Pumps,
Pipe,
Presses,
Shafting,
Pulleys,
Boxes,
Mill Stones,
Portable Mills,
Malt Rolls,
Injectors,
Lathes and Planers,
Governors,
Steam Gauges,
Quicksilver,
Gas Stocks and Dies,
Belting,
Water-tanks, etc.,

Which we will sell at a discount of 25 to 75 per cent. on cost of new, in this city. Parties having any kind of machinery for sale, may meet with customers by consigning to us. Purchases made on Commission, and prices guaranteed as low or lower than parties can make themselves.

STEEN & CUSHING,
No. 9 First street, San Francisco.

I. O. O. F.
THE NEW AGE,
A WEEKLY JOURNAL OF SIXTEEN PAGES.
The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

GEO. E. ROGERS,
(Successor to O. W. Bell.)
ASSAYER,
512 California st., San Francisco.
J. A. MARS, Assayer.
Ores carefully Assayed. Gold and Silver Ores worked.
23v16-qr10pnr

W. T. GARRATT,
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURER OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

N W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect.
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

Important to Assayers.
Crucibles.
The Patent Plumbago Crucible Co.
Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco. 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

Sheffield Scientific School
Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in different specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology, and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus, accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 18v6-1y16p

SCIENTIFIC PRESS.
AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.
BY DEWEY & CO.,
Patent Solicitors.
San Francisco, Saturday, January 15, 1870.
VOLUME XX.
Number 3.

Beet Sugar Manufacture.

It is stated that the recent experiment in beet sugar manufacture in Sacramento has proven so successful that the company proposes to sow 300 acres the coming season, from which they expect to realize 8,000 tons of beets;—300 tons only having been raised by the company last season. Large quantities will also be raised by outside parties, all of which the company will take.

A Sacramento correspondent of the *Bulletin* says that within sixty days three new companies will be formed in that city for the manufacture of sugar from beets. This movement has been brought about by the favorable reports received of the beet sugar manufactories in Wisconsin, and the increased success which is confidently expected from the more favorable conditions of soil and climate in this State, coupled with the results actually attending our preliminary tests.

This subject is one of great importance to the people of California. The quantity of refined sugar consumed in the Pacific States and Territories, is immense: much greater in proportion to our population, than in any other part of the world. The tariff on imported raw sugar is from 2½ to 3½ cents per pound, which affords a very handsome protection for domestic producers. If that is not sufficient, we trust the Legislature, now in session, will offer a premium sufficient to give the business a fair start. Since beet sugar will come in as a new and untried article, manufacturers will be compelled, at first, to place it at a very low price, in order to displace foreign sugars. For this reason the business may require special encouragement at first; but there is good reason to believe it will soon be able to take care of itself, and save to the State, annually, many times the amount of money which may be expended in securing for it a vigorous start—to say nothing of the thousands who will thereby find remunerative employment, if the introduction of beet sugar becomes general on this coast.

* * *

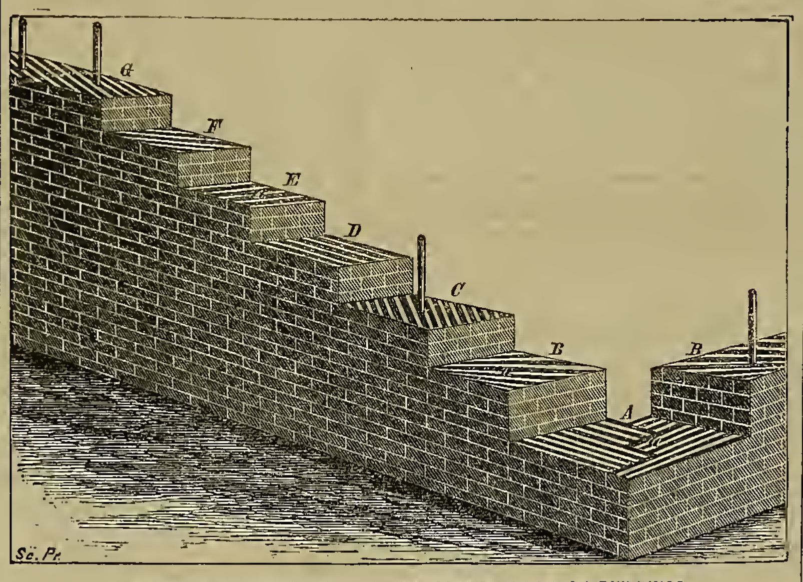
The Sutro Tunnel Co.—We refer our readers to the advertisement of the company in another column. It will be seen that some excellent names occur among the officers of the concern, which, through the indefatigable exertions of Mr. Sutro, has at last assumed an important place among our mining incorporations. That the tunnel, if finished, will prove a great help to the legitimate mining enterprises on the Comstock lode, is not to be doubted, and the announcements set forth are most alluring. A telegram of Thursday states that the tunnel was then in 500 feet. Nine feet per day has been made the past week.

* * *

The first number of the *Living Way*, a S. F. monthly, edited by S. D. Simonds, which is intended "to give varied experiences of Christain life, and such discussions of Scripture as shall show the living character of Revelation," has just been received.

Improved Construction of Buildings.

A contest between man and Nature is always going on to a certain extent, in which man, although continually victorious, still finds ever new issues to be grappled with—new obstacles to be overcome. One of Nature's strongest tactics on our coast and elsewhere has been to shake the ground beneath our feet; to cause us to distrust the very foundation of all things. While we do not as yet attempt to prevent this shaking, we are trying to find devices by which its effect may be neutralized; and one of these devices—McPherson's improvement in the construction of buildings—we illustrate this week.



McPHERSON'S IMPROVEMENT IN THE CONSTRUCTION OF BUILDINGS.

The construction is at once very simple and inexpensive, and very efficient in binding together the walls of buildings of stone, brick, or other similar material, to a solid unity. It consists simply in laying between the different courses, at regular or irregular intervals, according to the nature of the wall, layers of lath, strips of wood or thin metal (denoted in the cut by *a*), in such a manner as to bind the wall in every conceivable horizontal direction; and, moreover, in placing others in an upright position, binding the wall in a vertical direction as well.

In constructing a building, a broad foundation is made, a few courses of brick or other material laid, and then the strips placed as shown at A. These are laid in mortar, similar to the usual manner of laying bricks, and a thin coat of mortar placed upon them, in which the next course of bricks is laid.

The foundation wall is then continued in the usual way, each course of bricks being set in a short distance, so as to cause the walls to become of less thickness as they rise. Between each set of a few courses, strips are laid as before, but in varying directions, as shown at B, C, D, and E, thus binding the wall very firmly, and, as it were, breaking joints at every successive place, as is especially necessary at the corners. When the foundation is finished, the regular wall of the building is carried up, and the strips laid in a similar fashion. Particular care is given to have the foundation and the upper part of the building especially strong, and in this way the resulting solidity of the whole is such that it resists the most violent shocks.

In order to keep the walls from being moved sideways from their position—that is, to prevent the result that would be caused by a sudden jerking of the earth, and which is usually found to be a movement of the upper part of the wall in one direction and of the lower part in another—between the bricks, at irregular intervals, are placed upright laths, or strips or rods of metal, around which are placed the brickwork.

The inventor prefers common plasterers' laths, as they will answer every purpose, and can be obtained at a small cost. These laths, when used, to prevent rot, are boiled in brine or other preservative solution.

Walls laid and bound together in this manner can be built at the same cost as walls constructed in the ordinary manner of brick, stone, concrete or adobe, while their value will be greatly enhanced, especially in countries subject to earthquakes.

Among other opinions as to the worth of Mr. McPherson's invention, the following is taken from the Santa Cruz *Times:*

> The invention has been examined by quite a large number of mechanics, and there is but one voice with regard to it. They all say that it is the only plan yet discovered by which walls can be firmly bound together, and prevented from falling during heavy shocks of earthquake or fire. We hope that the plan will come into general use, and be the means of putting a fortune into the pockets of Mr. McPherson; for a man who discovers a plan like this becomes a benefactor of his race.

The patent for the above valuable invention has been obtained, under date of Dec. 14, 1868, through the Patent Agency of the Scientific Press, for Mr. Alexander McPherson, of Santa Cruz, Cal.

* * *

Legislation on Accidents.

The terrible accidents which have of late occurred in mines, and more particularly those at Avondale, Penn., led to some action in Congress on this point. Last month the House Committee on Mines and Mining was instructed to investigate the causes of the accident referred to above, and to report a bill for the prevention of such accidents in coal mines, if such can be done constitutionally. The committee were also to report on the propriety of creating a "Committe of Public Safety, whose duty it shall be to investigate the causes of all accidents whereby human life is endangered or lost, and to recommend legislation to provide against the happening of the same, and to punish those persons by whose negligence or carelessness they may be occasioned."

The first part is well enough as far as it goes, but the latter portion quoted is rather out of the question. Still, we are glad to see some tendency to take fuller action in such matters. The repetition of accidents of all kinds is getting fearfully frequent, and it would seem as if we must have some law providing for the punishment of carelessness in such cases. A Committee of Public Safety, however, would hardly answer.

In some countries, for the prevention of mining accidents, there is a governmental police, who have the authority to inspect mines, to demand the remedying of any weak points they may find, to insist on the workings being carried on under certain rules, etc., and to prosecute or even cause the arrest of the mine-owners if their orders are not followed. Such a police would probably hardly accord with the general spirit of our people, who resent any such interference with their private affairs. Still, as the country gets more and more thickly inhabited, the necessity of some similar measure is more deeply felt, and we think that in many places now, the appointment of Mining Inspectors with certain limited powers would be rather advisable.

* * *

Death of an Old Engraver.—Mr. E. L. Barber, a well known wood engraver of this city, and an old and esteemed citizen of Sacramento, died on Saturday last of paralysis, from repeated attacks of which he has been suffering for some four or five weeks. His funeral took place on Monday afternoon, at the Howard Street M. E. Church, of which Society he was one of the stewards.

* * *

Knitting Factory in Oregon.—The Beaver Hosiery company has been organized in Salem, Oregon, and has already commenced the manufacture of hose, and half-hose, with a capacity of 500 doz. pairs per month. The machinery has been placed in the same building with the Willamette Woolen Factory.

Communications.

Mills and Mines of Colorado—No. II.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

The next mill in order is that of the Bay State Co. of Boston, which is located about half way between Upper and Lower Empire. This mill has twelve stamps of about 500 pounds each, and is full of various contrivances. In this mill

The Crosby & Thompson Process

For desulphurizing ores was tried. The furnace for the process consisted of three iron cylinders, the upper above the space between the two lower, with a fireplace below. The ore was introduced into the back end of the upper cylinder, which being inclined to the front, by revolving, slowly carried the ore to the front part of the furnace, where it was delivered into an apron or receiver, which divided the ore into two parts and discharged it into the two lower cylinders, which were kept at a cherry-red heat. These cylinders inclining to the back, carried the ore by their revolution to the opposite end, where it was delivered into a chamber and thence conveyed away for amalgamation.

Inside each of the two lower cylinders is a two-inch gas-pipe with any number of holes in its surface, the object of this being to introduce oxygen into the interior of the cylinder, in order to intensify the heat. Inside these cylinders are also arranged lifters, which, as the barrel revolves, carries the ore up a certain distance, and then allows it to fall through the heated atmosphere. The cylinders have no lining. The smoke or fumes from them are led into chambers and showered, in order to precipitate the golden particles which otherwise would be carried off by the draft. The expense of the process rendered it unprofitable.

The Allen Amalgamator.

Among other things, I noticed an "Allen amalgamator," which is a shallow pan, with a dish or cover which comes down to the surface of the mercury. The ore goes into a tube, which is elevated some two feet above the mercury, which is calculated to give pressure enough to force ore through; the disk being down to the mercury, the gold must come in contact with this. This pan was tried in California, to my certain knowledge, twenty years ago.

The Collom Concentrator.

This is a box some 2x3 feet, which is divided into four compartments. In the two side divisions, where the ore is, are placed screens of such size as may be desirable. In the two central compartments, into which fresh water is continually flowing, are plungers. These latter force the water alternately into one and then the other of the outer divisions, thus sorting the ore and carrying off the lighter particles. This appears to be a cheap and at the same time practical concentrator.

Remarks.

I am thus particular to give the minute details, in order that the miners of California and Nevada may see how far ahead or behind they are, as the case may be. One thing I see very clearly: that the people of Colorado have been commendably enterprising in endeavoring to advance the interest of mining by testing everything which appeared to be feasible; thereby at times deriving profit, at others incurring loss, as you may well suppose. From the ideas I gather, the ore I see and the tendency of the milling operations, I should not think it too much to say that, if they develop as I am inclined to think they will, California in the future will have nothing to brag of in the way of advanced milling.

I did intend to give you a description of Rae's Electric Process in this letter, but must defer it until my next.

◆

Of the 1,095 mountains in the moon, measured by Beer and Madler, 39 are higher than Mont Blanc, and 6 are 20,000 feet high. The annular (or circular) mounttains are highest, Dorfel, near the southern pole, measuring 26,691 feet, or nearly as high as the highest peak of the Himalayas, the loftiest summit of our own globe. And there are also circular caverns, or craters, in our satellite, which are 24,000 feet deep; and some are 100 to 130 miles in diameter.

Milling Processes.

Editors Press:—In looking over your impression of the 4th inst., I am glad to observe the very forcible and out-spoken manner in which your correspondent, Mr. Charles H. Aaron, treats the subject of "rebellious ores" and the operations of "practical men" and "doctors." I am quite of Mr. Aaron's opinion, that any of the silver ores of Nevada may be worked to 80 or 90 per cent. of their assay value by many simple and inexpensive methods, well known to metallurgists; and these results will doubtless be obtained when metallurgists are employed to take charge of mills and other reduction works. It would be highly unjust to the majority of millmen to include them in the class described by your correspondent, they being characterized, as a body, by an unusual amount of good, sound common sense. But, as not more than one in a hundred is possessed of the necessary elementary knowledge of chemistry or metallurgy to be able to determine the minerals, or suggest the best mode of reduction, it is not to be wondered at if they persist in adhering to the most generally followed processes, and continue, knowingly, to throw away a large proportion of their bullion, till one of their number oversteps the line of routine, and at his own risk and cost proves the advantages of some other system of working.

As an instance of this over-cautious adhesion to routine, I may mention a case that came under my observation some time ago;—of a mill-owner expending, annually, some thousands of dollars for sulphate of copper, which was duly converted into carbonate and thrown away in the tailings, after being decomposed in his pans by the carbonate of lime matrix of the ore. This gentleman had been accustomed to use sulphate of copper with the *quartz* ore of the Comstock, and considered he was doing the "correct thing" in continuing to mix it with his *calcareous* rock. My suggestion, that this heavy and utterly useless expenditure should cease, was replied to by a good-natured, incredulous smile, with a Lord Burleigh shake of the head; and I have reason to believe this "practical" operation is continued to the present day, not only by the gentleman in question, but also by the numerous "practical men" at present operating on the calcareous ores of White Pine.

W. T. Rickard, F. C. S.

Leviathan Mine, Alpine Co., Dec. 27.

Our correspondent ought not to be surprised that "practical" millmen, who have been so badly misled by so many pretended "scientific" men, should be rather incredulous when merely informed without proof (if, in the case mentioned, none was given) that a substance, which they have found by experience to be of use in treating certain ores, was utterly useless with others. We need, as everyone will admit, more thorough knowledge of the chemistry of amalgamation. And those who possess this knowledge ought, in reasoning with others, to adduce incontestible proof of their assertions, as far as possible. For instance, many who will acknowledge the fact that calcareous gangue will decompose sulphate of copper in amalgamating processes, may yet require proof that the result is carbonate of copper (and sulphate of lime). And as we are constituted, being apt to run to extremes, if we doubt a part of an assertion, we are inclined to disallow the whole, although we may be acting thereby very illogically.

We are always glad to hear of experiments made, and hope that the discussion which has been excited to a certain extent by the article referred to, will induce correspondents to send us their ideas founded on experience. We intend to make our paper keep up with the progess of the age, and by an interchange of ideas, our readers will greatly aid us and at the same time benefit themselves, and enlighten one another on many points on which many are as yet uninformed.

◆

Another Alpine Tunnel.—It is announced that Dr. Strousberg, the great German railway king, in company with two other gentlemen, has undertaken to tunnel the St. Gothard, and has engaged to have the work completed in less than seven years.

Agricultural and Mining Lands.

The following are abstracts of a speech delivered by Hon. A. A. Sargent, in the House of Representatives, on the important subject of our mining interests and titlest to lands in this State:

Every gentleman is aware that by the large yield of our mines for years past, the Government has been enabled to fulfill its obligations to its creditors, and carry on an expensive war. The means by which those results have been obtained, by which millions of small rivulets have been united into one and made this large stream of gold, are perhaps not entirely familiar to every gentleman within my hearing.

I call attention to a single fact, showing the importance of this supply of treasure; and a few years ago, in the midst of the war, the loss of a single steamer on the Atlantic, freighted with two or three millions of gold, caused a commercial convulsion in New York and throughout the country. The gold and silver yielded by our mines heretofore have been necessary for the safety of our credit, and are necessary for business purposes now and hereafter; and if this House by its action can devise measures that will make mining more remunerative, that will make it more attractive, that will make it more generally pursued, the result will be that the product of the precious metals will be increased, and the necessities of the country so far, better answered.

Titles Necessary to Promote Immigration.

After reviewing the earlier history of the population; their purpose in coming to the State, the manner of holding and transferring mining claims, action of courts on mining titles, and the legislation of Congress bearing upon the mining interests, how far it gave titles, and its objections, etc., he impressed upon the House the importance of a perfect title to promote development. We quote these paragraphs in this connection:

Sir, take any farmer and put him upon a a piece of land where he is liable to be disturbed at any moment, where he remains only at the sufferance of the owner, and what improvements would you expect him to make upon the land? He will be more apt to neglect it in every particular; he will shear it of all it bears and has, that may be immediately valuable to him, and care little what may become of the estate when it shall pass again from his hands or how much it degenerates while he holds it. If you wish to give over a farm to utter waste, subject it to such possession.

Now, to a certain extent, except so far as it may have been prevented by the alliance of the mining community upon the justice of Congress, this is true of mining regions. It has been urged as a reproach against our people that they are nomadic; that they yield to every passing excitement; that upon each rumor that a new mining region has been discovered, they rush to it and leave their old homes. The remedy for that is to attach them to the soil, and give them a right, under wise and proper regulations, to buy that which they have occupied and improved. Then substantial instead of temporary improvements will be made, and the certainty of titles will encourage the investment of capital.

What Legislation is Needed.

Referring to the provisions of the law by which titles to quartz mines are obtained, and the operations of the law, he says:

At this session I have introduced and had printed a bill extending the principles of that law with some modifications; extending it to placer claims; requiring, however, that those claims shall conform to the Government sub-divisions. The Government is now selling here and there through the mining regions under the quartz law, as sites for mills, etc., irregular pieces of ground, without any regard to the system of Government surveys, and which can never be conformed to them. In order to enable the miners to conform their placer claims to Government sub-divisions, it is necessary that Government forty-acre tracts be divided into ten-acre tracts, to enable small claims to be entirely separate, and to adequately separate agricultural lands. Furthermore, it is necessary that there should be some system of joint entry, so that men whose claims interlace each other, as claims will where the veins run so eccentrically as they do there, may make joint entry and conform to the sub-division of the Government in their exterior boundaries. If this is done a great load of expense will be taken from the miner's shoulders in having his claims surveyed and mapped by the Surveyor General. In all places where surveys have been made this principle will immediately beneficially operate; and I intend as part of my measure, that these surveys shall proceed throughout the State.

But a more important amendment which I propose in that bill, provides that this system of restraint, this system of tying the hands of the miners and preventing them, except at great cost, and often entirely from obtaining their titles, shall not be applied to placer claims. * * *

Now, the bill which I have introduced proposes to enact that where there has been actual and *bona fide* possession of a mining claim during the period of time prescribed by the statute of limitations for the mining claims of State and Territory where the claim may be situated, and there is no adverse claims made by any party whatever, after full and fair notice of the application for a patent, this possession will be a substitute for all the machinery contained in those impracticable provisions and regulations requiring miners to trace back their claims through written instruments which never existed to a period so remote as that to which many of these claims extend, and to verify them by a code that has no exact written record.

The price per acre named by Mr. Sargent is $2.50, and he insists that it is a full average value, and no more should in any event be charged. Our space forbids doing full justice to this excellent speech, as any abridgement takes away excellent points. We take a couple of extracts relating to

Timber Land and "Stumpage Agents."

What then do I ask? I propose that the Government shall have those lands surveyed, and that they shall be sold in adequate tracts to support sawmills. This end I think can be gained if they are sold in amounts not to exceed six hundred and forty acres to any one individual or association. If these lands were capable of cultivation it would be another matter, and I would be in favor of reducing the amount to one hundred and sixty acres. But they are not capable of cultivation; and you cannot expect a man to go into the wilderness to carry on a sawmill business unless he can have timber enough to make it profitable.

At this present time, as I learn by papers received from my district within the last few days, inquisitive Government agents are going about in order to ascertain who cut a particular tree, or squared a particular block of timber, or who has run a sawmill. It is an absolute necessity of existence there that those very things should be done, and you provide no means by which they should be done legally. You punish with fines and imprisonment any one who takes those things which are absolutely necessary alike to carrying on of the business of mining, and to the conducting of agricultural pursuits, and to the very existence of our towns throughout the region of the Sierra Nevada.

Speculators and the Agricultural Lands.

As applied to our State, there is something radically wrong in those provisions of our land laws which allow large tracts of land to be taken up by speculators at what is called "private entry." It is the curse of our State. * * * The result has been that to-day, in those valleys of which I speak, six million acres—think of it, gentlemen—six million acres are held by a few men, because these speculators could go to the land office and buy up whole townships or whole counties of the richest land God ever fertilized; buying it for Sioux scrip or agricultural scrip, or any scrip, which, at its depreciated price, did not cost them forty cents on the dollar in gold. They thus got control of all that domain, and they hold it now at prices which exclude settlement. * * * Now, sir, this illustrates the condition of our State in that respect. It is a blight to our prosperity, a continual curse, turning away the high tides of an immigration that else would gain homes in our midst. I think there ought to be a law passed applying to the whole of the United States, prohibiting, hereafter, all entries of land under private entry. In view of the rapid settlement of the public lands of the United States, we ought to preserve the remnant left to us for actual settlers. When a man loads up his family and household goods in a wagon and starts on his weary journey across the plains, when he reaches the West or California, let there be some small piece of land that he can buy of the Government itself, and not compel him to pay twenty-five or fifty dollars an acre to some speculator for land which he has bought for fifty cents an acre. I believe this is necessary for other States as well as for my own.

Mechanical Progress.

More About the Fields Steel.

We some little time since mentioned that Dr. Fields, of Wilmington, Delaware, had discovered a means of making iron and steel, which, it was said, far surpassed any yet produced in the United States. He has recently been testing his process before experts at the Rensselaer Iron Works in Troy, N. Y.; and we clip the following from a long article in the Troy *Daily Press:*

"Dr. Fields charges one of the ordinary puddling furnaces with a quantity of American pig iron; when the iron is thoroughly melted, he throws into the seething mass a small package of powdered substances. The iron produced is tough and strong, and can be rolled with ease. * * * To manufacture steel, the iron is melted, and the sulphur and phosphorus are driven off as above; another package of different chemicals is then thrown into the furnace and thoroughly incorporated; in ten minutes the entire mass becomes steel. It is then "balled up" and hammered beneath a heavy trip-hammer, and is ready to be used for any of the purposes of steel. Dr. Fields claims that it can be used for the manufacture of fine cutlery. In the manufacture, two-thirds of old cast iron and one third of pig iron can be used, while in the manufacture of Bessemer steel no old cast iron can be used, but pig iron alone. Another advantage claimed for Fields' steel is, that it can be welded to ordinary wrought iron, while Bessemer steel can not. * * * Dr. Fields will no doubt reap an immense fortune from his discovery. The ingredients of the powders which he uses he keeps a profound secret; refuses to tell the color of the powder, its weight, or in fact anything. To convert 400 pounds of pig iron into wrought iron, he uses a small package of apparently a pound or two in weight. The powder is wrapped in papers, and he permits none even to glance at it. Dr. Fields states that he would not sell the secret for $1,000,000. Judge S. C. Field, of Chicago, has purchased a half interest to use the new process in several States for $265,000."

"PALIER GLISSANT."—This term, which literally means "slippery resting-place," is the name given by M. Girard, the inventor, to a new method of lubricating journals. In it no oil is used. Water is the lubricant; and it is so applied, by means of hydraulic pressure, as to actually *lift* the journal, and hold it slightly away from contact with its box. By means of a pipe leading from a pump, the water is admitted through openings directly into the box, where it completely surrounds the journal in a thin film, which being under pressure constitutes a liquid cushion. The pump is worked by the machine itself. The water of course constantly escapes, but in very small quantity. The journal is in this manner so effectually lubricated that of two wheels, similar in every respect, one of which is lubricated in this manner, and the other with oil, and both of which are set in motion at the same moment and with the same velocity, the latter will come to rest before the speed of the other is perceptibly slackened. The additional power imposed upon the machine, of working the pump, is found to be more than doubly compensated for by the saving of the usual loss by friction.

BETTER THAN THE COMPRESSED-AIR BRAKE.—D. P. Davis writes to the *American Artisan* of a device for the same purpose as the compressed-air brake for railways, which was patented about a year ago, and which "consists of a simple self-acting valve, opening outward, and placed anywhere in the exhaust passage of a locomotive cylinder. For convenience of adaptation and economy it is generally placed in the blast-nozzle. As long as the engine is running the valve remains open, being opened by the pressure of the exhaust steam; but at the moment when the pressure below the valve becomes less than that of the atmosphere the valve closes; so that in reversing the engine the valve will close instantly, and exclude the hot air and ashes which are always contained in the smoke box."

Spring Motors for Sewing Machines.

At a late meeting of the Polytechnic Association of the American Institute, an apparatus for operating sewing machines by a coiled spring was exhibited. In the discussion which followed, Mr. G. H. Babcock made these remarks: "Some eight or nine years ago this same subject came up before the Society. I had the honor of calling attention to the fact that some motor was required for driving sewing and other small machines for family purposes, and thereupon I was beset by numberless inventors, nearly all of whom proposed some form of spring power or clock-work. In order to set this thing at rest, I instituted a series of experiments to determine the amount of spring required to drive a sewing machine for a given time. I first found by trial that to drive a Wheeler & Wilson machine at the rate of 600 stitches per minute required some 550 foot-pounds.

"I then proceeded to ascertain how many foot-pounds of work could be obtained from one pound of steel. From a large number of experiments I came to the conclusion that for the style of spring which would be required for such work, 45 foot-pounds was all that could be safely depended upon in actual use.

"Now, as at least 20 per cent. of the power of the spring would be used up in friction of the machinery required to transmit its power, it would take a spring capable of exerting not less than 690 foot-pounds to drive a sewing machine one minute; and this would require fifteen pounds of steel per minute, or 900 pounds of spring per hour, to drive a sewing machine; and 9,000 pounds for ten hours!

"Again, the power of a strong man turning a crank is but 3,000 foot-pounds per minute, when working eight hours per day, but for a short time he can exert about twice that power, or 6,000 foot-pounds per minute. It would, therefore, take him one hour and ten minutes to wind up a spring which would drive a sewing machine for *ten* hours. From these figures it is evident that no form of spring power is applicable to this purpose; and it is still a problem for inventors to furnish some simple and cheap motor for this and similar purposes where a small power only is required."

BLAST ENGINES.—In an article on the Creusot Iron Works, written for the *Iron Age*, we find the following: "It is a curious fact that to-day ponderous beam engines are being erected in the Lehigh Valley, whilst at the Creusot, where forty-five to fifty blast engines have been constructed in all, the walking beam type has been abandoned for a number of years, although the first blast engines they ever erected were of that type. The direct-action engines have been substituted for them; they are made with horizontal cylinders for small and medium engines, and with vertical cylinders for the more powerful types. In both these systems, the steam and blast pistons are directly attached to the same rod, and the motion is regulated by a fly wheel. These types are of great simplicity; all losses are reduced as low as possible. The air passes through flap valves and the steam through slide-valves in horizontal engines, and through seat-valves in vertical engines. In either case the steam acts expansively."

NUT-SHAPING MACHINE.—A new English invention is thus described: The machine is for the purpose of shaping the external faces of hexagonal nuts, and consists of six horizontal revolving cutters, arranged radially at the same level, and driven by a single bevel wheel gearing into the six bevel pinions that carry the cutter spindles. The cutters are so fixed in their spindles that when the cutting edges of one tool are horizontal, those of the adjoining one are vertical, and they consequently miss one another in revolving, and can thus operate on work the faces of which are narrower than the breadth of the cutters; by this means the contiguous faces of hexagonal nuts are all shaped simultaneously by the revolving cutters. The nuts to be shaped are threaded upon a vertical center mandril, to which a vertical feed motion is given, traversing the nuts upwards or downwards in the middle of the revolving cutters; and the shaping of the six faces of the whole row of nuts on the mandril is completed in a single traverse of the machine.

A FLUTED AXE.—This is a Michigan invention. The *Mechanic and Inventor* gives a cut of it. It is claimed that it enters the wood more easily than one of the old form, and is more easily withdrawn.

Scientific Progress.

Notes on the Earliest Discoveries in America.

In *Silliman's Journal* for November, Henry Stevens gives some Historical and Geographical notes on the earliest discoveries in America, which he illustrates with photo-lithographic *fac-similes* of some of the oldest and most important maps and charts. After giving a memorandum of the authorities extant upon the subject, he says:

"A new summing up of North American discovery has appeared in a *magnum opus* published in April of this year by the Maine Historical Society, nominally the History of the Discovery of Maine, but really the history of the discovery of the whole eastern coast of North America. This learned work by John G. Kohl, LL.D., is presumed to be the culmination of all that is known and recorded on this vast subject from Adam of Bremen to Kohl of Bremen, and may, therefore, be held as the present state of the history of North American geography and discovery. There is appended a remarkable paper on the *four* voyages of John and Sebastian Cabot, by M. D'Avozac of Paris, in which the distinguished French geographer, on several important points, express views precisely opposite to those of Dr. Kohl."

M. Stevens proceeds to remark, that the history of the early voyages is in fact so bemuddled that an entire overhauling is necessary; and that although he does not himself profess to be competent to do it, he has at any rate tried. Of the *fac-similes* he says:

"It is not permitted to every one to see and touch the precious originals, scattered and secluded as they are, in various public and private repositories, throughout Europe and America. Not three persons exist, probably, who [have seen them all. The Portolano, or marine chart of Juan de la Cosa, made at Puerto de Santa Maria, near Cadiz, in 1500, is now preserved in the Royal Library at Madrid. It is on ox hide, 5 feet 9 inches long, by 3 feet 2 inches wide. The whole world is laid down, including the entire 360 degrees of longitude, on a given scale of fifteen Spanish leagues to a degree. The chart is well drawn in colors, and heightened with gold, altogether a work of art of considerable pretension. It is acknowledged by competent judges to be the earliest, the most important, and the most authentic geographical monument relating to the western discoveries that has come down to us."

HIGH TEMPERATURES PRODUCED BY STEAM AT 212°.—The *Chemical News* gives a communication from Mr. Spence, in which he details some experiments proving that saline solutions can be raised to a high temperature by the use of steam at 212° Fahr. only. A solution of nitrate of soda, which has a boiling point of 250° Fahr., was placed in a jacketed pan, and steam was let into the intervening space until the solution was raised to nearly 212°. The steam was then shut off, and an open pipe was immersed in the solution, and steam thrown directly into the liquor. In a short time the liquor was found to have reached the temperature of 250° Fahr. It appears that the temperatures to which the solution can be raised are in the exact ratio of their specific gravities, and have no connection with the temperature of the steam, which never exceeds 212° Fahr. The greater the specific gravity the higher the boiling point, and whatever the boiling point of the solution, to that point, or very nearly, will steam of 212° raise it.

OLD FEMALES ASSUME MALE CHARACTERISTICS.—Darwin says: "It is well known that a large number of female birds, such as fowls, various pheasants, partridges, peahens, ducks, etc., when old or diseased, or when operated on, partly assume the secondary male character of their species." "A duck ten years old has been known to assume both the perfect winter and summer plumage of the drake." "Waterton mentions the case of a hen that had ceased laying, and had assumed the plumage, voice, spurs, and warlike disposition of the cock; thus every character of the male must have lain dormant in this hen as long as her ovaries continued to act,"

The Great Auk.

This bird, once very abundant on both shores of the North Atlantic, and whose bones have been found in large numbers in "shellheaps" from British America to Massachusetts, is now believed to be entirely extinct. The last known to be seen alive were two which were taken near Iceland in 1844. There are three specimens in the United States: one in the Smithsonian Museum, one in the Philadelphia Academy of Natural Sciences, and one in the Giraud Cabinet in Vassar College. The last is the one from which Audubon made his drawing. It was caught on the banks of Newfoundland. Professor James Orton, from whose article in the December number of the *American Naturalist* we take these facts, says:

"It was about the size of a goose, with a large head, a curved, grooved and laterally flattened bill; wings rudimental, adapted to swimming only, approaching in this respect the penguins of the southern hemisphere. The toes are fully webbed, the hind one wanting; the plumage is black, excepting the under parts, the tips of the wings, and an oval spot in front of each eye, which are white. It was an arctic bird, dwelling chiefly in the Faroe Islands, Iceland, Greenland, and Newfoundland. It was an unrivalled diver, and swam with great velocity. One chased by Mr. Bullock among the Northern Isles, left a six-oared boat far behind. It was finally shot, however, and is now in the British Museum. It fed on fishes and marine plants, and laid either in the clefts of the rocks or in deep burrows a solitary egg, five inches long, with curious markings, resembling Chinese characters.

By which of the great causes of extinction, slowly but incessantly at work in the organic world, the Great Auk departed this life, we cannot say. We know of no changes on our northern coast sufficient to affect the conditions necessary to the existence of this oceanic bird. It has not been hunted down like the Dodo and Dinornis. The numerous bones on the shores of Greenland, Newfoundland, Iceland and Norway, attest its former abundance; but within the last century it has gradually become more and more scarce, and finally extinct."

LATE EXPLORATIONS IN UTAH AND ARIZONA.—At a late meeting of the Geographical Society in the Cooper Institute, New York, Prof. Newberry delivered an address upon the subject of the discoveries made by the Government expedition to which he was attached, the chief object of which was to explore the region through which passed the old trail from Santa Fé. Near the course of the San Juan river were found ruins of immense structures, a view of one of which he exhibited, built regularly of bricks, a foot in thickness, and about eighteen inches in length, with the joints properly broken. This structure was as as large as the Croton reservoir. Inside were rooms nicely plastered. There were traces of extensive canals, which, constructed to bring water, were received into large cisterns. Prof. N. exhibited pieces of pottery which he said abounded. He gave it as his opinion that the depopulation was attributable to warlike hordes from whose incursions the peaceable Aztecs had been gradually wiped out. The only people left now were the Mokies, who lived in towns enclosed within high, thick walls, and who were almost inaccessible. These people were visited, and the explorers were received by them with hospitality.

PROF. ROOD ON THE ELECTRIC SPARK. As a result of various experiments, Prof. R. finds that the discharge from a Leyden jar charged by an induction coil, is composed of three parts or successive acts—a white flash, a brownish-yellow gleam, and a fainter and more lasting glow, which, with brass electrodes, is green, and, with platina, grey, in color. The duration of the entire phenomena is from 17 to 50 millionths of a second. The duration of the white and yellow light together is 6 to 8 millionths, and that of the white flash alone less than 24 hundred-millionths, of a second.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

The Exchequer.—*Chronicle*, Jan. 1st: Preparations are making for starting up work in this mine, better known as Buckeye No. 2, lately purchased by a London company. The company have also purchased Davidson's mill, and in the spring will build a road direct from the mine. Captain Chalmers, Manager, will leave London this month.

New Start.—*Miner*, Jan. 1st: The owners of the Sam. Booth, Esmeralda and Alart combined properties, having purchased the Wide West tunnel, will put a force at work on Monday. This tunnel is in over 200 feet, along the east casing of the Tarshish lode, of which the Schenectady S. M. Co. have the north extension.

Approaching.—The workmen of the Schenectady S. M. Co., and in the Monitor C. M. tunnel No. 3, both on the Tarshish ore deposit, are now so near together that they can bear each other's shots.

Imperial.—From the rock now coming out, we should judge them to be very near an ore deposit of value.

AMADOR COUNTY.

Kennedy Mine.—*Ledger*, 8th: After a run of 15 days they cleaned up last Saturday, and took out over $2,000. They have crushed the rock promiscuously as it came from the shaft and cut.

CALAVERAS COUNTY.

Railroad Flat.—*Chronicle*, Jan. 8th: Work has been resumed upon the Bald Eagle....The owners of the Petticoat are pushing their new mill, and the erection of machinery for hoisting is progressing. The stope exhibits a splendid vein, six feet in width. Gold can be seen in any portion....The Lewis Bros. have suspended work for the present. Increase of water has rendered it impossible to keep the mine clear with horse-power. Steam works will be erected in the spring. Forty tons of first-class ore are on the dump, which will yield $200 per ton; also 70 tons of second grade, worth $45....The 120-foot level of Sanderson & Co. has been driven 60 feet. The face of the drift shows a 10-inch vein of rich quartz....Mitchell & Co., near the Chapman, are taking out quartz worth $25 per ton. Water will probably prevent the development of the mine for a time....The Essex, Poe & Co., is a large vein, and can be worked with little expense. The ore averages well....Clark's hydraulic on the flat, keeps up its roar, sending enormous quantities of gravel through the flume. ....Owners of placer claims are waiting for rain.

Quartz Elsewhere in the County.—At Angels, the Big mine and Sickle's mills are kept in constant operation. The first is running 30 and the latter 15 stamps. At Fourth Crossing, Thorpe's mine is turning out first-class ore. On the same belt are the Gwin and Alexander, each of them turning out large quantities of bullion and giving employment to many hands. On the eastern belt, at West Point, Mosquito, Glencoe, Railroad Flat, Sandy Gulch and Sheep Ranch, the quartz mines are turning out first rate. In these districts quartz is frequently worked that pays over a hundred dollars per ton; less than $20 rock is thrown aside.

EL DORADO COUNTY.

Mining.—Placerville *Democrat*, Jan. 8th: All the claims in this vicinity that are being worked, pay well, but the cry is more water and cheaper. Ten thousand inches could be sold at ten cents an inch in this township, and the mining ground is here to justify the building of a ditch of that capacity. Quartz leads that are being worked are paying well. Van Hooker & Co. have struck a lead up Cedar ravine, which shows plenty of free gold.

Gold Dust.—During the last week, dust valued at $10,800 has been shipped from this city.

MARIPOSA COUNTY.

Not Sold.—*Gazette*, 7th: The Washington mine, near Hornitos, is not sold as reported. One hundred and thirty thousand dollars in gold were tendered, but refused. This is one of the richest mines in Mariposa county, the average monthly clean up being over $8,000, while the running expenses of mine and mill (20 stamps) do not amount to $2,500.

NEVADA COUNTY.

Mining Items.—Grass Valley *Union*, Jan. 7th: The Union Hill mine gives a clean up for the month of $16,300, the largest yet. This will give a profit to the new owners of between $7,000 and $8,000. In the bottom of the shaft the ledge is larger and richer than it has ever been since the mine was opened....The Idaho Co. is working in better rock. The new shaft is to be six by twenty-four feet. The workmen are now raising this shaft from the 100-foot level to the surface. The rock to the east of the works is as good as in any part of the mine. ....We learn that the Eureka never looked better....We are told that the North Star at its last clean up made a good showing, to the credit side of the sheet. The ore coming out is good....The West Eureka is being worked constantly, and the owners are hopeful....The Coe will start up in a few weeks. Bids for opening the works are before the company....The Empire is working full-handed....At the Perrin, drifts are being run and levels opened. No rock is being taken out except to pay expenses. The work will not be finished for some six weeks, when regular crushings will begin. ....The Banner, of Squirrel Creek, have another crushing ready, and good judges say that it will go $100 to the load....Contracts for working the Inkerman, near the North Star, have been entered into....At the Allison Ranch, sinking is the order of the day. The work, except running the engine, is done by contract....The Dromedary has a crushing now at Ben McCauley's mill. The rock looks well....From the O'Connor mine we observed yesterday some good-looking quartz....The Seven-Thirty Co. has had a crushing which paid over $30 a ton....The William Penn is being worked night and day in sinking and running drifts.

Pittsburg.—*Transcript*, 9th: The mine continues to pay handsomely. About 90 men are constantly employed, and the mill is kept running night and day.

Started Up.—The hydraulic claims of Marselus & Maltman have been started up. They have plenty of water, and are using one of Craig's largest size nozzles.

Mutual Co.—*National*, 10th: At Findley & Co's this morning, we were shown two lots of gold, worth $4,000, the result of a month's run on ore from the Mutual, at Eureka South. During the month the mill was idle for several days.

Jim Mine.—*Gazette*, 11th: Mr. Lloyd, of the Jim mine, Eureka, passed through town yesterday, with a $5,000 brick, the result of four weeks' run of the mill. They are annoyed with the freezing of their water pipes, but expect to keep their stamps going all winter. Twenty men are employed in the mine and mill.

Cement Mining.—Brown Brothers, of You Bet, cleaned up on Saturday, after nine days' run of their mill, $5,000. They employ 12 men in their drift, and seven in their mill. The expenses are $500 per week.

PLACER COUNTY.

Evening Star.—*Herald*, 8th: The last crushing of rock from this mine yielded equal expectations. The gold has been sent below, and the returns are not yet known; yet we may mention that over 330 ounces of melted gold were obtained out of 28 tons of quartz, estimated at $6,000. This is exclusive of the sulphurets. The rock was worked at the Green Emigrant mill. The first crushing yielded $256 to the ton, the second $50, and this last about $220.

Bear River Ditch.—The water was turned out Oct. 1st, and the channel has been cleaned and enlarged. The water was again turned in a short time ago, but owing to the dryness and coldness of the weather, Bear river has not furnished enough water to fill the ditch.

SIERRA COUNTY.

Poverty Hill.—Cor. of *Messenger*, Jan. 8th: The Gold Valley Main Tunnel Co. have sold one-half of their capital stock to Messrs. Judson, Woodman and Doe, of San Francisco. Operations have been commenced to push the tunnel ahead. They have erected a powerful water blast. They will work three shifts. It is supposed that 600 feet will carry the tunnel into the bed of one of the finest gravel deposits in Northern California. The parties have located a timber ranch covering 16 square miles, on which they intend to erect a steam sawmill, and a sash and blind factory.

Kingdom & Bros. intend to run their water ditch into Slate Creek next summer. This ditch will be capable of carrying 2,000 inches of water. They will employ 300 Celestials.

Westall & Co. are working days, nights, and Sundays, driving their bed-rock tunnel ahead, which has already been 10 years in running, and will take about two more. It is now 1,500 feet in length.

Rich Lead near Forest City.—Michael Redding, after about four years tunneling near Forest Hill, struck the blue lead January 6th. It is believed to be the continuation of the Live Yankee and Oregon leads in Bald Mountain, of which he was also the discoverer. The ground pans out from $1.50 to $8 per pan. The discovery caused great rejoicing in Forest City.—*S. F. Bulletin, Jan. 11th,*

SISKIYOU COUNTY.

French Gulch.—Yreka *Union*, Dec. 31st: The rock from the Washington is yielding $75 to the ton in the new tunnel. The Highland is running on richer rock than ever. A new ledge called the Honeycomb prospects favorably.

Rich Rock,—A pound of rock from a claim at Cottonwood, was pulverized in a mortar yesterday, no gold being visible. It yielded $3.18.

Items.—Marysville *Appeal*, 7th: J. A. Maxwell has discovered a gold-bearing ledge at the head of Shasta Valley, which prospected $6.60 per ton from the croppings, and 11 feet down $10.60. The ledge eight feet in thickness.

Specimens of quartz, from the Oro Fino, Scott Valley, are impregnated with fine gold. The ledge at the depth of 60 feet is 30 inches in width, and the rock will average $25 per ton.

A new mining camp has been established on the east fork of Scott river, near Callahan's Ranch, named Evansville, said to be equal to '49 in prospects.

TRINITY COUNTY.

Ditch.—*Journal*, 1st: Thomas Hayes is bringing a ditch upon a bar one-half mile above the ranch of Mr. Wallace, on Brown's creek. We are informed that he has obtained fine prospects.

Arizona.

Big Bug.—Prescott *Miner*, Dec. 25th: Parties inform us that several lodes have, of late, been re-located. The mill was running. A clean-up was made, after a run of five days, and those interested appeared well satisfied. On Wednesday, we saw at the store of Gray & Co. a bar of gold worth nearly $1,000, from Big Bug.

Walnut Grove.—Fred. Henry and others are preparing to work the Josephine mine. Other parties are anxious to buy the mine. We learn that the placer mines are doing well. Geuung's arastras were running.

Prospecting Party.—Another party is about to start to prospect the country north of Bill Williams' mountain. Many who went last summer are going.

Mining Region about Prescott.—J. M. Tiernan gives, in the *Miner*, the results of an inspection of the mines embraced in an area of forty miles square, lying east and south of Prescott. He made repeated tests of the rock in the various mines, and gives details filling more than two columns of the journal aforesaid. He concludes that, taking into account the agricultural as well as mining resources, the region named offers greater facilities for profitable mining than any with which he is acquainted. The *Miner* endorses him as reliable. We give some of Mr. Tiernan's figures: The Eugenie vein yielded by mill process $112 per ton; the Badger ore, from the surface, $92.32; the Justice, $112.37, at a depth of 30 feet. These are in the Big Bug district. In the Goodwin district, the Galena vein yielded, from average rock, $86 per ton; the Dividend, $214; the Independence, from $80 to $200; the Ticonderoga, $90. On Lynx Creek, the Pointer lode yielded from $132 to $210 per ton; the Eureka Hill, from $60 to $120; the Box Elder, $94 at the surface, and $312 in other average rock; the Pine Mountain, $89.60; the Monitor, $30 to $100; the Accidental, $182 to $312.

Colorado.

Mining Items.—Georgetown *Miner*, Dec. 30th: Stewart ships to-day a silver brick weighing 1,483.4 ounces, .715 fine, coin value $1,371.31, from Terrible ore, treated in the old mill....The patent for the Terrible lode has arrived, the first for any lode in the vicinity....The Brown Silver Mining Co. ships to-day the largest mass of silver bullion ever produced in Colorado. The "button" weighs 683 pounds of troy, 8,196 ounces, currency value $12,703.... The Wilson & Cass Co's aerial railway is delivering ore at the rate of 20 tons per day. ....Work on all the tunnels is progressing; several of them have "struck it;" the Linn has cut the Equator on its eastern extension, with a heavy vein, and considerable mineral. The Baltimore is driving ahead. ....We were shown a button of gold retort weighing 10 dwt. and 5 grains, from 1½ pounds of ore from the Shaffter lode.

On the Mountains.—Lincoln tunnel heading is in 300 feet. The Albro is a true fissure vein, and has been explored on the surface for three miles....The Par tunnol will be driven to the lode this year. Work is to be commenced immediately....The McAfee tunnel is 185 feet. The height is seven feet, and the floor is six feet wide, and the cost has been $2,000. It has already struck a vein which yielded selected ore assaying $219 per ton. It will reach the Murley by July 1st. Selected ore from the Murley assays $349.

Terrible Mine.—Central City *Herald*, Dec. 29th: It is proposed to concentrate the third class ore, making it worth $300 per ton. There is probably 2,000 tons at the mine. Work in the tunnel has been suspended for the present.

California Lode.—A lot of Cornishmen are working Hugel's claim, and doing well. Some of the ore has run as high as 16 ounces per cord. Stalker's mine is down 420 feet, and yielding ore which averages between 10 and 11 ounces. Joe Harper has just put up a whim. A. M. Jones made a contract with some Cornishmen to sink a shaft on the Hidden Treasure, to pay for three-fourths of one hundred feet. They got through in nine months. The ore now coming from the mine pays seven ounces in a stamp mill, and yields a good quantity of smelting ore. Another lot of Cornishmen are working on the lode east of Stalker's.

Nevada Items.—Potter & Holley are crushing from 10 to 14 cords per week of ore from the Forks lode which pays five ounces per cord. The ore is easily mined, and costs $35 for hauling and crushing, They have leased Bradley's mill, in Russell gulch, and will start up 12 stamps at once. B. C. Waterman's mine on the Fluck is down 400 feet.

The New Works.—Stewart's Silver Reducing Co. have commenced operations. The new mine is located on the east side of the creek. The capacity of the works will be from 20 to 25 tons per day.

Clear Creek.—*Register*, Jan. 6th: The Whale Co. has 50 tons of ore on the dump, which prospects well. The last lot reduced was second class, which yielded $100 per ton. A force of four men is at present employed. Mr. Thackara is mining in Hukill gulch, and running the Fairmount Co's mill with good results. Bar mining along the creek is about suspended for the present, owing to the cold weather.

Bullion.—The gold shipments for the last two days have been about $24,000. This is better than in any previous year during the same portion of the winter season.

Idaho.

Loon Creek Mines.—Correspondence of Helena *Gazette*, Dec. 30: Mining is dried up for the present, and we can hardly expect to do anything more until spring. Many have faith that we can commence again in February and have three months' work before high water. I am not sanguine. * * Watson, Lundy & Co. cleaned up $500 from a pit twelve by sixteen feet, and without cleaning any bedrock. I have been shown several cash accounts, and the clean-ups were from $25 to $325 to one string of sluices, ten hours' run, with four to seven men. The diggings are not expensive to open, being shallow. The miners committed a blunder in laying over the claims *en masse*. Many men would have wintered here and done some prospecting. There is a party engaged in running a tunnel into the bar on which the town is located.

Montana.

Blackfoot.—*New North-West*, Dec. 24th: On Dec. 14th a strike was made on Illinois gulch, one-half mile from Blackfoot City. Twenty claims were staked the night of discovery. As high as 10 and 15 cts. to the pan were found. There is 16 feet of dirt, eight feet pay-gravel.

The Cedar Creek Mines.—The same says: We have "interviewed" Mr. Cusson, who has been there. The new town is named Louisville, and is 74 miles from Missoula. It is the Bitter Root Range. The discovery was made by Louis Barrett and another Frenchman or two. They have been prospecting for four months, and three months ago opened the discovery on Cedar creek. They sunk a hole 2x6 feet 2½ feet to bed-rock, and panned out $248. They have since located 2½ miles above, where they are washing with pans. They endeavored to keep the matter quiet until spring, but in sending out for friends, the "strike" obtained publicity, and on the last day of November a party of stampeders left Frenchtown at seven o'clock in the evening. On the 12th, between 200 and 300 men remained there.

Mr. Cusson saw $5 to the pan washed out. If the reports are half true it is wonderfully rich. The ground is now laid over until May 15th, 1870. All the letters we have seen, all the persons who have returned, concur. The gulch is claimed to be a second Alder.

Strike at Cable.—For several months Messrs. Cameron, Aiken and Jacobs have been prosecuting a piece of work in the vicinity of the Cable mine. They sunk a shaft 93 feet on the Thomas claim, and then drove a tunnel along the wall rock 400 feet. On Dec. 14th, they struck a body of quartz, and have exposed a face of 18 feet, at a depth of 180 or 190 feet. The ore is of the same character as the Cable. Mr. Cameron is the Supt. of the Hanauer mill—20-stamp—now ready to crush. The tunnel is being enlarged, and ore will be delivered for reduction shortly. The shaft is only about one-half mile from the mill, the ore coming down hill. Eleven men are at work.

Lincoln Gulch.—Cor. of Helena *Gazette*, Dec. 30th: "We have seven or eight companies washing dirt with success. Several companies are taking out pay dirt for next season's washing, and others are preparing drift-timbers or blocking out their ground for operations in the spring. The lower drain ditch is completed, and the prospects are very flattering, the pay dirt being eight feet in depth and prospecting 20 to 50 cents to the pan."

Nevada.

COPE DISTRICT.

Elko County.—Elko *Independent*, January 5th: A gentleman who has made a tour throughout northern Elko furnishes facts: There are now six or seven districts organized. The developments around Cope continue encouraging. The ledges maintain their width as the depths increase. East of Cope, the Bruno district is attracting attention. The rock is turning out well.

The placer mines are one of the important features of the country. Rocking in the gulches is going on as far out east as twenty-five miles. A ditch four miles long has been constructed at Cope, carrying four or five thousand inches, which is paying well.

New Discoveries.—Late advices report rich silver-bearing ledges on the headwaters of Bruno river, twelve miles from Mountain City.

HUMBOLDT.

Lucky Miner.—J. F. Smith, who disposed of his interest in the Alpha, is the discoverer of a ledge reported far richer, located two miles south.

Railroad District.—About thirty people are wintering. It is a base metal country, containing large quantities of copper and lead. There is one ledge about twelve feet wide, of nearly pure copper. There is a movement on foot to construct a road from Elko.

Mountain Boy.—This ledge is being worked by Henley & Co., with the most satisfactory results. A quantity of the ore worked in San Francisco returned $70 to the ton in silver, and 40 per cent. in copper.

PAHRANACAT.

Bullion.—*Reveille*, 8th, We learned, yesterday, that seven bars of bullion, valued at $7,000, were brought from the works of the Hiko.

REESE RIVER.

Yankee Blade.—*Reveille*, 4th: We saw, to-day, the result of a working of ore which showed $510.12 of silver per ton.

Secret Valley.—The Corwin & Paige ore, worked at the Manhattan mill, two lots, gave these results: Assay of the pulp of the three tons, $520.74 per ton; assay of the pulp of the twelve tons, $557.66 of silver per ton. The sum of $8,254.14, as the gross product of fifteen tons of ore, is splendid.

Mineral Hill.—*Independent*, 5th: Ned Leonard brings choice pieces of ore from the representative mines. A specimen from the Austin ledge is worth $813 per ton. Ledge No. 4 pans out at the rate of $500 per ton. The Big Giant, Great Republic, Silver Queen and Star ledges rank first class.

Ophir Canon.—*Reveille*, 3d: The works of the Cambridge, formerly the Twin River, have been closed, and the Supt. took his departure for New York on Friday. The reason for stopping work on the Murphy mine of the Co. is not apparent. At the close of the mine by the Twin River Co., it had produced ore of the value of $800,000 in less than two years.

The same of 5th says it is reported that the manager thinks it will be necessary to substitute Chinese labor for white. It closes its article with these words: "Chinese labor is not the panacea for excessive wages, exorbitant prices and loose, ignorant management."

Bullion.—Same of 7th: By the stage for Argenta, yesterday, ten bars of bullion, valued at about $9,000, were shipped by Paxton & Co., seven overland to New York city, and the other three to San Francisco.

WASHOE.

Occidental.—Gold Hill *News*, 8th: The lower tunnel has 100 feet further to run to reach the regular pay chimney. The old mine keeps up its yield, and looks well. At the north end of the car track or adit level, a winze is being carried up to the bottom of the old St. George shaft for ventilation purposes.

Hale & Norcross.—The ore breasts at the 6th or lowest level continue looking well. The water is about drained out between that and the level above. No dividend will be declared before next month. The present ore yield is about 156 tons per day.

Crown Point.—The faces of the drift east at the 1,000 and 1,100-foot levels only show porphyry. The face of the north drift from the 1,000-foot level shows lively looking barren quartz.

Sierra Nevada.—The mill is running steadily, and supplied from the east body of ore, which is looking better than ever. Last Tuesday they made a clean up from 12 days' run, which yielded $5,450.

Gould & Curry.—Yielding 50 tons of good ore per day. The upper workings near the surface show improvement, and samples from the El Dorado section indicates a large deposit somewhere in the vicinity.

Yellow Jacket.—The usual quantity of low grade ore from the north mine being shipped per railroad to the mills on Carson river. The south mine yields about 200 tons per day.

Savage.—A cross-cut at the 700-foot level, 100 feet from the Hale & Norcross line, a day or two since, showed encouraging indications of something good, but it turned out nothing extra.

Belcher.—Yielding 50 tons per day; average assays, $40. Explorations at the lowest levels temporarily suspended, and work concentrated at the upper levels, where there is ore enough in sight to last for months.

Kentuck.—The satisfactory yield continues, principally from above the 700-foot level. The company have declared another $10 dividend.

Virginia Consolidated.—Work suspended at present, pending the action of the company as to whether deeper sinking or drifting west shall be in order.

Dayton Concentrating Works.—*Enterprise*, 4th: F. Birdsall & Co., owners, shipped to San Francisco, in December, 140 bars of bullion, weighing 9,241 pounds, and valued at $72,000.

WHITE PINE.

Weekly Mining Review.—*News*, Jan. 8th: The San Francisco bears have our mining interests bound for a term; but more productive mines will be opened by spring than they can carry, and then business will revive. The mines are all looking as well as ever, and the majority of them better than ever before. The smelting interest, in particular, shows an unusual activity. More furnaces are building than ever before, and mines carrying base ores are let on leases, to working men, who find the working of them highly practicable, without the necessity of capital to start with.

Bullion.—*News*: The shipment for the week is about an average for the past two months—$67,724.84. The *Empire* says: The Little Giant, Staples, Miller's, Little Treasure and Henderson mills have all been idle for repairs the greater part of the week. Still, our exports of bullion foot up $73,113.20, against $58,370.15 last week.

Items.—*News*, 8th: In the Aurora Consolidated, a fine body of exceedingly rich ore was struck on Thursday....A proposition has been made by Chicago parties to put up a 15-stamp mill on the Copper Glance for an interest....Incline on the California 170 feet down....Fine ore struck at depth at 18 feet on the Farewell. Assays as high as $600....Imperial is taking out large amounts of smelting ore....Chas. Kimball has leased the Vulcan.

Items.—*Empire*: Eberhardt now works 37 men. Both mills running to full capacity....Aurora South looks well. The tunnel is in 120 feet. Ore from it worked at Stanford mill, 743 tons, yielded $46,000 bullion....Original Hidden Treasure will not cease work on the mine until spring. ....Miner's Dream will commence shipping ore to mill this week.

Mills and Furnaces.—*Empire*: S. A Raymond's furnace will commence running on Monday.....Rathburn furnaces are to be rebuilt on a new plan....Van Wyck & Arrington are building a 5-ton furnace....Chicago mill is to start up to-morrow....Stowe's mill at Hamilton is crushing 25 tons daily.

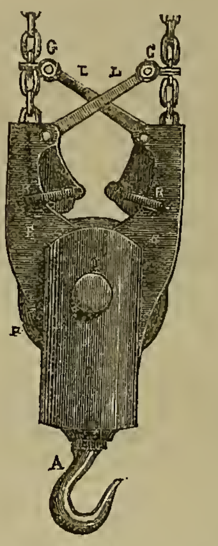
Outside Districts.—Shoshone ores work from $500 to $800 per ton. Two mills are ordered....Many new discoveries have been made in Kern district. The 20-stamp mill of the Steptoe is about to start up. Six thousand tons are on dump.... Silver Park is to have another mill. The Patterson mill is to be moved there.

Eureka.—The *Alta's* correspondent says the Eureka ores assay up to $700 per ton. None have been reduced that did not assay $500. The district surpasses everything for richness and amount of ore, and is attracting much attention.

Safety-Hoist.

The many accidents which are continually occurring, caused by the breaking of the chains or cables of hoisting apparatus, and often occasioning the loss of life, render necessary the use of contrivances by means of which the evil results may be prevented as far as possible.

The number of such inventions are legion, and many of them are known to our readers. Among others, a Mr. Caron, of Paris, has invented an apparatus for preventing the fall of heavy materials in case the chain or cable by which they are suspended should break. If the inventor's speculations are realized, it will be a valuable advance, especially as guide-rods are not necessary, as is generally the case with most safety-hoists. It has been suggested that it might be applied to cages of mines; but we think that there are many other inventions better adapted to this purpose. A description of the apparatus appeared some time ago in the London *Mining Journal*.



A is the hook; C, the block, with two lugs cast on it, forming the arms, B B; P, the pulley; M M, movable jaws, having on their exterior surface the imprint of the cable or chain; R R, springs, tending to draw the jaws toward the arms, B B; L L, levers fixed to the jaws, M M, and terminated by friction rollers, G G; O, the axle.

Now, as long as the chains are sound, the levers have the position shown in the cut; but if one breaks, as the right-hand one, the corresponding lever falls, and the left hand jaw, M, is drawn back by the spring, locking the left-hand chain against the arm, B. In this way the weight is kept suspended, instead of falling, the left-hand chain holding up the load.

◆

Pacific Coast Almanac.—We have received this pamphlet, which contains a large amount of valuable information and interesting statistics. It contains the 13th, 14th and 15th constitutional amendments; various U. S. laws with regard to mineral lands, homesteads, etc.; California laws on similar subjects; officers of the U. S. and of this State; rates of foreign postage; statistics of the Pacific States and Territories; Pacific coast railroads; and a great variety of other matter of more or less application. The compiler is Mr. H. G. Langley, whose qualifications for the work need no comment.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE
Alleghany, Sierra co., Dec. 30, 50c	Feb. 7	Feb. 28*
Cons. Chloride Flat, W. P., Dec 14 $1	Jan. 29	Feb. 24
Crown Point, Storey co., Jan. 5, $7.50	Feb. 8	Feb. 28
Cons. Virginia, Storey co., Jan. 7, $2	Feb. 12	March 5
Daney, Lyon co., Nev., Dec. 7, $1	Jan 9	Jan. 27
Empire M. & M. Storey co., Jan. 7, $10	Feb. 11	March 7
Glenwood, El Dorado co., Dec. 13, 20c	Jan. 10	Feb. 1
Gold Hill Tunnel, Dec. 17, $1.50	Jan. 19	Feb. 5
Gould & Curry, Jan. 12, $15	Feb. 16	March 9
Hope Gravel, Nevada co., Dec. 10, $1	Jan. 17	Feb. 7
Imperial, White Pine, Jan. 5, 25c	Feb. 10	Feb. 28*
Julia, Storey co., Dec. 23, 50c	Jan 25	Feb. 12
Kincaid Flat, Tuolumne co., Dec. 9, $2.50	Jan. 12	Jan. 29*
Kearsarge, Inyo co., Dec. 29, $5	Jan. 31	Feb. 19
Latawana, W. P., Nov. 22, 10c	Jan. 29	Feb. 19
Meadow Valley, Lincoln co., Dec 4, 25c	Jan. 5	Jan 25
Mammoth, White Pine, Jan 4, 20c	Feb. 14	March 7
Ophir, Storey co., Jan 8, $2	Feb. 11	March 2
Pilot, W. P., Nov. 23, 10c	Jan. 3	Feb. 21*
Pinto, White Pine, Jan. 3, 15c	Jan. 15	March 7*
Rising Star, Idaho, Nov. 5, 50c	Dec. 18	Jan. 15.
Sierra, Douglas co., Nev., Dec. 3, $1.25	Jan. 6	Feb. 4
Silver Vault, W. P., Nov. 22, 5c	Jan. 11	Feb. 7
Tallulah, Nev., Nov. 22, $2	Dec. 31	Jan. 25
Taylor, El Dorado co., Jan 5, 60c	Feb. 7	Feb. 28*
White Pine Mutual, Sept. 29, 60c	Nov. 22	Jan. 20
Yellow Jacket, Storey co., Nov. 26, $5	Dec. 28	Jan. 31

MEETINGS TO BE HELD.

Amador	Meeting Jan. 17
Belcher	Annual Meeting Jan 25

LATEST DIVIDENDS—(Within Three Months).

Amador Co., div. $12 per share	Payable Jan. 7, 1870
Chollar-Potosi, div., $1	Payable Dec. 6, 1869
Eureka, div. $7 50	Payable Dec. 6, 1869
Golden Rule, Tuolumne co, div. 50c ℔ sh	Pay. Oct. 26, 1869
Ida Elmore, div. $1	Payable Dec. 14, 1869
Kentuck, div., $10 per share	Payable Jan. 5, 1870
Sierra Nev., Storey co., Nev., div. 50c	Pay. Oct. 10, 1869

——*Advertised in this journal.

Latest Mining Stock Prices Bid and Asked.

AT THE S. F. STOCK AND EXCHANGE BOARD

Friday, January 14, 1870.

WASHOE DISTRICT, NEV.	*Bid.*	*Asked.*
Alpha	16¼	17¼
Belcher	15⅛	15⅝
Bullion, G. H.	—	10
Crown Point	13¼	13½
Cole (Va.)	—	—
Confidence	—	15
Chollar-Potosi	18¼	18½
Daney	—	—
Exchequer	7	9
Empire M. & M. Co	20	20
Gould & Curry	59	60
Gold Hill Quartz	—	35
Hale & Norcross	158	158½
Imperial	42½	43
Julia	1	1
Justice and Independent	2	—
Kentuck	134	134½
Lady Bryan	3	3½
American	—	—
Occidental	16¼	16½
Ophir	14	14½
Overman	70	74
Segregated Belcher	7⅛	8
Savage	45⅛	45½
Sierra Nevada	7¼	7⅜
Yellow Jacket	54	54¼
MISCELLANEOUS DISTRICTS.		
Amador (California)	305	—
Aurora, White Pine	8	9½
Eureka, (California)	240	250
Golden Chariot (Idaho)	—	15

San Francisco Prices of Copper Ores.

San Francisco, Jan. 14, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 12 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	26 65	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

◆

Monopolies.—The worst feature that we have to fear in the immediate future is monopoly. A great and rapid change is taking place in the manner of doing business, which facilitates monopolies, "kings," "corners," and dishonest gains by wealthy speculators. The great increase of newspapers, railroads, telegraphs and paper money, render possible quick and successful combinations to speculate on the gains of honest laborers, who, by the exercise of mind or muscle, produce everything of value. If we read the signs of the times aright, we have only seen the beginning of this kind of robbery. We say robbery, for, directly or indirectly, sooner or later, every dime of the millions made by gold, stock, whisky and other rings, comes out of the earnings of the producing classes. We are determined to lift up our voice like a trumpet, to cry aloud and spare not these *monstrous monopolies.—Truth.*

◆

Gone for More Money.—They tell us that David E. Buel has gone to Europe with a view of raising English capital for the mines of Eureka district.

◆

Book on Earthquakes.—A Treatise on Earthquake Dangers, Causes and Palliatives, by Prof. Thomas Rowlandson, comprising Earthquake Dynamics; Earthquake Waves, Sound that attends Shocks, Lime, Mortar, etc., Cosmogony and Seismogony, Phenomena of the Neapolitan Earthquake of 1857, and General Observations respecting Structural Arrangements. Published by Dewey & Co., Scientific Press Office, San Francisco, 1869, containing 96 pages. Price, 50 cents, postage free.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Encouragement for California Invention and Agriculture.

Mr. Perkins, of Butte county, has introduced a bill in the Senate, which is reported as follows for the Sacramento *Union:*

> By Mr. Perkins—An Act for the encouragement of agriculture and the invention and construction of a locomotive steam plow, appropriates $10,000 from any available fund in the treasury to be paid as a reward to the inventor of the best locomotive steam plow, provided such plow be of practical utility; application to be made to the Governor, who shall publish such application in three newspapers; the Governor to be Chairman of the Board of Judges on the merits of such plows, and to appoint as the other members of such Board the President of the State Agricultural Society, the President of the San Joaquin Agricultural Society, the President of the Mechanics' Institute at San Francisco, and one prominent practical farmer.

From our intimate acquaintance with the inventions of steam plows in this State, and the wants of the farming districts for cheaper modes of cultivation, we can heartily recommend the passage of a well-guarded bill of the above description. We are confident such encouragement will be sure to develop a practical and entirely successful machine, or machines, which will be hundreds of thousands of dollars in wealth to the State, and alleviate in a great measure the dire necessity of an influx of cheap laborers.

No other country in the world affords such endless fields with soil and surface so favorable for cultivation by locomotive steam plows, and to the observant engineer and progressive mind it is clear that the time must come when millions of acres will be tilled on this coast by steam machines of either local or foreign invention. Our seasons are such that we need rapid plowing, in many instances; some soils—and some of our richest and most durable lands, too—cannot be broken up by animal power with the common plow, while it is plain that they can be cultivated quite profitably by the aid of steam.

Were there one-half the demand for such machinery for similar lande in Great Britain, there is no doubt that that country would have long since furnished us scores of imported machines ere this, as her capitalists have for many years lavishly patronized the skill of her inventors and mechanics, until they have hundreds, if not thousands, of steam plows in operation, suitable to the peculiar wants of her soil and limited fields. Such machines, however, are not of a style or capacity suited to the requirements of the broad ranches of California, or her easily cultivated plains.

It is not for the lack of competent inventors that our fields are not already cultivated by steam plows. The want of capital to properly construct such machines, and place them in the field, is, and has been, our need for years. It has not been popular, or, to any considerable extent, profitable, to invest money in either machines or manufactures in this State. Capital has been enticed through the gilded portals of more *promising*, but perhaps less *paying* channels. Let the Legislature pass this bill, and encourage home invention and manufactures. It will be a paying investment for the State, and prove a satisfaction to any member who votes for it.

The Farmer's Gold Mine.—A correspondent of the *Western Rural* (Chicago) says that every farmer may have a *gold mine*—one that will average better dividends than any thing in California; and after leading his readers through sundry labyrinths of speculation, brings them at length to the—*barn-yard.*

Cattle from Texas.

Shipping coals to Newcastle has long been a proverb expressive of the height of commercial folly. Bringing beef cattle from Texas to California ought to be made equally as great a piece of foolishness. The very fact that such a speculation can be made profitable bespeaks a most lamentable degree of improvidence somewhere. The idea of shipping beef cattle from Texas, thousands of miles, across barren and arid deserts, while millions of acres of the finest pasturage land lie idle in this State, is absolutely preposterous. There is certainly something wrong somewhere, or such business would be impracticable.

We have had no droughts—no famine of grass, that has induced this movement. It has become a regular business, year after year. But what if we *should* have droughts; can no provision be made? Have our cattle-growers never heard of root crops being raised for cattle? Ample warning is always given, even in our driest seasons, for the fullest provision of that nature. But we fear that just there is the rub;—too much toil is involved. Our people have learned idleness from the old Spanish rancheros; there is too much dependence placed on the spontaneous production of nature; stock must be left to take its chances—starve, if it cannot pick up its sustenance in the open, uncultivated fields.

Beef thus raised, and of a quality miserably poor, commands a higher price to-day in San Francisco than can be obtained for the best stall-fed beef in any other market in the world. With judicious management, we verily believe it would pay, at present prices, to raise beef for this market, if every pound of food, the year round, had to be manipulated and fed out to the animals by hand! In Rhode Island, beef is raised to a profit, where cattle are stall-fed nine months in the year—better beef than is ever seen in this market and sold at a lower price; and that, too, on farms that would not be considered worth holding in this State.

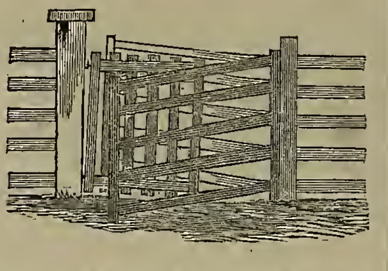
Californians have certainly got something to learn in the way of management—not only on the farm, but in the counting-house as well, if they would prosper, or even hold their own with the older States. There is a lack of economy, or a want of providence, in the management of all kinds of business in this State, which would work absolute ruin in any other part of the Union. If we continue to go on as heretofore, it will take all our gold and all our wheat, and more too, to pay Chicago men and other outsiders, for what we eat, drink and wear. The railroad has brought thither hordes of spies, who have found out our weak points, and who will pretty effectually wind us up, and put men of their own stamp in our places, if we do not introduce a similar degree of economy into business that they would bring.

Beech and Maple Trees.—Rev. J. L. Parish, of Willamette, Oregon, according to the *Farmer*, has recently received from Michigan a large lot of beech nuts, which he will plant the present season. This is thought to be the first importation of beech nuts for planting on this coast. He also received at the same time some black walnut and sugar maple trees. It is said that there are but two sugar maple trees in Oregon. This tree might no doubt be profitably cultivated for sugar in the mountainous regions of this State and Oregon.

Cattle Fed by Clock-Work.—A labor-saving Yankee in North Haven, Conn., has rigged up in his barn some hoppers having drop bottoms, in which he places the provender for his cattle, and has attached an alarm clock thereto. By this means the animals may all be fed at once, and at any desired hour. He sets the alarm accordingly, and gives himself no further trouble.

A Convenient Gate.

We give herewith an illustration of a plan for a very convenient gate—a small gate for a barnyard or any other locality where a passage way is much used, and where it is inconvenient to open a latch gate, or draw back one already closed by a weight, or where economy in room, or appearance is of but little consequence. By reference to the engraving, it will be seen that the gate swings in a <-shaped inclosure, the two sides of which are fixed. By having the top hinge a little the longest, as shown, the gate, when at rest, will always hang in the center of the angular inclosure. When a person desires to pass, a slight pressure swings it a little to the opposite side, while the passer moves in to near the apex of the triangle; by another slight pressure in the opposite direction, he is enabled to pass round the end of the gate, and so on into the field or area beyond, while the gate, by its own weight, after a few vibrations, again finds its rest in the center. If any animals attempt to pass, their approach and pressure effectually closes the gate against their egress or ingress; not even a sheep can pass such a gate. It is always shut, and always open to man, and much more convenient than the ordinary turn-stile. It requires no watching, and is not patented. This gate is in use in some of the Western States, and was figured and described in the *Rural New-Yorker* of July 3d.



Deep Plowing an Ancient Practice.—An agricultural paper, in discoursing upon deep plowing, thinks the practice has the recommendation of antiquity, as "we read in the sacred writings, when the prophet Elisha was plowing with twelve yoke of oxen to *one plow;* which circumstance leads to the conclusion that the necessity of deep tillage was understood in that age as we have not understood it in this country." The article concludes with the remark that "when our people fully comprehend the true system of the cultivation of the soil, they will be more disposed to use three and four-horse plows than one."

Hearth and Home, in speaking of deep plowing, says that "it is many-sided, as most questions are; but that a definite rule can be made that shall apply to all seeds, all sections, and all soils, is to us a matter of doubt."

Apples in Alaska.—There is a variety of apple which is cultivated in large quantities in the vicinity of Sitka. It looks much like the common crab-apple, and is about the same size. Why would not some of our early varieties, which ripen in June, or early in July, requiring but a very short time for maturing their fruit, do well in Sitka—better than those now raised there? Potatoes are also raised to some extent in and about Sitka. They are very small, however, and poor in quality. Peas ought to do as well there as any green fruit; but we are not aware whether they have been tried. Considerable attention is beginning to be paid to gardening in that region. Its possibilities in that direction are by no means known as yet.

Fences.—It is estimated that more money is invested in the United States in fences than in building—a very important consideration in connection with the discussion of the fence question in this State.

Decline in Wheat Production.

The Commissioner of Agriculture, in his late report, makes special mention of the fact that the noticeable decline in the yield of wheat is removing the center of production rapidly westward, thereby increasing the cost of transportation to the manifest profit of railroads. Thus wheat growers are reaping the fruits of their own improvident husbandry, and suffering loss and extortion from the accident of location.

The same fact is beginning to be alarmingly apparent in this State; and if not checked by more careful tillage, the great bulk of our wheat production south of San Francisco will soon come from the lower San Joaquin Valley, with three or four times the cost of transportation. If the price of wheat was regulated by home consumption, the farmer might charge the additional cost of transportation to the consumer; but, unfortunately, the cost in San Francisco being regulated by the Liverpool market, that increased expense must come out of the farmer.

A San José farmer, in the *Mercury*, admits the "decline," but thinks that neither manure, nor straw, nor tillage, will help the matter; that all lands decline in their yield of wheat as they grow old. He adds:

> Here, then, is an important subject for the scientific and practical farmer, as well as the philanthropist. What manure or what compost—what chemicals, or other matter or substance, will reproduce this virgin or wheat-producing property in the soil? The man that discovers it, if its use is not too expensive, will be entitled to a better monument than Vanderbilt.

Practically, there is no limit to the production of land which is cultivated on correct principles—rotation of crops and restoration to the soil of those elements of fertilization which are removed by successive crops. This is proven in the constantly-producing powers of market gardens. It is also proven by the uniform yield of the wheat and other fields of those parts of Europe where agriculture is carried on as a science. It is proven by the valley of the Nile, which is as fertile now as it was in the days of the Pharoahs—kept so by the fertilizing elements spread upon it by the annual overflow of its wonderful river. The wheat lands of Vermont are as productive now as they were fifty years ago; although within that time new lands have been opened and worn out by improvident cultivation, all the way from the valley of the Genesee to that of the Miami. The exception in Vermont is due solely to careful and intelligent cultivation.

Very little land in California, beyond the immediate suburbs of this city, is cultivated with any degree of care. The most of the land in this State is only *scratched*—not *cultivated* at all. There is no doubt but that a reasonably careful cultivation of our depreciating wheat lands would bring them up to near their original standard; at least it would pay better than the large and loose system now practiced. We want smaller farms, more careful tillage, and diversified crops. Rotation, fallowing, plowing in green crops, together with a free use of soluble phosphates, gypsum, etc., will work wonders in California lands. If our farmers will only experiment a little in this direction, they will be surprised at the results attained.

Plant Peas Deep.—The theory recently advocated of planting peas very deep in the earth, in order to prolong the bearing capacity of the vines, has been well tested and found to be correct. A farmer plowed a furrow beam deep, then scattered the seed peas at the bottom, after which he turned a deep furrow upon them with his plow, covering them to the depth of twelve or fourteen inches. They pushed their way up through the thick mass of earth very soon, and instead of turning yellow at the bottom, and dying after the first gathering, they blossomed and bore until he was tired of picking the pods. If such a result will uniformly be realized from the plan, pea culture may be more profitable than hitherto.

Wool-Growing in California.

Wool-growing in California has become one of the most important resources of the State, although it is as yet in its infancy: Beside the large amount required for our home manufactories, the shipments of wool to the Atlantic States forms an important item in our exports, and California wools have already become an article much sought after by Eastern manufacturers, as being peculiarly well adapted to the manufacture of carpets, flannels, blankets, and "business suits."

The experience of those who have engaged in the raising of sheep on this coast has been uniformly favorable—indeed it is now almost universally pronounced the best business in the State. It has less drawbacks and risks than any other, and can only be overdone when our flocks are so numerous as to consume all the food which our plains, valleys and mountains afford. There is no more danger that the supply will be in excess of the demand within the present century, than there is that our gold and silver will go begging for takers; for we have the whole world for a market. The man who makes a shipment of wool to New York can draw against it with as much certainty that his drafts will be honored, as though his shipment consisted of bullion. All that California can produce will be as but a drop in the bucket towards the world's supply.

Advantages in California.

In the Western States and in New England wool-growing is also considered profitable; yet in those sections it is necessary for the growers to spend a large portion of the summer season in raising hay, grain and roots to feed their flocks in the winter. To this labor must also be added the expense of dealing out the feed, the cost of shelter, and the losses inevitable from the inclemencies of northern winters. And yet, with all these drawbacks, farmers there get rich by raising sheep. After reciting the above facts, there is no need that we should enumerate the advantages which California possesses over the Eastern States for this business. Experience has shown that a flock of sheep in this country will double their number annually, such increase being largely in excess of the increase at the East.

An Important Consideration.

The fact of the profit on the business being apparent under almost any circumstances, should not encourage a person to go into it hap-hazard. Like all other callings, its inception and management requires some degree of thought and attention. The wisest course is to commence with the finest breeds. It costs but a trifle more, at the outset, to provide for an improvement in the increase, than it does to increase your stock with a growth of *scrubs*. If care is taken in this particular, when your flock becomes large it will be twice as valuable as where common stock is raised. This, however, like the whole subject of wool-growing, is so self-evident that only this mere reference is required.

What is Needed.

The present decrease of fine broadcloths for gentlemen's wear, and the general demand for "business suits," has created a great call for medium wools—the product of mixed breeds. Crosses between the various long-wooled sheep of Europe and the Eastern nations and with our native breeds, seems to be what is particularly needed at this time. Wool from such stock is most saleable and profitable. Crossing Southdowns with Cotswolds, Texels, Leicesters and Lincolns has been found most excellent in practice in this State for the production of the better grades of wool.

The Southdown and Lincoln on the Cotswold, gives a most excellent breed for profit, either in wool or mutton.

The Texel is better to cross with the Merino—it being especially a mutton sheep; also giving length to merino wool and size to the carcass. The pure French Merino furnishes a wool rather too fine for dealers at the present time. As a general thing, the mutton of coarse-wool sheep is preferable to that of fine.

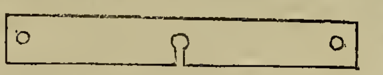
Where to Look for Information.

The importing and raising of choice breeds of sheep is becoming an important business in California, and is conducted with a degree of intelligence and care and a disregard of expense which augurs well for the future of the wool interest on this coast. One of the firms most extensively engaged in this business is that of Butterfield & Son, whose principal ranch is located on the San Benito creek, Monterey county, some thirty miles southerly from Gilroy, on the New Idria road. This firm—formerly Landrum, Butterfield & Son—has now a large flock of choice breeds of sheep, consisting of Cotswold, Texel, Leicester, Lincoln and Southdowns, the original stock of which was all imported, and which they are inter-breeding with great care. They are also receiving frequent importations of pure breeds from abroad.

The firm has long been supplying ranchmen in different parts of the State with choice breeds for stocking their farms. They have also a ranch stocked exclusively with goats, some 1,800 in number, in Peach Tree valley, about forty miles southerly from their sheep ranch. This stock consists of the common goat mixed with the Cashmere or Angora. They received 100 pure Cashmeres by last Pacific steamer, direct from Angola, on the borders of the Black Sea. Persons desirous of entering into the sheep business, or such as are desirous of improving their present stocks, will do well to communicate with Messrs. Butterfield & Son, whose post office address is "Hollister, Monterey county, Cal."

For Tree Planters.

A correspondent of the *Rural New-Yorker* sends that paper the following very useful plan for setting trees in straight rows after the ground has been properly staked off: In order to dig the hole the stake has to be removed, and if the hole is large it becomes difficult to tell just where to set the tree without sighting both ways. This can be obviated by using a piece of board, six or eight inches wide and five or six feet long, with an open slot in the center and a hole in each end, as shown in the engraving. Before digging the holes, take this board and place it on the ground, with the center hole around the stake where the tree should stand; then drive two small pegs through the holes in either end of the board. It may then be removed until the hole is dug, and placed back again when the tree is to be set. Place the tree in the slot or notch, which will not only determine its position, but also serve as a support to hold it in its proper place while the earth is being filled around it. This is a great labor-saver to those who take pride in having their trees in straight rows.



Southern Pacific Railroad.—The Secretary of the Interior has suspended the order restoring the lands withdrawn for the Southern Pacific Railroad, for the present, in accordance with petitions from various quarters.

The egg product of this country is set down at $250,000,000 in value. This would give about 270 eggs a year to each inhabitant. Rather a large figure, but not much out of the way.

There were 251,000 pounds of apples taken to Stockton last year. Value, $4,530.

Utilizing Smutted Wheat.

[From the Willamette Farmer.]

"The Willamette *Farmer* says that smutted wheat can be made into good and wholesome flour by adding one quart of finely-pulverized air-slacked lime to each eight bushels of grain, and thoroughly mixing it before it passes through the cleaning apparatus of the grist mill previous to grinding. The lime seems to cut the smut which adheres to the smutty end of the wheat, and is blown out with other dust and dirt. If this is a fact, it is new to us, and is well worth the attention of the farming community everywhere."—*Scientific Press.*

We assure our contemporary *it is a fact.* As one of the farmers in Oregon, when smut made its appearance here, we had some disagreeable experience with the filthy pest. The first means used to get it separated from wheat designed for bread was, by repeatedly passing it through the fanning mill with all the speed and wind that could be given by man-power; by so doing, nearly all the smut hulls that remained unbroken would be blown out with the light and inferior wheat, but when grain so cleaned was made into flour, the bread made therefrom created an uncomfortable sensation in persons of delicate stomachs. We then resorted to washing the wheat, in order to get bread grain, as there was very little raised entirely free from smut. It was found that washing smutted wheat at the head of a spring brook within the home lot, killed the trout it contained as effectually as if the brook had been limed. At the same time, the oats of the country were very generally smutted also, and many valuable work-horses were lost, mainly poisoned, as we believe, by eating smutted grain. Where the idea of mixing air-slacked lime with wheat in order to clean it, originated, we do not know; but an old gentleman named Hawkins, who attended the Salem grist-mill at the time smut was most troublesome in Oregon, was the source of information. We tried the remedy, repeatedly, and it never failed. We resorted to the practice of mixing a small amount of air-slacked lime with the grain, as it was put away in the granary, and found it to answer the same purpose, in one trial, which was all we had occasion to make, as the use of vitriol in solution, in preparing seed-grain, as a preventive, proved so effectual as to render the lime unnecessary.

Lime is a good article to use about a wheat bin on other accounts than to kill smut. It is a good preventive of rats. Sprinkled liberally over the top of the wheat, rats do not find it very comfortable to work amongst.

Roots as Feed for Stock.

A correspondent of the Willamette *Farmer* writes as follows, with regard to the field culture of turnips as food for stock: "Hearing the question frequently asked whether root crops, such as turnips, beets, etc., would pay to raise for winter food for stock, I will give you one small experiment of mine: Having a small corner of land under fence, thickly set with grubs, and having a goodly quantity of logs and other rubbish, last spring I proceeded to clear and prepare said land for the plow. I plowed and harrowed in the spring, and after the vegetation was pretty well up I plowed and harrowed the second time. Then, about the first day of July, I plowed and harrowed the third time; sowed, broadcast, white turnip seed, and ran over with a light brush. We have just gathered the crop. The result was 250 bushels from three-fourths of an acre of land. There were but few gathered weighing less than one pound each—the largest weighed 19½ pounds. The above result was without manures or irrigation."

Dairying.—The Lower Lake (Lake Co.) *Bulletin* says: "Although dairying is the best business in the country, the farmers generally eschew it, and prefer to raise their fifteen or twenty bushels of grain to the acre, and pay out two-thirds of it to get the other third in market."

Rent for Farms.—Seven to ten dollars per acre per annum rent for wheat land is quite common in California; and now we hear through the reports of the Clerk of the Board of Swamp Land Commissioners that land on Sherman Island is rented for from ten to fifteen dollars per acre.

Stockton shipped in 1878, 350 tons of grapes.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, January 13, 1870.

Flour, Extra, ₱ bbl.	$5 00	@	$5 50
Do. Superfine	4 50	@	4 75
Corn Meal, ₱ 100 lbs.	2 00	@	2 25
Wheat, ₱ 100 lbs.	1 15	@	1 65
Oats, ₱ 100 lbs.	1 15	@	1 50
Barley, ₱ 100 lbs.	1 10	@	1 25
Beans, ₱ 100 lbs.	2 50	@	3 50
Potatoes, ₱ 100 lbs	75	@	1 00
Hay, ₱ ton	11 00	@	17 00
Live Oak Wood, ₱ cord	9 00	@	14 00
Beef, extra, dressed, ₱ lb.	7	@	10
Sheep, on foot	2 50	@	3
Hogs, on foot, ₱ lb.	5	@	
Hogs, dressed, ₱ lb.	8	@	

GROCERIES, ETC.

Sugar, crushed, ₱ lb.	14	@	14½
Do. Hawaiian	8	@	12
Coffee, Costa Rica, ₱ lb.	18½	@	19
Do Rio	18½	@	19
Tea, Japan, ₱ lb.	75	@	90
Do. Green	60	@	1 25
Hawaiian Rice, ₱ lb.	9½	@	10
China Rice, ₱ lb.	5½	@	6
Coal Oil, ₱ gallon	42½	@	45
Candles, ₱ lb.	16	@	18
Overland Butter	30	@	40
Ranch Butter, ₱ lb.	40	@	50
Isthmus Butter, ₱ lb.	25	@	40
Cheese, California, ₱ lb.	16	@	20
Eggs, ₱ dozen	50	@	55
Lard, ₱ lb.	12½	@	14
Ham and Bacon, ₱ lb.	16	@	18
Shoulders, ₱ lb.	10	@	12

Retail Prices.

Butter, California, fresh, ₱ lb.	50	@	60
do. pickled, ₱ lb.	40	@	50
do. Oregon, ₱ lb.	25	@	30
do. New York, ₱ lb.	40	@	50
Cheese, ₱ lb.	20	@	25
Honey, ₱ lb.	25	@	30
Eggs, ₱ dozen	60	@	65
Lard, ₱ lb.	20	@	22½
Hams and Bacon, ₱ lb.	22	@	25
Cranberries, ₱ gallon	1 00	@	1 25
Potatoes, ₱ lb.	2	@	3
Potatoes, Sweet, ₱ lb.	—	@	2
Tomatoes, ₱ lb.	2	@	3
Onions, ₱ lb.	3	@	5
Apples, No. 1, ₱ lb.	4	@	6
Pears, Table, ₱ lb.	5	@	
Plums, dried, ₱ lb.	10	@	12
Peaches, dried, ₱ lb.	10	@	15
Oranges, ₱ dozen	60	@	75
Lemons, ₱ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ₱ lb.	—	@	25
Soap, Pale and C. O.		@	12
Soap, Castile, ₱ lb.		@	20

Shrinkage in Slaughtering.—The shrinkage of hogs in butchering varies from one-eighth to one-fourth of the gross weight. A well-fattened hog that has not been fed for sixteen or twenty-four hours before slaughtering, and will weigh 300 pounds gross, will weigh about 260 pounds dressed, while one poorly fattened that will weigh 200 pounds gross, will balance little over 150 pounds dressed.

It is believed that hogs that have attained maturity, or about twenty months old, when well fattened, will shrink less than those that are from nine to twelve months old.

Beef cattle will, on the average, shrink about 40 per cent. in slaughtering—*i. e.*, the meat will equal nearly 60 per cent. of the gross weight.

In the case of both cattle and sheep, much depends upon whether they are well fattened; and some breeds, as Short-horns and South Downs, show less shrinkage than others.

Artificial Hay Making seems to be gradually working its way into use. Alderman Mechi writes to the London *Times* that he shall hereafter arrange to make his hay by furnace heat. The apparatus consists of a coke furnace, and a fan by which the heat is driven through a small chamber filled with grass. In fifteen minutes the grass is converted into hay, sweeter and greener than can be made by sun-drying. The apparatus works in all weathers, and dries grain, corn, and roots as well.

Egg Oil.—Accounts are given in some foreign journals of the healing properties of a new oil. It is easily made from the yolk of eggs, and is said to be much employed by the German colonists of South Russia as a means of curing cuts, bruises, scratches, etc. The eggs are boiled hard, the yolks removed and crushed, and then placed over a fire and stirred carefully till the whole substance is on the point of catching fire, when the oil separates and may be poured off. Hen's eggs are considered the best, and nearly two spoonfuls of oil may be gained from a single yolk.

A Novel Farming Association.—Some of the Canada farmers have struck a good idea: they have formed themselves into seed clubs, each one to raise choice seed of some kind for the rest of the members.

Swallows take all their food on the wing, and one will take more than 2,000 flies or mosquitoes in a day. If so cold that flies cannot rise from the ground, the swallows will continue flying till they die for want of sustenance.

To Lengthen a Colt's Tail.—Nothing better can be done to increase the length of a colt's mane or tail than to keep the roots of the hair perfectly clean, and to frequently comb and plait it.

Scientific Press.

W. B. EWER..........................SENIOR EDITOR.

A. T. DEWEY. W. B. EWER.

DEWEY & CO., Publishers.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance.................$4 00
One copy, six months, in advance.................. 2 50
Delivered by city carriers, per month.. 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month........................... 3 00
One column, one month........................... 40 00
One column, one year............................ 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, Jan. 15, 1870.

Table of Contents.

Construction of Buildings—Illustrated.............. 33
Safety-Hoists—Illus.... 36
Mechanics' Institute.... 41
Mills of Colorado........ 34
Milling Processes....... 34
Agricultural and Mining Lands....... 34
The Bulletin on Our Foundries.......... 40
Cranmer's Automatic Volley-Gun 40
Legislation on Accidents 33
Completion of the Utah Central Railroad...... 40
Beet Sugar Manufacture. 33
Chicory.... 41
To Correspondents...... 40
Coal in China........... 42
New Invention.......... 41
Notices of Recent Patents 41
The Suez Canal......... 42
S. F. Stock Market...... 37
MECHANICAL PROGRESS —More About the Fields Steel; Palier Glissant; Compressed Air Brake; Spring Motors for Sewing Machines; Blast Engines; Nut-Shaping Machine. 35
FARMING AND GARDENING.—Encouragement for California Invention and Agriculture; Cattle from Texas; A Convenient Gate; Decline in Wheat Production; Wool-Growing in California; For Tree Planters; Utilizing Smutted Wheat; Roots as Feed for Stock; S. F. Market Rates, etc............. 39
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Colorado, Idaho, Montana and Nevada. 36
READING FOR THE HOUR.—Barnum the Giant Killer; The Tchuktchi—Ill.; Fire; Hints and Recipes; etc. 44
SCIENTIFIC PROGRESS.—Notes on the Earliest Discoveries in America; High Temperatures Produced by Steam at 212 deg.; Old Females Assume Male Characteristics; etc.... 35
S. F. Shareholders' Directory..................... 37

Notices to Corespondents.

J. R. F.—Glass can be turned at any temperature below that in which it becomes plastic; we know of no way of making it adhere to brass or steel.

C. H. A.—Your reply will appear next week.

McKenney's Sacramento Directory for 1870 has just been received, and the publisher is to be commended for the style in which the work is done. It shows a very pleasing improvement in the city over former years, and denotes a growing prosperity. The population is estimated at 24,640; the taxable property at $8,221,628, or $336⅔ per head—a high average, especially as the estimated population probably includes the class denominated as "floating." The value of the street improvements in 1869 is given as $86,213.09, and the increase of the value of taxable property over 1868 as $2,657,812. The building of the State Capitol receives considerable mention as one of the events of the city. There is, moreover, in the volume, much valuable historical and general information pertaining to the place, which is doubly interesting, as showing the enterprise and industry of our western cities, even under the most untoward circumstances.

◆

Gas Works for Country Residences. We were shown this week the apparatus of the Pacific Pneumatic Gas Company, for the manufacture of gas for those who are not able to obtain city gas. The apparatus is very simple, consisting of a tank with a chamber-system, which is filled partly with gasoline, and through which air is forced by means of a common water meter. The tank being placed in the ground at any desired distance from the house, there is not the slightest danger of fire, insurance companies insuring, without extra charge, buildings where these works are used. We may in some future issue give a fuller description, with an illustration, to show the simplicity and ingenious arrangement of the whole apparatus. One of these has been used for several months at the Pacific Iron Works in this city, and others are to be introduced into the Deaf, Dumb and Blind Asylum, at Berkeley, into several private houses at Oakland, and elsewhere.

The "Bulletin" on Our Foundries.

A report on the condition of the foundries of San Francisco appeared in the columns of the *Bulletin* this week, and gave a very deplorable impression with regard to this branch of industry. The *general tone* of the article is to the effect that the whole business is "fast going to decay," that several of the large establishments have failed, and that the rest are so reduced that more failures must occur in a very short space of time.

In an editorial in another part of the paper a fairer statement of facts, as we think was made and one which contains much truth. Still the general impression left is disadvantageous to the industry, and many who will read the reporter's account, will omit to read the editor's remarks. It is to the *general* effect that we object; and this is, we fear, such that a person coming to the city with a large order would be influenced to go to Chicago, rather than to get his work done here. Facts are supposed to be given by the reporter; comments by the editorial.

We are rather doubtful whether it is fair to say that four "large" foundry establishments have failed, as among the four are some which could hardly be classed as "large," and, if we hit on the right works, one or two which are not foundries. Why was it not stated that quite a number of new machine shops have been started? We object also to the illustration given of the condition of affairs, nor do we consider that a "small boy" who "pretends to work on some castings at the farther end of a building," is exactly the proper authority for statements in a paper of such extended circulation and influence as the *Bulletin.* It certainly is contrary to the usual custom of that journal.

Some of the facts given seem to us to prove nothing, or, if anything, rather the opposite of what is stated. Taking the figures given in the article, the shafting and pulleys for the San José Woolen Mills would have cost at establishments here 14 cents per pound. They did cost at the East 9 cents. Add 4¼ cents for freight (according to tariff given) and the difference amounts to ¾ cents per pound. Now, before any case can be made out, we must be shown that the work was of equal quality, that the cost of running repairs was no greater than for work made here; that broken castings can be as easily replaced, etc. That work can be done at a cheaper original cost at the East than here, does not prove it economy to send away from home for it. In most cases, to state it mildly, of which we are cognizant, the Eastern work was of inferior quality to that produced from our establishments; hence the important item of repairs must be added. Again, old establishments often sell at a loss, for a time, in order to kill off competition, and for aught we know, this may have been the case in the present instance. English iron works have done this repeatedly, to keep the American market in their hands. We must take into account the trouble of sending so far away from home, the delay in getting the articles, and especially in replacing any part which may get broken, etc., etc.

We are informed by foundrymen here that they are ready to compete with Eastern prices. One foundry says that (as a particular example) they can *underbid* the scale of prices sent, with a quartz mill, to White Pine. Of course, inferior work can be turned out at a lower price than work of a good quality; but first cost is only a part of the total expense. In some things, the East controls the market here and is without competition, but with regard to machinery for many purposes, as milling, mining, etc., there is no comparison between Chicago and San Francisco work. They do not know, off there several thousand miles, what the necessities of this country are, and it is impossible to expect them, with their inexperience, to compete with our experienced workmen in making such machines.

The prices are falling, and will continue to fall until the equilibrium is established between the East and the West. This will make some difference still in the prices of machinery. But yet, as things are now and have been, we believe that no apparatus made at and imported from the East, has proved cheaper—taking into account all considerations of quality, time, trouble, ease or difficulty of obtaining duplicates of castings, etc.—than the same which is furnished here. And we have yet to receive credible information that any works have *continued* to import any considerable amount of machinery, except such special apparatus as is not produced on this coast.

We are willing to take a step into the future; and, judging from the prospects, venture to predict that we shall see, within twenty-four months, an amount of work turned out by our foundries which will leave far behind any amounts as yet produced.

◆

Utah Central Railroad.

This railroad from Ogden to Salt Lake City was completed on January 10th, on which day the last rail was laid and the last spike driven. Some twenty thousand people participated in the festivities at Salt Lake City in celebration of the event. A large number of church, civil and military dignitaries, Gen. Gibbons and staff of Camp Douglas, legislators and representatives from all parts of the Territory, and officials of the Union and Central Pacific Railroads, were present. Four bands furnished the music, and cannons thundered out the salvos. Brigham Young drove the last spike, which was made of Utah iron, and made a speech, being followed by various other orators. Congratulatory messages were received from different persons. In the evening there was an illumination and a grand ball in the theater, where a supper was provided by the city.

The general effect of the road must be to advance the material prosperity of the people. What its immediate result in the Mormon church may be, seems a little doubtful. While the Gentiles think that it will do away with the absolute authority of the Mormon President, as it must, sooner or later, Brigham sees, or pretends to see, in it, only a means of advancement in his views. Time will soon show a decided result. The people, at all events, are to be congratulated at the building of the road.

◆

Pisciculture.—Gov. Haight, in his message to the Legislature, recommended some action on the subject of "protecting the different varieties of fish in our rivers and mountain lakes, and stocking these waters with new varieties," remarking that "many valuable varieties of fish from Eastern waters could be introduced and multiplied at a small expense." In accordance with the suggestion, Judge Hager has introduced a bill, which provides for the protection of establishments for the propagation of the finny tribe.

We are sadly in need of some measure on this subject, that, before it is too late, the destruction of fish in our waters may be stopped. Having the experience of older countries before our eyes, it is to be hoped that we may benefit thereby, and thus save ourselves ultimate injury and expense. We see that at Lake Tahoe the wholesale destruction of fish is accomplished by means of exploding nitro-glycerine in the waters. We protest against this wanton waste. It must be impossible to recover all that are killed in this way, and it will take but a short time, by such operations, to depopulate our waters. No one should be permitted, for the sake of a small, temporary gain, to inflict such lasting injury on the whole community.

Cranmer's Automatic Volley-Gun.

A private trial of this ingenious machine was made last Saturday afternoon at Black Point, before Major-Generals Thomas and Ord. The inventor has been at work for a long time perfecting his apparatus, and is now endeavoring to introduce it to the notice of the military authorities, this trial being one of the steps taken for this purpose. The result was satisfactory in a high degree, although the nervousness of the patentee led him to show rather the weaker than the stronger points of his gun, which hardly had justice done it in one or two respects.

The gun is mounted on a pivot, which admits of its being moved around horizontally to any required point of the compass, while at the same time it can be elevated or depressed to an angle of 45° with the horizon. The chambers are bored into a solid steel cylinder (which revolves on a horizontal axis), thus preventing all danger of bursting at this place. In the model shown, there were three chambers in each horizontal row (and three barrels to correspond), although the number may be increased in any gun if desired.

The magazine is placed above the cylinder, and is divided into two funnel-shaped compartments—the one near the breech for the powder, the other for the balls. At the bottom of each compartment are tubes, which are in direct line with the chambers. As the cylinder revolves, the chambers come directly under the tubes of the first division, and are charged with powder, by a simple and ingenious arrangement, the charge being measured in any required amount and dropped into the chambers. These revolving to a position under the second compartment are charged with the ball in a similar manner. As the chambers pass on further, the balls are driven home by a roller which presses against the face of the cylinder.

The charges are fired by means of caps placed on nipples at the side of the cylinder, each cap exploding all of one row of charges. To effect this, there is a cylindrical box side of the cylinder, which, by an ingenious arrangement of springs and levers, caps each nipple as it comes into the required position. To the rear of the cap box is a hook, which removes any cap or part of a cap which may adhere to a nipple, while before it is a hammer which explodes the cap at the right moment. In the trial, the gun did not miss or hang fire a single time.

The barrels are held firmly against the face of the cylinder, their rear end being ground so as to fit exactly its curved surface. To prevent them from becoming unduly heated by the rapidity of the discharges, there is a tank of cold water around them near the cylinder.

The whole apparatus is automatic, and has many working details, which we have not the space to describe. By simply turning a crank, the cylinder is caused to revolve, the chambers are charged with powder and ball, the nipples capped and the gun fired, and the chambers swabbed out.

The gun must be terribly effective when used against masses of men. Some idea of this may be formed from the trial, where shots were discharged at the rate of 300 to 360 a minute, without the least forcing. The ease with which it can be handled, and its simplicity, rendering it free from liability to get deranged, recommend it highly. All that is required of the gunners is to fill the magazine, sight the gun, and turn the crank, which sets all the machinery in motion.

The inventor is Mr. T. J. Cranmer, San Francisco, Cal., who has obtained a patent for the United States, and also one for England, through the Foreign Patent Agency of the Scientific Press.

◆

The first work done at the Carson Mint will be the coinage of silver dollars.

Our Home Industries.

Chicory—Its Cultivation and Use.

Chicory is a plant belonging to the same family as the common dandelion, to which it is similar in nature. It is a hardy perennial, of easy production, and one which, if allowed to get a foothold in mowing fields, is hard to be eradicated, and becomes a troublesome weed. In rich, cultivated soil, the seed-stalks sometimes grow six feet high—stout, erect, and much-branched. The roots grow deep, especially when the soil is mellowed and dressed with manure. Any soil that will grow parsnips will readily produce chicory.

Its Mode of Culture.

The seed is usually sown in shallow drills, sixteen inches apart, and when well up, the young plants are thinned to three or four inches apart. The soil should be stirred frequently to keep down weeds. In due time the ground is covered with a thick, heavy foliage, eighteen to twenty inches high. When the roots have attained a suitable size, they are dug, thoroughly washed, sliced, and dried. If the roots are allowed to grow too large, they are apt to be woody in the center, and of little value. The seed is obtained from the second years' growth, the same as beets, etc. The roots are gathered just before the plant flowers, as they are then considered in their best condition for use.

Preparation for Use.

As soon as the roots are dug and washed, they are cut and sliced into pieces about an inch square, or a little larger, and dried in the sun or in kilns; the same as is done with apples, peaches, etc. In this condition it is roasted, like coffee, and ground up, sometimes with a portion of pure coffee—more frequently, perhaps, by itself, and mixed afterwards. It is usual, in grinding, to add about two pounds of lard to one hundred pounds of the dried root.

Its Use.

The only use of chicory is for the adulteration of coffee. It is added sometimes by the consumer, for the sake of economy, but oftener by the dealer, for the sake of dishonest profit. When used in small quantities—four to ten per cent.—it aids in settling or clarifying the coffee. It has long been used in France and Germany, where it forms, among the poorer classes, the chief ingredient of that beverage.

Soon after the commencement of the war of rebellion in this country, the price of coffee ran up to so high a figure as to render its use almost beyond the means of thousands who formerly enjoyed the refreshing and exhilerating effects of the genuine article. To supply its place, a great variety of substitutes were recommended and introduced, prominent among which was the article of chicory, which was then, and still continues to be, largely imported from Germany. Its use was loudly advocated by most of the papers throughout the country, on the score of economy.

It is said that the so-called "essence of coffee," now much in use, is chiefly a preparation from chicory, and that that article also forms a large portion of most of the packages sold throughout the Union as "pure ground coffee."

Its Effects, Chemical Characteristics, Etc.

Chicory is destitute of aroma, and does not contain a single particle of anything that forms an actual substitute for coffee. In the process of drying, grape sugar is formed by fermentation; and by the subsequent roasting, this ingredient finds its way into the cup as a solution of burnt sugar. The "bitter principle" which is found in the roasted root is chiefly due to this burnt sugar.

Its medicinal qualities are, to some extent, those of a tonic; in large doses, it acts as a mild aperient. Its use, in any considerable quantity, produces dyspepsia, flatuency, diarrhœa, heartburn, acidity of the stomach, and loss of appetite. As no serious injury may arise from its use, in small quantities, as an adulteration of coffee, it will, no doubt, continue to be employed for that purpose; but it should not be used too freely.

Home Production.

If we *must* use chicory, it is better that we should raise it home, and make it contribute to the prosperity of our own State. Messrs. Harris & Palm, near Washington, Yolo county, were among the earliest to engage in its culture here, having become familiar with the business in Germany. Some two years ago they were raising about one hundred tons annually from about forty acres of land. They dry upon platforms in the sun, having some 15,000 feet of permanent flooring which they use for such purpose. Chinamen are generally employed in the weeding, hoeing, and gathering of the plant. Quite a number of others in the same neighborhood are engaged in the same business, on a smaller scale.

The California Chicory Company

Are now the most extensive growers and manufacturers of chicory on this coast. They commenced operations about two years ago, their factory being connected with the sugar refinery on Branuan street. Mr. C. Spreckles is the President of the Company, Mr. Peter Spreckles, Manager, and Messrs. Kruse & Euler, on Front street, are the agents. The establishment of this company has entirely stopped the importation of the article into this State, and large quantities are now being shipped hence to New York, where there is quite a market for it, as it seems that a good article cannot be raised in the Eastern States; and, in consequence, thousands of tons are imported annually from Germany. The California article is preferred to the foreign—first, because the plant grown here is superior, and also for the reason that the Germans mix it with refuse beet pulp from their sugar factories.

The California Company are now manufacturing at the rate of about 500 tons a year, which amount will be largely increased for the coming season. They grow only a portion of the roots themselves, depending, in part, upon the farmers for their supply. The company have drying kilns in Contra Costa and also in the neighborhood of Half Moon Bay. Large quantities are raised by various farmers in Contra Costa county. A fair price is paid for all that is brought to the kilns of the California Chicory Company.

◆

Woolen Manufactures for the East. The Butte *Record* says that a gentleman engaged in a woolen mill in Connecticut has recently disposed of his interest there, with a view to starting in California. He will be in Oroville in May next, for the purpose of examining the advantages afforded at that point for a woolen mill. California should manufacture every pound of wool she raises. Our water power, railroad facilities, and wool resources, ought to make this the leading State in the Union in woolen manufacture.

◆

Nevada Raisins.—Mr. E. W. Barnam, of Nevada City, has been experimenting in the production of raisins from the Muscat of Alexandria variety. The *Gazette* says "they are quite large, and have the flavor of the best Malaga raisins without their toughness. The grapes were picked, and laid on the roof of the house, sloping towards the sun, where they were dried in two weeks. There is no reason why California should not produce all the raisins for home consumption on this coast."

◆

Traveling Agent.—Mr. Wm. H. Murray will soon visit Stockton, Sacramento and other places for the transaction of business connected with this paper.

Pacific Coast Inventions.

New Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending January 4th.

Collecting Gold from Ores.—August F. W. Partz, Oakland, Cal.

Lounge and Bed.—August Hauseu, San Francisco.

Rotary Steam Engine.—G. H. Pond, San Francisco.

Process of Preparing Coal for Smelting Ore.—William John Lyud, Golden City, Colorado Territory.

Using Colorado and Similar Coal for Metallurgical Operations.—William J. Lynd, Golden City, Colorado Territory.

◆

Notices of Recent Patents.

Among the interesting and important patents recently issued to Pacific coast inventors, the following are worthy of mention:

Combined Lounge and Bed.—August Hausen, S. F.—This is a very neat and ingenious mechanism, by means of which a handsome piece of parlor furniture may be converted into a bed, or series of beds, for quite a family. The seat of the lounge is made in two parts, and hinged, so that the upper half can be turned over to the front, and present surface wide enough for a double bed. To support the extended half there are legs, which, when not in use, can be folded up, and which, moreover, are slotted and provided with rivets and plates, which are so arranged that the legs are always steady, whether supporting the extended half, or when folded up. The plates and legs are sunk into the wood so that they are flush with it, thus obviating any danger of injuring the cloth covering of the lounge. The head piece is also formed similarly in two parts, so that it can be opened to the same width as the rest, forming a complete bed, while the covering of the lounge, being thereby turned to the bottom, cannot become soiled. The back is hinged to the lounge, so that it too can be let down, if desired, and a mattress placed upon it, affording an extra bed for a child. There is a box which slides in under the lounge, which is provided with a spring or other bottom, forming still another small bed, or it may be used as a drawer, in which the bed clothes can be placed when not in use. To many, such a piece of furniture as this will be invaluable, and, as the whole may be made as ornamental as is wished, it forms an article of furniture handsome enough for any parlor.

Rotary Steam Engine.—G. H. Pond, San Francisco.—This is a novel invention in an entirely new direction, which must attract the attention of all engineers to a careful consideration of its merits. The novelty consists, first, in so constructing the engine that water is introduced into the cylinders and then converted into vapor; secondly, in placing the cylinders at the point where the power is needed, namely: in the circumference of the circle in which they travel; lastly, in causing the cylinders to revolve in a bath of fluid metal, which serves as packing, piston and resisting surface, and renders the engine perfectly steam tight. The cylinders are placed within and near the periphery of a drum which revolves in a tank filled with hot fluid metal to about the height of the journals of the drum. Through a central hollow shaft, water is admitted to a cylinder, just as one end emerges from the metal bath, and is immediately changed into vapor by the heat. This end has a valve which is instantly closed by the pressure of the steam, which, as the other end is open and the cylinder full of metal, causes the drum to revolve until the open end rises above the surface of the bath, when the steam is free to exhaust. In the drum, there are four cylinders, two on each side, at right angles to each other, and thus it is kept continually revolving. The amount of effective pressure depends upon the specific gravity of the fluid metal used and the size of the drum and consequent depth to which the chambers are immersed. As the journals are subjected to a considerable degree of heat, it would be impossible to use ordinary lubricants; hence, plumbago is used, with a peculiarly constructed box. It will be seen from this description that the invention is decidedly novel, while, at the same time, it promises much in the way of advance over old methods. It certainly will repay those interested in mechanical matters to investigate the case thoroughly.

Collecting Gold from Ores.—A. F. W. Partz, Oakland, Cal.—This invention is designed in a great measure to effect an economy in the use of water, in regions where this article is scarce, and at the same time to more effectually collect the metals contained in the ores. It consists of a series of tanks or precipitating vessels where the gold is collected, and in a simple arrangement of pumps, by means of which the water from which the ore has been settled can again be used in the batteries. The invention has been described by us previously, under date of Oct. 16, 1869.

◆

New Invention.

The Jennings Car Brake.—Very many devices for car brakes have been invented, tried, and found more or less successful. The latest of these, and, it would seem, the best, is that of Byron Jennings, of San José. This improvement has been applied to one of the horse-cars on the San José and Santa Clara Railroad, and has, according to the *Mercury*, proved a complete success, and is surely destined to work a revolution in the construction of horse-cars. The object of the improvement is to obviate the immense wear of track and wheels in going around curves. This is accomplished by a division of the axles in the center, and by a double brake, made to brake the wheels of either side separately, or all the wheels together. By applying the brake to the inside wheels on a curve, the friction is taken from the flange of the outer wheels with the rail, which is always immense, and transferred to the surface of the inner wheels and brake. Thus the car swings around the curve naturally, and without the least liability to fly the track.

To test the matter, one of the shortest curves in the road has been made with the horses upon a run, a thing impossible to be done with an ordinary car. The curve tracks on the above road are made of white metal, almost as hard as glass, and very expensive. The difference in cost between that style of rail and the common rail that can be used with the Jennings improvement, would more than pay the cost of an application of the principle to every car on the road. A caveat has been filed on this invention through the Scientific Press office.

◆

Mechanics' Institute—Monthly Meeting.

The regular monthly meeting of the Mechanics' Institute was held on Thursday last, at which the President, Mr. Hallidie, stated that the Committee of Trustees, to whom was referred the reincorporation of the Society, had presented a new Constitution, By-Laws, and Rules and Regulations, and, by an unanimous vote, the same were adopted. The new Constitution differs but slightly from the old, but opens the membership to the public on a more liberal basis. By it the entrance fee is placed at one dollar, and the dues at one dollar and a half per quarter, and any non-resident is allowed the use of the rooms of the Association on the payment of fifty cents per month, in advance.

Mr. Hallidie also stated that the Finance Committee had been unable to finish their report in regard to the late Industrial Fair, but that its financial success would prove as large as had been expected; that $10,000 had been paid on the mortgage; $5,000 for accumulated interest, and they hoped to pay $10,000 more on the mortgage. They had also purchased a large number of books.

Mr. Hallidie then introduced Mr. Hubert Burgess, who continued his lecture on "Lineal and Perspective Drawing," which was listened to with great attention by a very large audience. Mr. Burgess was extremely happy in his mode of explaining his new system of drawing, which is fast winning its way to popular favor, not only in California, but elsewhere. These free lectures are becoming a decidedly popular and important feature of the Institute.

Running Cars with Compressed Air.

A New Orleans company is building apparatus for the application of condensed air on city railroads, which, they expect, will effect a revolution in the present state of affairs; for they claim that by it the expenses of running each car in that city can be reduced from $8 to $10 daily (the rate now) to not over $3. The New Orleans *Commercial Bulletin* gives the following description:

The idea is that each car shall have two cylinders, or tanks, to contain the fresh air, which is to be used as a motor. These cylinders are to be on the top of the car, and are to be charged at the depot by an engine worked with steam. 'Metallic cylinders were first tried, but they were found to be too heavy, and the difficulty of the company has been to find a lighter material available for the purpose. Paper cylinders have been determined on, two on each car. They are made of strong sheets of paper, laminated to a thickness sufficient to bear the great pressure required to contain the air condensed into steam. The several lamina are adhered with glue, and the paper fabric is strengthened with an envelop of cordage. In connection with these cylinders there is to be an engine, for which a special patent has been taken out, and which is otherwise valuable in its application to steam machinery, to receive the condensed air and rotate the wheels of the car.

One of the cylinders has been subjected to a trial of three hundred pounds to the square inch, and had not yielded. Three hundred pounds to the square inch would suffice as a motor. With a platform car, experimented on a street railroad with far less power than that, the experiment resulted satisfactorily. Two iron cylinders, weighing sixteen hundred pounds, were used, which leaked through the riveting. There were twenty-eight persons on the car. Starting with but ninety pounds of pressure to the square inch, and with the weight of cylinders and men mentioned, three miles and a half in seven minutes and fifteen seconds were made; and as to curves, when the motor was reduced to fifteen pounds, the car went around a street corner "as smoothly as a ball would roll on a billiard table."

* * *

ANNEXATION OF SAN DOMINGO.—For some time various paragraphs have appeared in the papers, relative to the annexation of this island by the United States. In the last Congressional session, General Banks was quite prominent in bringing the subject before the attention of Congress, and since then various rumors have been current up to the present time, when it is stated definitely that a treaty for the purchase of the island for the sum of $1,500,000 will shortly be presented to the Senate for ratification.

About a year ago, a New York company, who held a grant of mining lands in St. Domingo, sent out an expedition to that place, with Prof. Gabb at its head, to more fully investigate the resources of the land. It was since this expedition started that the annexation project seems to have assumed a live shape.

* * *

A PERPETUAL FAIR FOR INVENTORS.—Mr. George Wood, of Wood's Museum, New York, has tendered, for the purpose of an "Inventors' Perpetual Fair," one or more of the large halls in his museum, free to all inventors in the United States, for the exhibition of working models and, if necessary, working machinery. Offers of the latest improved engines and shafting, as well as of a number of other machines, have been already received, and the boilers have been set and are ready for connections. The plan is to have no admission fee to visitors, and no charge to exhibitors, other than their proportionate share of the expense for gas and attendance. So writes W. P. Newhall to the *American Artisan*.

SUBSTITUTE FOR LAMP-WICKS.—The *Scientific American* describes such a substitute in the form of a glass tube which has a bottom of wire gauze, and is filled with pulverized gypsum. The oil finds its way to the top by capillary attraction. It may be used without a chimney if desired. Any finely pulverized mineral may be used instead of gypsum.

Coal in China.

Professor A. S. Bickmore, who has visited some of the Chinese mines, read an interesting paper upon the subject before the American Association, from an abstract of which we quote briefly in reference to coal:

The Chinese do not mine for coal below the water line, having no proper pumping apparatus. The best coal in the kingdom remains yet undisturbed; but Professor Bickmore doubts if it will ever be found equal in quality to the coal of England or America. Coal was mined in the mountains west of Pekin six centuries ago, before its properties were known to European countries, and was found in common use in Pekin by Marco Polo, in the year 1290. There is an important mine at Mun-ti-kau, thirty-five miles southwest of the capital, which Professor Bickmore visited. The coal is carried in sacks of two bushels each to Pekin on camels and donkeys. An incline shaft has been sunk to a very great depth below the surface of the earth, following the drift of the coal, up which the coal is brought on sleds, by man-power, one Chinaman for each sled, the capacity of which is one bushel and a half. No machinery of any kind is in use. No artificial means of ventilation are employed. By reason of the fact that the Chinese do not go below the water line, fire-damp is almost unknown. In the north of China coal is ground to a dust and mixed with clay, that it may burn more slowly. The quantity of coal in China is immense. There are large mines in Manchuria, and in the mountains west of the Gulf of Lieutang, in the province of Shensi, and along the Yangts. South of the Meiling mountains the quality is inferior, but everywhere the supply is inexhaustible. Petroleum also was found 160 years ago in the province of Shensi. Du Halde, in his work on China, compiled from the diaries of Jesuit priests as long ago as 1725, says: "Its mountains distil a bituminous liquor, which they call 'oil of stone,' and use for lamps."

The Suez Canal.

We copy the following from the special correspondence of *The Engineer:*

"And now as regards the availability of the canal for long ships. On this head I can form only an unfavorable opinion. The fact that no fewer than six ships ran aground in a few hours is a bad omen. Now, it will be asked, how is it that ships drawing only 17 feet of water ran ashore in a canal 24 feet deep? The reply is simple. If the ships could be kept in the center of the canal there would be no grounding; but they cannot. At a moderate speed, say four miles an hour, it is absolutely impossible for the best steersman to keep the ship from falling off or yawing a little. Besides, the sides of a large steamer—to say nothing of her rigging—tower up above the banks for the greater part of the way, so that they can be seen miles off. With no very strong wind blowing across the canal it will be practically impossible to keep a ship from obeying its influence. She will have lee-way, and this lee-way will set her to one side or the other, in accordance with the direction of the wind. If the helm is used to counteract the influence of the wind the ship will advance, not with her keel parallel with, but diagonal to the canal. If the ship be short this will not much matter, but if she be long her bow will, under such conditions, be in dangerous proximity to the shallow water on one side, and her stern on the other. The slower the speed the greater will be her angle with the line of the canal; and it appears that slow speed must be the rule, for at a velocity of four miles an hour the wash is small as compared with that at greater speeds. I see no remedy for this evil but in the use of guy lines from the bank, which is out of the question, or the employment of a small tug, drawing a very few, three or four feet, of water, to accompany each ship and keep her stern up to the wind. Tug and rudder together would keep the ship in the line of the canal. Without the aid of tugs I feel convinced that a moderate wind would render the canal impassable by such as the P. and O. boats."

* * *

POISON IN THE NURSING BOTTLE.—It is said that the white rubber used for nursing bottles and infant's toys is very poisonous, causing sore mouth, skin eruption, decayed teeth, spinal curvature and death. In Europe the sale of it is prohibited by law.

PITTSBURG STEEL STATISTICS.—The manufacturers of Pittsburg claim the credit of supplying 65 per cent. of all the steel turned out in the United States. The first essays at its production date forty years back, but according to the Pittsburg *Commercial*, it is within the last eight years that the most remarkable progress has been made, which has placed the steel produced there on an equality with the best imported. According to the census of 1860, the six establishments employed in this manufacture, which then existed in Pittsburg, represented capital amounting to $1,080,050, and their annual products were valued at $888,000, a sum less than the annual sales of a single establishment at the present time. These steel works are now eight in number, and represent an invested capital of $4,500,000, and their annual products amount to nearly as much. According to the Assessor's books, the sales for the past year have reached the value of $3,956,845, and these being effected during a period of depression, show the magnitude of the trade.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

WM. H. MURRAY, California and Nevada.
E. M. DEWEY—California.
S. H. HERRING—California.

Resident Agents.

CENTERVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
SACRAMENTO.—M. S. Senter.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—Thos. Starr.
CARSON CITY, Nev.—John G. Fox.
TREASURE CITY, Nev.—J. L. Robertson.
SHERMANTOWN, Nev.—P. C. Renfrew.
SILVER CITY AND IDAHO TER.—Sam. Heidelberger.
SILVER CITY, Idaho—J. Caples.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orahood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Barkalow & Brothers.
LONDON—George Street, 30 Cornhill, E. C.
HEDSON & MENET, 41 Park Row, New York.
A. C. KNOX, City Soliciting and Collecting Agent.

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

FROM The WEED $65 Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED
WEED
Machines TO work easier, simpler $500 faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt.

I. O. O. F.
THE NEW AGE,
A WEEKLY JOURNAL OF SIXTEEN PAGES.
The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v10

Important to Assayers.
Crucibles.
The Patent Plumbago Crucible Co.
Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT, Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass. GALLAGHER, WEED & CO., California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S. Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

$1. Postage Paid. $1.

A CHEAP AND HANDY BOOK
—FOR—
Mechanics, Inventors and Students.
SCIENTIFIC PRESS
NEW EDITION
—OF—
507 MECHANICAL MOVEMENTS.
PUBLISHED BY
DEWEY & CO.

LIST OF CONTENTS.

Æolipile.
Balance, Compensation: Barometer; Blower, Fan; Brake, Friction.
Cams; Capstans; Centrolinead; Clutches; Chasers; Clamps, bench and screw; Cock, four-way; Column, oscillating; Compasses, proportion; Counters of revolutions; Coupling, union; Crank—substitute for the, variable; Cranks, bell and compound; Cyclograph.
Differential Movements; Drag-link; Drill—Fiddle and Persian; Drills, Cramp; Drop; Drum and Rope; Driver, Pile; Dynamometers.
Eccentrics; Ejectors, Bilge; Ellipsograph. Engine, Disk; Engines—Retary, Steam, Valve Gear for; Epicyclic Trains; Escapements.
Fountain, Hiero's: Fusees.
Gasometers; Gauge, Bisecting; Gauges, Pressure; Gear, Steering; Gearing—Bevel, Brush, Capstan, Conical, Crown, Eccentric, Elliptical, Face, Friction, Internal, Irregular, Multiple, Mutilated, Scroll, Sector, Spur, Step, Stud, Sun and Planet; Gearing—Variable, Worm; Governors; Guides; Gyroscope.
Hammers—Atmospheric, Bell, Compressed Air, Trip, Steam; Helicograph; Hook—Boat-detaching, Releasing; Hooks, Centrifugal Check; Hyperbolas, Instrument for Drawing.
Intermittent Movements.
Jack—Hydrostatic, Lifting; Joint—Ball and Socket, Bayonet, Universal.
Ladder—Folding, Self-Adjusting; Lazy-tongs; Level, Self-recording; Lever—Bell-crank or Elbow, Knee; Lewis; Link. Detachable Chain.
Machine—Bohnenberger's, Drilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; Meter—Gas (wet and dry), Water: Mill—Barker's, Crushing, Tread, Wind; Miscellaneous Movements; Motion—Alternating Traverse, Rocking, Self-reversing, Shuttle; Motions—Feed, Link, Parallel, Pump, Traverse, Variable Traverse.
Pantograph; Parabolas, Instrument for Drawing; Paradox, Mechanical; Pendulum, Conical; Pendulums, Compensation; Pinion—Lantern, Mutilated, Slotted, Two-toothed; Power, Horse; Presses, Hydrostatic; Propeller, Screw; Pulley—Expanding, Friction: Pulleys—Anti-friction Bearing for, Chain; Pump—Air, Balance, Bellows, Chain, Diaphragm, Steam-siphon; Pumps—Double-acting, Force, Lift, Rotary; Punching Machine.
Rack—Mangle, Mutilated; Racks and Pinions; Ram, Montgolfier's Water; Ratchets and Pawls: Regulator—Gas, Watch, Reversing Motion, Self; Revolver; Rollers, Oblique; Rolls—Anti-friction, Drawing, Feed; Rulers, Parallel.
Saw—Endless Band, Gig, Pendulum; Screw, Archimedes, Differential, Double Reversed, Micrometer; Screws—Endless, Right-and-left Hand; Sectors; See-saw; Shears; Stamps; Stand, Mirror; Stop—for Hoisting Apparatus, for Lantern Wheels, for Ratchet Wheels, for Spur Gear; Stops for Winding Watches.
Test, Friction; Throttle, Spinning; Toggle-joint; Tongs, Lifting; Trap, Steam: Treadles.
Water, Machines for Raising: Weir, Self-acting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Paddle, Water; Windlass—Chinese, Friction; Windmills; Wipers.

This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.

A liberal discount made to the trade. Single copies, $1—sent postage free. Address orders,

DEWEY & CO.,
Patent Agents, San Francisco.

Business Cards.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19 qv

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

T. D. YOUNG,
IMP TER OF MACHINISTS' TOOLS
113 and 114 Beale St., San Francisco
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent. and upwards. 23v17qr

Professional Cards.

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street............San Francisco
(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.
2v15-1qy

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. R. R. ROBERTS,
The Great Magnetizer,
Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all CURABLE Chronic Diseases by ANIMAL MAGNETISM and the SWEDISH MOVEMENT CURE. 2v20-1y

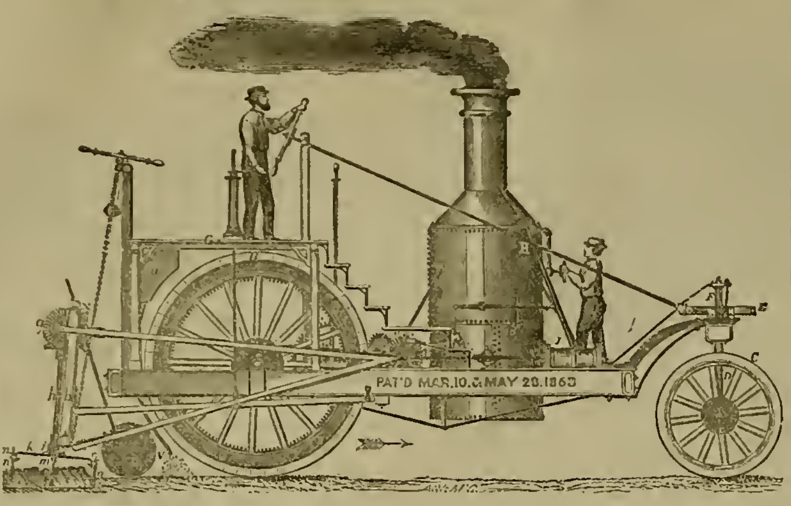
---

OCCIDENTAL
Insurance Company,
OF SAN FRANCISCO.
Cash Capital, - - - - - - $300,000
GOLD COIN.

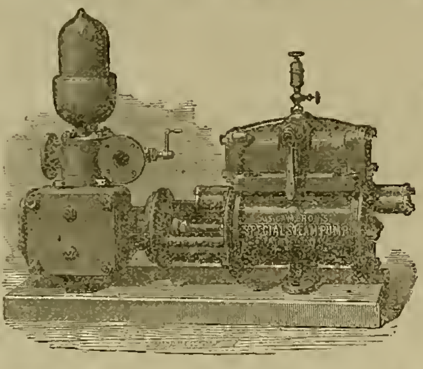
Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.
CHR. CHRISTIANSEN, President
B. ROTHSCHILD, Secretary. 20v17-3m

The Standish Patent California Steam Plow.



Capacity, from FIFTEEN to THIRTY Acres per day. The success of this invention for plowing large fields, is established beyond a doubt. Individuals, clubs, or companies desiring a more rapid and economical means of cultivating their farms, are invited to call upon the inventor, PHILANDER H. STANDISH, or address him by mail, Box 17, San Francisco. Single Machines for sale. Also, State rights, and patents for England, France, and Russia.



CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
MARINE
ENGINES.
SURFACE
CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

SAN FRANCISCO
Gold and Silver Plating Works.
ATTENTION. Quartz Mill Men,
MINERS,
HOTEL KEEPERS,
—AND—
OTHERS. ATTENTION.

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. OLD GOODS of all kinds re-plated for hotels, restaurants, etc.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞All work done at the lowest prices. 1v20-3m

WONDERFUL
Scientific Discovery.
THE GREATEST EVER MADE,
Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No EXAGGERATION, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years You are quite at liberty to use this intimation as you please. Yours truly, JOHN STAPLETON,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

---

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods CHEAPLY, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent. off to the trade. Address,
HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

HIBBERD. SANBORN & CO.,
STAIR BUILDERS.

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

SPAULDING & BARTO,

BOOK AND JOB PRINTERS,
Scientific Press Office,
NO. 414 CLAY STREET,
SAN FRANCISCO.
CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,
AND
PRINTING OF ALL KINDS FOR BUSINESS MEN
BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,
Neatly, Correctly and Promptly Printed.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business. I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
3v18 1y Stove Store, No. 1 Clay Street, below Davis.

Metallurgy.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at

No. 36 FREMONT STREET,

And WORKS at H. J. BOOTH & CO'S FOUNDRY, northeast corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.

Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.

By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public. ☞ Mines Examined and Reports made.

REFERENCES.—William Bosworth, Thomas Varney, Egbert Judson, E. T. Steen, Wm. Bellshaw, P. Reichling, W. O. Sleeper, J. L. N. Shepard, Norbert Landry.

CHAS. PLETZ & CO.

CHAS. PLETZ, Analytical Chemist.
FRED. MORRIS, Amalgamator and Millman. 25v19-3m

G. W. STRONG,
ASSAYER AND WORKER OF ORES,
No. 10 Stevenson street, near First, San Francisco.
Highest price paid for choice lots of Ores, Sulphurets, Assay Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14v15qr.

H. W. GRAY. J. ROSEBERRY. D. S. LOOMIS.
Ores of all Kinds Crushed and Sampled.
H. W. GRAY & CO.,
YOLO MILLS.
Corner Market and Beale Sts., San Francisco.
24v19-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.
21v18 1m

J. J. JONES,
CARPENTER and BUILDER,
No. 224 Jackson street, between Sansome and Battery,
Stores and Offices fitted up with neatness and dispatch.
7v15tf

W. C. CAMPBELL,
PATTERN AND MODEL MAKER,
No. 20 Fremont street, over Phœnix Iron Works, San Francisco.
Particular attention given to MODELS for the Patent Office Brands and Pattern Letters Cut. 4v18mtf

---

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

---

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

IN THE PROBATE COURT OF THE CITY AND County of San Francisco, State of California.

In the matter of the Estate of ABRAHAM CREEMER MESSERVE, deceased.

On reading and filing the petition of Benjamin Shellard, Administrator of the estate of Abraham Creemer Messerve, deceased, setting forth that he has filed an account of his administration upon said Estate in this Court, and that the same has been duly heard, allowed, and confirmed; that more than ten months have elapsed since the publication of notice to creditors, and that no claims against the said deceased have been presented to said Administrator, and the Estate is in a condition to be closed, and that the real property remains to be distributed among the heirs of said deceased; and praying, among other things, for an order of distribution of said real property among the persons entitled,

It is ordered, That all persons interested in the Estate of Abraham Creemor Messervo, deceased, be and appear before the Probate Court of the City and County of San Francisco, at the Court Room of said Court, in the City Hall, in said City and County of San Francisco, on the seventh day of February, A. D. 1870, at eleven o'clock in the forenoon of that day, then and there to show cause why an order of distribution should not be made of the real property of said Estate among the heirs of said deceased according to law.

It is further ordered, That a copy of this order be published at least for four successive weeks before the said seventh day of February, A. D. 1870, in the SCIENTIFIC PRESS, a newspaper printed and published in said City and County of San Francisco.

SELDEN S. WRIGHT, Probate Judge.
San Francisco January 5th, A. D. 1870. jan8-4w

Reading for the Hour.

Barnum the Giant Killer.

An occasional contributor, who is now in New York, writes us thus: * * The Cardiff Giant is played out. This is what did it: Barnum, who early in the game perceived "a mice," and who saw that something might be made of the thing if properly handled, offered the proprietors a large sum for an interest. But it was no go. It would not look well to have Barnum in it. He had too much the name of being connected with humbugs. So his offer was indignantly refused. To revenge himself, he hunted up a plaster-cast maker in Syracuse, and ordered six *fac-similes* of the giant; one apiece for New York, Philadelphia, Chicago, St. Louis, Cincinnati and Louisville. The one first completed was taken at once to New York, and placed in Wood's Museum. Then there was a commotion. The proprietors of the genuine giant rushed in hot haste to New York, and demanded an injunction against the exhibition of the bogus one. The Judge laughed at them. No comfort *there*. They were disconsolate. There was nothing to be done but to bring their treasure to the city, and rely upon its superior attractions to draw the crowd away from the "base imitation" to itself. It came; was seen; but didn't conquer. Not much. The first day it was exhibited to a considerable crowd; the second, to a mighty small one; the third, to a beggarly array of empty boxes. The game was up. That finished the "proprietors." The *fac-simile* made a *sick family* of them. Don't, by the way, charge that joke to *me*;—it is an old one. But it fits well here; for a sorrier-looking set you never saw, than these same proprietors. If they had only let in Barnum at the start! But they bearded the Great Mogul of Humbug upon his own ground, and so came to grief. Served 'em right.

The Power of the Flag.—During the war now raging in Cuba, a man was captured under suspicious circumstances by the Spaniards, tried, and condemned to be shot. He being, however, an Englishman by birth, and an American citizen by naturalization, the English and American consuls interposed, and declared that the authorities had no right to execute him. The remonstrances were not heeded, and the man was led out to die. As the muskets were already leveled, the two consuls gallantly sprang one to each side of the condemned man, and suddenly threw over him the Stars and Stripes and the Union Jack, daring the Spaniards to fire on the neutral flags. There was hesitation and consultation on the part of the authorities; but the consuls remaining firm, the prisoner's life was spared.

Map of the Hub.—The *Proof-Sheet*, a type founders' trade periodical, published in Philadelphia, contains a laughable "Map of Boston and the adjacent Country." It represents the hemisphere viewed from such a point in space that Boston appears as the geographical center of the globe. The Hub is represented to be about the size of Lake Ontario, and New York is too small to figure at all. The great lakes are the Boston water works; Mexico, Iceland and South America contain the gas works; the South Pacific is dotted with Boston bath houses; Madeira is the Yankee vinegar factory; and in the center of Africa is the Timbuctoo office of the *Atlantic Monthly*.

California Manganese in Liverpool. Lewis & Son's Liverpool Metal Circular, of November 16th, quotes manganese very dull at $52.20 per ton for 70 per cent. of fine quality, and adds: "Californian, of which there is a large stock, is almost unsaleable, owing to its inferior quality."

The Tchuktchi.

Who They Are.

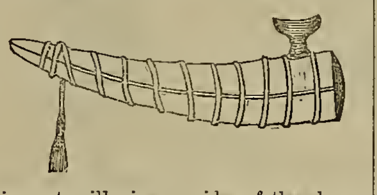
At the extreme northeastern point of Asia, bounded by the Polar Ocean on one side, and the sea of Behring on the other, lies the land of the Tchuktchi. The few travelers who have ever visited that bleak promontory, describe it as one of the dreariest regions of the earth. The climate is dreadfully cold, as may be expected in a country confined between icy seas. Before July 20th, there is no appearance of summer, and winter already sets in about August 20th. In this desolate nook of the old world, lives the only aboriginal people of North Asia which has known how to maintain its liberty to the present day.

Their Habits.

They live in low tents and in rather a natural way. Polygamy is general, and the men change their wives as often as they please. Still, though the women are certainly slaves, they are allowed more influence and are subjected to less labor than among many savages. The custom prevails (among others) of killing all deformed children, and all old people, as soon as they become too infirm to undergo the fatigues of a wandering life, for the people are continually changing their abodes.

Trade.

The Tchuktchi are continually carrying on an active trade with their neighbors, the Russians. They bring to Ostrownoje, a frontier town, large amounts of skins and furs, which they exchange for tobacco and ironware. Tobacco is the article of prime importance. Their pipes are larger at the stem than at the bowl, which holds but a small quantity of tobacco. The accompanying cut will give an idea of the shape. In smoking they swallow the fumes of the tobacco, and often, after puffing away for awhile, become completely intoxicated for the time.



A great number of other tribes of Siberia collect at their fairs, for the purpose of bartering their commodities against the goods of the Tchuktchi.

A Fair at Ostrownoje.

A government commissionary, assisted by some Cossacks, superintends the fair. All preliminaries having been arranged, the orthodox Russians repair to the chapel for the purpose of hearing a solemn mass, after which, the hoisting of a flag in the tower announces the opening of the market. At this welcome sign, the Tchuktchi, completely armed with spears, bows and arrows, advance with their sledges, and form a wide semi-circle around the fort, while the Russians and others ranged opposite, await the tolling of the bell, which begins the active business of the day.

The Russian Trader.

At the very first sound, the trader, grotesquely laden with packages of tobacco, kettles, knives, or whatever else he supposes best able to strike the fancy of the Tchuktchi, rushes as fast as he can towards the sledges, and in the jumble not seldom knocks down a competitor, or, is himself stretched at full length on the snow. But, unmindful of the loss of cap or gloves, which he does not give himself time enough to pick up, he starts afresh, to make up for the delay by redoubled activity. Before he reaches the first Tschuktch, his eloquence breaks forth in an interminable flow, and in a strange jargon of Russian, Tchuktch and Jakute, he praises the excellence of his tobacco, or the solidity of his kettles.

The Tchuktch Trader.

The imperturbable gravity of the Tchuktch forms a remarkable contrast to the greedy eagerness of the Russian. Without replying to his harangue, he merely shakes his head if the other offers him too little for his goods, and never for an instant loses his self-possession; while the Russian, in his hurry, not seldom hands over two "pouds" of tobacco for one, or pockets a red fox instead of a black one. Although the Tchuktch have no scales with them, it is not easy to deceive them in the weight; for they know exactly, by the feeling of the hand, whether a quarter of a pound is wanting to the poud (about thirty-six pounds).

The fair seldom lasts longer than three days and Ostrownoje, which must have but few stationary inhabitants indeed (as it is not even mentioned in statistical accounts, which cite towns of seventeen souls), is soon after abandoned to its ultra-Siberian solitude.—*The Polar World.*

Fire.

The nature of fire has caused much trouble to philosophers in former days. It was a long time considered that fire was an elementary form of matter, and that burning was the escape of this principle, which had previously been pent up in the combustible substance, visibly manifested by the flame.

It was only in 1783 that the true theory of combustion was discovered by a French chemist named Lavoisier, who hit upon the idea of weighing the products. His theory is now everywhere accepted.

Burning is merely a chemical change—a chemical combination of the burning substance with oxygen, and the light and heat evolved are only such phenomena as are produced in a more or less marked degree during every chemical change. The products of ordinary combustion are only two, carbonic acid gas and water or watery vapor. These being colorless, transparent, and entirely devoid of taste, escape unnoticed in common life. If, however, as can be done by chemical means with ease, we collect the smoke and weigh it, we shall find that it weighs more than the original fuel, and this extra weight is exactly equal to that of the oxygen of the air consumed in the process.

The products of combustion, the carbonic acid and the aqueous vapor, are not lost, but, after spreading through the atmosphere, are absorbed by the leaves of some tree, and here, in nature's laboratories, are reformed into fresh wood, and the wood which we have once burned may be used again by future generations.

Nicknames of State Residents.—Alabama, Lizards. Arkansas, Toothpicks. California, Gold Hunters. Colorado, Rovers. Connecticut, Wooden Nutmegs. Delaware, Muskrats. Florida, Fly-up-the-Creeks. Georgia, Buzzards. Illinois, Suckers. Indiana, Hoosiers. Iowa, Hawkeyes. Kansas, Jayhawkers. Kentucky, Corn Crackers. Louisiana, Creoles. Maine, Foxes. Maryland, Craw Thumpers. Massachusetts, Bay Staters. Michigan, Wolverines. Minnesota, Gophers. Mississippi, Tadpoles. Missouri, Pukes, Nebraska, Bugeaters. Nevada, Sage Hens. New Hampshire, Granite Boys. New Jersey, Blues or Clam Catchers. New York, Knickerbockers. North Carolina, Tar Boilers and Tuckoes. Ohio, Buckeyes. Oregon, Webfeets and Hard Cases. Pennsylvania, Pennamites and Leatherheads. Rhode Island, Gun Flints. South Carolina, Weasels. Tennessee, Whelps. Texas, Beefheads. Vermont, Green Mountain Boys. Virginia, Beagles. Wisconsin, Badgers.

Territories. Etc.—Dakotah, Squatters. Utah, Polygamists. New Mexico, Spanish Indians. Idaho, Fortune-seekers and Cut-Throats. Nova Scotia, Blue Noses. New Brunswick, Fish-heads. Canada, Canucks. —*Pacific Coast Almanac.*

A criminal, as well as fool, was that man Clark, of Covington, Kentucky, who gratuitously supposed that a gun was unloaded, pointed it at his child, pulled the trigger, and drove a charge of shot through the boy's head. That a grown man should commit such an act is absolutely criminal, and deserves the severest punishment. Such cases are getting too common, and the transgressor should be made such an example of, that fear of punishment may supply the want of brains for people in the future.

John, as a Shootist, is to be highly commended, if he only continues to do as well as he lately did in Virginia City, when, according to a telegram, "one Chinaman shot another in the stomach, bruising the skin considerably." If the wounded man had had the sense to hold his stomach out at arm's length, he might have, perhaps, escaped without injury to his delicate cuticle.

Hints and Recipes.

To Harden Plaster of Paris Casts.—It is said that the addition of a small quantity of finely pulverized marsh-mallow roots to calcined plaster of Paris will prevent the mass, when mixed with water, from hardening so rapidly as it commonly does, so as to prevent its applicability to many purposes. It will require nearly an hour to become thoroughly set; and then it will be found to have acquired such an extreme toughness and tenacity as to permit it to be filed, turned and bored, and otherwise manipulated, almost as satisfactorily as ivory, bone or meerschaum. Mixed with different coloring matters, an excellent imitation of marble can be produced.

Orange Marmalade.—Cut the oranges in half, then take out the pulp and juice, separating all the skins and pips. Put the rinds into salt and water for a night; the next morning put them into a stewpan with fresh water. Let them stew until soft, so that a straw can be run through them easily; cut the peels into thin slips. To every pound of fruit add one pound and a half of coarse white sugar. Put the juice, pulp, and peel, with the sugar, into the stewpan, and let it boil twenty minutes. Seville oranges must be used, and the marmalade is better if kept six months. The juice and grated rind of two lemons to every dozen oranges is a great improvement.—*Jessie Piesse.*

Oil for Burns.—A remarkable case of the utility of oil in case of burns is given in a German paper: A ballet girl whose dress took fire at Leipsic, and burned her to such an extent as to produce most horrible agony, was placed in oil, when her sufferings instantly ceased. She remained in the bath nine days and nights, during which time the oil was renewed five times. When taken out, she suffered no pain, and was entirely freed from the effects of the fire in three weeks.

Red Dye for Wool.—A good, bright, red color may be obtained in the following way: Stiff paste is made of lac dye and sulphuric acid, and allowed to stand for a day. For dyeing ten pounds of wool, one pound of tartar, two-thirds of a pound of salts of tin, and three-quarters of a pound of the paste are required. The wool must be boiled in the bath for three-quarters of an hour, after which it must be rinsed and dried.

Paste Blacking.—3 gills vinegar, 4 oz. ivory black, 1 oz. oil of vitriol, 1 oz. sperm oil, 2 tablespoonfuls of brown sugar. Put the oil, ivory black, molasses and sugar into a bowl together, stir them up well, then add the vinegar. Let it remain two or three days before adding the vitriol; then bottle it, taking care to have the corks well resined. It is best to keep it six months, but may be used directly.

A Silent Coal Scuttle.—Great annoyance is often caused to invalids by the ordinary method of putting coals in the grate by means of a coal scuttle. A very simple remedy, and one which should be introduced into every sick room, consists in placing the coals in paper bags, holding about four pounds each, and laying them quietly on the fire with the hands, when the bags quietly ignite, and leave the coals to be distributed noiselessly over the fire.

To Prevent Feathers Working Through Ticks.—Empty the feathers from your tick, turn it wrong side out, and lay it on a table. Then, with a piece of beeswax, slightly warmed, rub the tick thoroughly, giving the entire surface a light coat of the wax. No more feathers will ever work through that tick until the stuff is worn through.

To Take Stains out of Silver or Silver Plate.—Steep the plate in soap lye for four hours; then cover it over with whiting wet with vinegar, so that it may stick thick upon it, and dry bran, and the stains will not only disappear, but the plate will look exceedingly bright.

Rats may be prevented from gnawing a harness or other material, which absorbs grease by mixing with the oil applied a little cayenne pepper, say a teaspoonful to the quart. The rats get bite for bite, and clear out before doing any damage, feeling uncommon *smart.*

Cement that will Resist Red Heat and Boiling Water may be made as follows: Dried clay in powder, 6 ℔s; iron filings, 1 ℔; make into paste with boiled linseed oil.

Price Reduced, Jan. 1st, 1870.

The SCIENTIFIC PRESS, a first-class finely-printed and illustrated paper, is now furnished at $4 a year, which is exceedingly low-priced for a journal of its class and reputation on this coast.

During the past year the publishers of this journal have largely increased the reading space in the paper, introduced a leading department relating to farming and gardening, and published more articles relating to mechanic arts and miscellaneous subjects, both instructive and interesting for the hour. We find this course is well approved by our intelligent patrons everywhere. Located in the mines, cities or agricultural districts, many prefer a journal which brings them information of the more important discoveries in sciences, of inventions and developments in the progress of the leading arts and industries on this coast, to a periodical technically and more specially devoted to either science, mining, or farming alone—whether issued at home or abroad.

With this number we adopt an abbreviated and more convenient title for our paper, but wish it distinctly understood that we shall not abate our mining advocacy—or change other leading departments embraced in our past volumes, except to increase and improve them. The three leading interests represented in the SCIENTIFIC PRESS,—Mining, Farming and Mechanic Arts,—closely allied and associated on this coast, "form the base and groundwork of prosperity" of the community in the field it occupies.

Our present patrons can assist by advertising its worth and its price to others, and enable us to continue to increase and improve its reading columns.

Respectfully,

DEWEY & CO.,

Publishers and Patent Agents.

CURE FOR COUGH OR COLD.—As soon as there is the slightest uneasiness of the chest, with difficulty of breathing, or indications of cough, take during the day a few of "*Brown's Bronchial Troches.*" Containing demulcent ingredients, they allay pulmonary irritation. Have them in readiness upon the first appearance of a cough or cold.

PATENTS ON THE PACIFIC COAST.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast we say, subscribe for the SCIENTIFIC PRESS, published by Dewey & Co., San Francisco, Cal., at $4 per year. The opening of the railway across the continent has given to all patents a much higher value in that portion of our country known as the Pacific slope, and all interested will find the paper above alluded to a valuable reference.—*Mechanic and Inventor, Detroit, Michigan.*

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block San Francisco. 24v18-4w

TREATMENT OF REBELLIOUS SILVER ORES, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. HOWLAND.

SPECTACLES, Opera Glasses, Telescopes, Marine Glasses, Magnifying Glasses, etc., are to be found at C. Muller's, 205 Montgomery street. *

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

RETURNED.—Dr. J. H. Paine, Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

SEND FORMER ADDRESS when you wish your paper directed to a new place.

New Mining Notices.

Glenwood Mill and Mining Company.—

Location of Works: Greenwood, El Dorado County, California.

NOTICE.—There are delinquent on the following described stock, on account of assessment levied on the seventh day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Lucy Janeson	24	70	$14 00
Michael McCarthy	15	70	14 00
J H Sayre	36	140	28 00
J H Wood	31	67	13 40
J H Wood	not issued	105	21 00
J J Miller....balance due	34	220	30 75

And in accordance with law and an order of the Board of Trustees, made on the seventh day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, No. 318 California street, San Francisco, Cal., on Tuesday, the first day of February, 1870 at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. D. SQUIRE, Secretary.

Office, 418 California street, San Francisco. jan15

Imperial Mining Company.—Location of

Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifth day of January, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable within thirty days, in United States gold and silver coin, to the Secretary, No. 319 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the tenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eight day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. E. MOODY, Secretary.

Office, 319 California street, San Francisco. jan15

Mining Notices--Continued.

Alleghany Consolidated Gold Mining Company, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirtieth day of December, 1869, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the seventh day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, 37 New Merchants' Exchange, California street, San Francisco. jan8

Arctic Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of September, 1869, an assessment of three dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, or to S. Wenban, at Cortez.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Office, 426 Montgomery street, San Francisco. dec18

Cassell Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of December, 1869, an assessment of three dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, or to S. Wenban, at Cortez.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Office, 426 Montgomery street, San Francisco. dec18

Latawana Mining Company.---Location:

Hamilton City, White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees, held on the twenty-second day of December, 1869, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, or at 526 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the nineteenth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. dec18

Pinto Mining Company.—Location of

Works: Silverado, Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of January, 1870, an assessment of fifteen (15) cents per share was levied upon the capital stock of said Company, payable on the fifth day of January, 1870, in United States gold coin, to the Secretary, No. 426 Montgomery street, San Francisco, Cal., or to HOMER S. KING, ESQ., Agent of Wells, Fargo & Co., Hamilton, Nevada.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the seventh day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street, San Francisco. jan8

Idaho Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day December, 1869, an assessment of three dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to S. Wenban, at Cortez.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Tuesday, the eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Office, 426 Montgomery street, San Francisco. dec18

Pilot Mining Company.—Location of

Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of November, 1869, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room No. 7, 423 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Monday, the third day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-first day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. M. HARRON, Secretary.

Office, Room No. 7, 423 California street, San Francisco, California. jan8

Taylor Mill and Mining Company.—Location of Works: Georgetown District, El Dorado Co., State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifth day of January, 1870, an assessment of sixty cents per share was levied upon each and every share of the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 520 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventh day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of February, 1870, to pay the delinquent assessment, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

SAM'L S. MURFEY, Secretary.

Office, No. 520 Montgomery street, over Sather's Bank, San Francisco, Cal. jan8

Yosemite Mining Company, Oro Fino District, Humboldt County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of December, 1869, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco, or to J. P. McCLEAN, Superintendent, at the mine.

Any stock upon which said assessment shall remain unpaid on the nineteenth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fifth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary pro tem.

Office, 220 Clay street, San Francisco, Cal. dec18

New Advertisements.

EVENING DRAWING SCHOOL
—BY—
N. P. LANGLAND,
(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 536 MARKET STREET, over Occidental Market. ☞ School, Mondays, Wednesdays and Fridays, commencing at 7½ o'clock. 3v20-3m

Advertising and Subscription

Rates for the Scientific Press.

SUBSCRIPTIONS IN ADVANCE:—One year, $4; six months, $2.50; single copies, 10 cents; Monthly Series, $4.50 per annum; Quarterly Series (stiff paper binding) $5.

Lowest Rates for Advertising:

We shall adhere to the following rates (payable in gold coin) for advertising in the SCIENTIFIC PRESS from this date:

	1 week.	*1 month.*	*3 months.*	*1 year.*
One sq. (10 lines agate)	$1 50	$ 3 00	$ 8 00	$ 32 00
Two squares	3 00	6 00	15 00	60 00
Three squares	4 50	9 00	20 00	76 00
One-fourth column	6 00	12 00	28 00	100 00
Half column	12 00	20 00	54 00	200 00
One column	20 00	40 00	100 00	400 00

RATES BY THE LINE.

Per line.—One week, 25 cents; one month, 80 cents; three months, $2; one year, $5.

Per line, ten lines or more.—One week, 20 cents; one month, 30 cents; three months, 80 cents; one year, $3.20,

MINING AND LEGAL ADVERTISEMENTS will be inserted at special rates—less than one-half the cost of daily publication.

Particular attention will be given to preparing engravings, inserting advertisements in conspicuous, novel and attractive form. We will otherwise assist advertisers in getting up their notices, when desired.

☞ All advertisements in the PRESS appear in both the ☞ the MONTHLY AND QUARTERLY SERIES of the SCIEN- ☞ TIFIC PRESS, which (by special arrangement) are ☞ placed for FREE READING in the principal hotels, ☞ steamboat and steamship saloons, depots, and pub- ☞ lic reading rooms and libraries in San Francisco and ☞ Pacific States. Many volumes are also bound, thus ☞ affording permanent advertising.

The PRESS now receives the largest and best advertising patronage of ANY WEEKLY PAPER west of the Rocky Mountains.

In regard to the value of advertising in our journal, we refer with pleasure to those who can speak from experience—*our advertisers.* Better referees, or more reliable names, cannot be found in the advertising columns of any newspaper in the world.

DEWEY & CO.,

Publishers and Patent Agents.

No. 414 Clay street, San Francisco. Jan. 1, 1870.

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,

No. 414 Clay street, S. F.

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.

DIVIDED INTO 1,200,000 SHARES OF

TEN DOLLARS EACH,

FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President	SAMUEL MERRITT.
Vice-President	MICHAEL REESE.
Treasurer	J. SELIGMAN & CO.
Secretary and General Agent	W. K. VAN ALEN.

BOARD OF TRUSTEES—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm. H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, SEVEN MILES IN LENGTH BY FOUR THOUSAND FEET IN WIDTH, EMBRACING FIVE THOUSAND AND TWENTY ACRES.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of ALL mines discovered by the Tunnel.

4th—A royalty forever of TWO DOLLARS on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of this great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast,

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,

Secretary and General Agent,
625 Montgomery street,
Opp. Montgomery Block,

3v20-3m

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

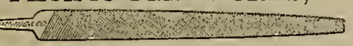
GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel. Gas and Water Fittings, which they offer to the trade on liberal terms.
21v16-3m W. McCRINDLE. Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.
2v17-3m **T. G. BURNING & CO**

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

J. P. GALLAGHER. J. H. WEED V. KINGWELL.
9v13-1y

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of Housesmith work, Bridge, Prison

FORGING AND MACHINE WORK,

IMPROVED FIRE-PROOF SAFES,

FIRE AND BURGLAR-PROOF SAFES

Of a superior make. Sole manufacturer of the celebrated

MONITOR SAFE.

BANK VAULTS AND SAFES,

Of every description, made to order at short notice. A large stock of SAFES of all kinds constantly on hand. Agency for the ISHAM KEY REGISTER BANK AND SAFE LOCK, the only first class Lock in the United States
1v17tf

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco.
10v14qr

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

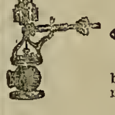
Front Street, between N and O streets,

14v1 SACRAMENTO CITY

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO.



MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED..........APRIL 30, 1868.
CAPITAL..........$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, James Pollock,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

JOHN N. RISDON..........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..........Secretary.
24v17-qy

HUGH H. LAMONT. WM. CALDWELL.

CYCLOPS MACHINE WORKS.

Construct and Repair every description of

Stationary and Marine Engines, Mill and Mining Machinery.

Special attention given to Repairing Machinery.
ap17-3m **113** Beale street, near Mission, S. F.

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

NEW FILES OF EVERY DESCRIPTION

ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended to. 9v19-qy

---

CITY IRON WORKS COMPANY.

CLERC & CO.,
IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

FOUNDRY FACINGS.

BENJAMIN ELLIOT,

No. 492 Brannan street..........San Francisco,

Manufactures Foundry Facings constantly, from choice coals. Bituminous, packed in tight sacks. Anthracite and Charcoal ground together or separate, packed in barrels Black Lead, Coke and Soapstone ground to order.

☞ Foundrymen located far from choice material, can rely on having superior Facings forwarded to order.
10v18qr

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

---

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT.

UNION IRON WORKS,

CORNER FIRST AND MISSION STREETS,

SAN FRANCISCO.

MANUFACTURE

ALL KINDS OF MACHINERY

MARINE, LOCOMOTIVE,

And Stationary Engines,

Booker Patent Locomotive Stack,

ARMSTRONG PATENT

Heater, Condenser and Filter, Combined.

BOILERS, HIGH AND LOW PRESSURE,

Pump, Pipe and Sheet Iron Work of all kinds; Quartz Crushing and Amalgamating Machinery, including High and Low Mortar for wet or dry crushing; Furnaces for roasting ores; Horn, Wheeler's, Patton's, and Belding's Amalgamating Pans and Settlers; Hendy's Concentrator; Hungerford's Concentrator; Hunt's Grinder; Blake's Crushers; Stamp Shoes and Dies of the best white iron; Russia Iron Screens, etc.; Flour Mill and Saw Mill Machinery in every variety; Hendy, Gang, Saw Mill, Pumping and Hoisting Machinery; Excelsior Force Pump, for domestic, ship and mining use—the simplest and best in use; Iron and Brass Castings of every description; Steamboat Repairs; Boiler Making executed with despatch. Steam Engines and Boilers constantly on hand and for sale.

We would call particular attention to our

SCOTT & ECKART CUT-OFF ENGINE.

As a simple, effective, fuel-saving, first-class Engine, it has no equal. We have twenty-five of our Cut-Off at works on this coast, every one of which gives entire satisfaction. We refer with pleasure to the report of the Committee on Engines at the Sixth Industrial Fair, which we annex. They say:

"*Horizontal Steam Engine of the Union Iron Works.*—This Engine is 16 inches diameter of cylinder, 3-foot stroke of piston, and is provided with Scott & Eckart's Patent Variable Expansion Valve. It is very substantially built, well proportioned, and capable of doing severe duty. This Engine was used every third day to drive the machinery of the Exhibition, *working very smoothly and steadily under all circumstances, and with great economy.* The friction brake was applied to this engine; but owing to the fact that the belt which had been provided for merely driving the machinery of the Exhibition was not of a suitable size to transmit the full power of the engine, the test was not applied above 30-horse power; *and up to this point the power was developed with the greatest possible economy in the expenditure of steam.* In speaking of the performance of this engine, the variable expansion valves of Messrs. Scott & Eckart deserve special mention of the ingenuity displayed in the arrangement of the valves and in the attachment of the same to the governor, whereby the position of the slides is changed so quickly to accommodate any change of load upon the engine *that the correct speed of the engine is maintained with* WONDERFUL UNIFORMITY *under all circumstances.* This engine will work 50 or 60 horse power with ease and economy. Awarded silver medal. Wm. Burnett, Mont'y Fletcher, John Myers."

Pickering Governors, Machinists' Lathes,

Plainers, Shapers, Drills, Etc.

On hand and for sale, Drawings furnished free of cost. Orders promptly attended to. A complete stock of fittings on hand.

☞ We are prepared to furnish all kinds of Machinery at short notice, as our facilities are unequalled on the Pacific Coast.

H. J. BOOTH & CO.

SAN FRANCISCO
Pioneer Screen Works.

JOHN W. QUICK,

293 Fremont street, near Howard, San Francisco.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at greatly reduced rates.

ORDERS SOLICITED AND PROMPTLY ATTENDED TO.

I would call special attention to my slot cut and slot punched Screens which are attracting much attention and giving universal satisfaction, both as regards their efficiency and durability. This is the only establishment on the coast devoted entirely to the manufacture of Screens. It has furnished screens for the principal mills and firms on the coast for many years. 10v19tf

---

CALIFORNIA TOOL WORKS,
Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.
21v17-qy **J. WEICHHART, Proprietor.**

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

California Steam Navigation COMPANY,

Steamer CAPITAL..........CAPT. E. A. POOLE
" CHRYSOPOLIS..........CAPT. A. FOSTER.
" YOSEMITE..........
" CORNELIA..........CAPT. W. BROMLEY
" JULIA..........CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

R. M. HARTSHORNE,
13v12 **President**

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,
26 611 and 613 Front street.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf **414 Front street,** San Francisco.

The Perfection of Prepared Cocoa.

MARAVILLA COCOA.

Sole Proprietors—TAYLOR BROTHERS, London.

The Cocoa (or Cacao) of Maravilla is the true Theobroma of Linnæus. Cocoa is indigenous to South America, of which Maravilla is a favored portion. TAYLOR BROTHERS having secured the exclusive supply of this unrivalied Cocoa have, by the skillful application of their soluble principle and elaborate machinery, produced what is so undeniably the perfection of Prepared Cocoa, that it has not only secured the preference of homœopaths and cocoa-drinkers generally, but many who had hitherto not found any preparation to suit them, have, after one trial, adopted the Maravilla Cocoa as their constant beverage for breakfast, luncheon, etc.

"A SUCCESS UNPRECEDENTED."

[See following extract from the Globe of May 14, 1868.]

"Various importers and manufacturers have attempted to attain a perfection for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage."

Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills, Brick Lane, London.
8v19-6m

Ayer's
Hair Vigor,

For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a

HAIR DRESSING,

nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.

Prepared by Dr. J. C. Ayer & Co.,

PRACTICAL AND ANALYTICAL CHEMISTS,

LOWELL, MASS.

PRICE $1.00.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 25v18eow4m

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

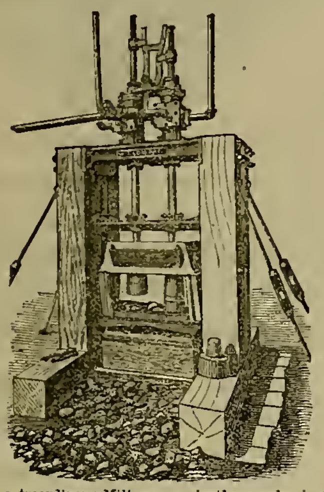
Friday, January 14, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 lbs.; Bar, 1@1⅛c ℔ lb; Sheet, polished, 3c ℔ lb; common, 1½@1¾c ℔ lb; Plate, 1⅛c ℔ lb; Pipe, 1⅛c ℔ lb; Galvanized, 2½c ℔ lb.		
Scotch and Eng. Pig Iron, ℔ ton	$32 50	@ $35 00
White Pig, ℔ ton	30 00	@ 31 00
Refined Bar, bad assortment, ℔ lb	— 03	@ — —
Refined Bar, good assortment, ℔ lb	— 04	@ — —
Boiler, No. 1 to 4	— 04½	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
Copper.—Duty: Sheathing, 3½c ℔ lb; Pig and Bar, 2½c ℔ lb.		
Sheathing, ℔ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
Tin Plates.—Duty: 25 ℔ cent. ad valorem.		
Plates, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℔ lb	— 40	@ — 42½
Steel.—English Cast Steel, ℔ lb	— —	@ — 15
Quicksilver.—℔ lb	— 55	@ — 60
Lead.—Pig, ℔ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℔ lb	— 10½	@ — 11
Borax.—California, ℔ lb	— 38	@ — 40

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

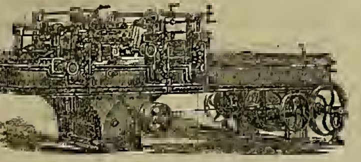
A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

Woodworth Planers,



PLANERS AND MATCHERS,

With patent expansion, feed gear and other improvements made at Worcester, Mass., in the most finished and substantial manner; also every description of Richardson Meriam & Co's, Smith's and Wood's celebrated

Wood Working Machinery.

Embracing Mortising, Sash and Moulding, Smith's Stickers, Slat and Door Tenoning, Boring, Shaping, Scroll Sawing, Planing, Rod and Dowell making and Re-sawing Machines, Wood and Engine Lathes, etc., for sale at Eastern prices, at the Machinery Depot of

BERRY & PLACE.
112 and 114 California st., San Francisco.

☞ Agents for Blake's Patent Steam Pump, (warranted the best in the market); Davis & Furber's Woolen Machinery, etc. Being the selling agents for most first class Eastern builders, millmen and others in want of Machinery can save money by giving us a call. Illustrated Catalogues sent free.

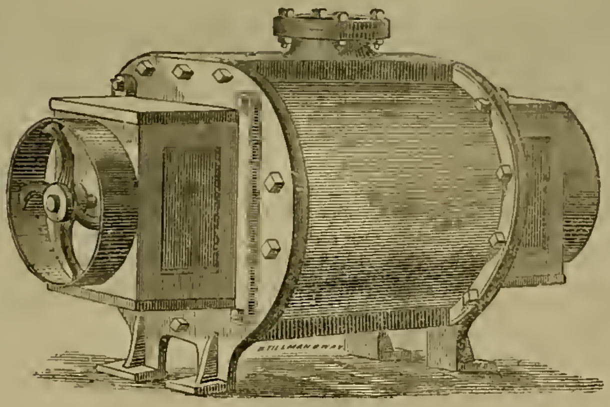
To all who may wish to obtain a thorough knowledge of the industrial resources of the Pacific Coast, the Press will be found a valuable paper.—*Oakland Transcript.*

ROOT'S PATENT FORCE BLAST ROTARY BLOWER

MANUFACTURED BY KEEP & BARGION,

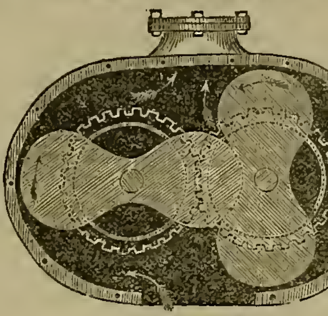
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 21, 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

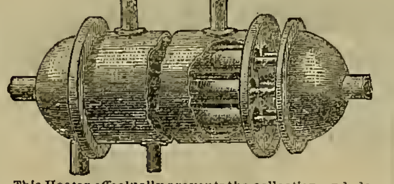
Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**

CROSS' COMBINED Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

VARNEY'S PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,
1v1 San Francisco.

International Hotel,

JACKSON STREET,

BETWEEN MONTGOMERY AND KEARNY STS.,

SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.

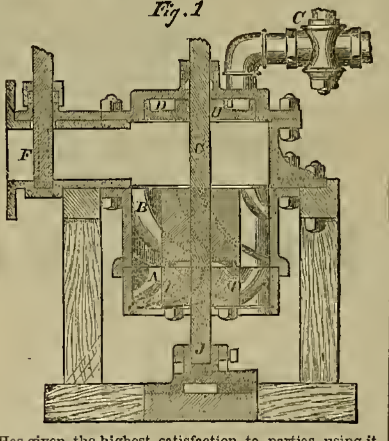
Prices varying from $1 50 to $2 per day for Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

☞ Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House free of charge, and to any part of the city for 50 cents
21v12 F. E. WEYGANT, Proprietor.

Lind's Improved Water Wheel

Fig. 1



Has given the highest satisfaction to parties using it. We are now prepared to sell it at reduced prices. Will also contract for all kinds of Machinery—Flour, Saw and Quartz Mill. All our work guaranteed. We will send competent men to put up our Wheels and Machinery. We contract for or do it ourselves. Our extensive acquaintance with millwrights on this coast enables us to furnish millmen with the best of workmen at short notice. Drawings for contracts furnished gratis. Send for circular.

A. LIND, Millwright,
Pacific Iron Works, San Francisco.
Refer to John Sime and J. J. Haley. 19v19

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good Sauce. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for Lea & Perrins' Sauce, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c.; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

H. S. CROCKER & CO.,

Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

For Miners, Millmen and Metallurgists.

KUSTEL'S NEW WORK,

CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS.

For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price, - - - - $7.50

A liberal discount to the Trade. For sale by the Booksellers. Sent to any part of the United States, postage paid, on receipt of the price. Address,

DEWEY & CO., Publishers,
Office of the Scientific Press, 414 Clay street,
1v16tf SAN FRANCISCO, 1868.

EYE AND EAR

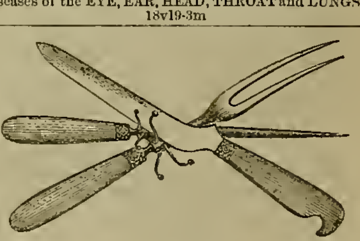
DISEASES.

DR. ABORN'S

CONSULTING AND OPERATING APARTMENTS,

NO. 22 KEARNY STREET,

For the most modern and scientific treatment of the diseases of the EYE, EAR, HEAD, THROAT and LUNGS.
18v19-3m



M. PRICE, Maker,

No. 415 KEARNY STREET,

Between Pine and California, San Francisco.
20v19-3m

M. M. COOK. H. N. COOK.

M. M. COOK & SON,

MANUFACTURERS OF

LEATHER HOSE,

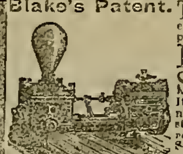
Belting, and Horse Collars,

801 Battery street, Corner Broadway.

SAN FRANCISCO.

☞ Belt Leather for sale. 26v19-3m

Blake's Patent.



THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's

Patent Steam PUMP

It is simple, compact and powerful, needs no expert to run it, and will start at any point. Is warranted positive under all circumstances. Send for a circular.

BERRY & PLACE, 112 and 114 California st., San Francisco.

Scientific Press.—To the miner, farmer and mechanic—the three great interests that form the base and ground-work of all our prosperity—this paper should be considered as almost indispensable. We wish the Press boundless success in the future.—*Placer Herald.*

Volunteer Compliments.

From an endless series of appreciative testimonials and frank acknowledgements, we give the following:

Suisun City, Cal., June 26, 1869.

Messrs. Dewey & Co:—This is the third time you have presented me with Letters Patent within twelve months. Gentlemen, you have dons all I have asked of you—you have heen houest; you aro men that su inventor can rely upon for doing business for him, snd h need not fear of being swindled or wronged in suy way. I would give you business to do in your various departments in preferenco to any one else. Many thanks to you for your success. You have obtained valuable patents for me, and I appreciate your kindness, your honesty, ability and success. Yours, Richarn Knott.

"Tidal Wave" Office, Silver City,
Idaho Territory, July 27th, 1869.

Messrs. Dewey & Co.—Gentlemen:—Allow me to express my high appreciation of the ability and business management of the Mining aud Scientific Press Patent Agency, and to say thst our husiness relations have been marked with the utmost promptitude upon your psrt and with entire sstisfaction upon mine.
Yours, etc., Jno. S. Butlen.

San Francisco, May 5, 1869.—Messrs. Dewey & Co. Gentlemen:—Allow ms to express to you many thanks for services rendered me in procuring my pstent, which has just come to hand. I would also say that your work has been faithfully done, and your advice and representations hsve in sll cases been honest and truthful.
Respectfully, Geo. Inwood,

Portland, Oregon, May 2, 1869.

Messrs. Dewey & Co—*Gentlemen:*—Receive my kindest thsnks for your attention in the matter of bringing my application for a Patent to a successful issue.
Thomas Mann

Grass Valley, Dec. 2, 1868—*Messrs. Dewey & Co:*—Having received the patent for Symons & Co's Tossing and Refining Concentrator, through your Agency, we return our sincere thanks to you for your unrivalled success. Yours, respectfully, Symons & Harry.

Lexington, April 3, 1869.

Dear Sirs:—Tho Letters Pstent have just come to hand. For the prompt and business-liko manner with which you have put the matter through, plesse accept my thanks. Geo. W. Teasdale.

To Dewey & Co., Publishers M. & S. Press.

Stockton, April 8th, 1869.

Messrs. Dewey & Co.:—Your favor of the 6th inst., accompanying patent for improvement in horse shoes, is received. I heg you will accept the earnest assurance of my grstitude for your kind assistance and valuable services. Very truly yours, W. R. Watson.

Somersville, Cal., August 25th, 1869.

Messrs. Dewey & Co.—Dear Sirs: Allow me to return you my thanks for tho very able manner in which you have conducted the business entrusted to your care. You will plesse forward the document (British Patent) by Bamher's Express to this plsce. Yours, respectfully,
Geo. Hawxhurst.

Jamestown, Cal., July 6th, 1869.

Messrs. Dewey & Co.—Gentlemen:—The Patent for our Ore Washer and Concentrator wss duly received by express. We return you our thsnks for the promptness and successful msnner which have attended your efforts in our hehalf. Yours, Wm. G. Heslep.

Santa Cruz, December 30, 1869.

Messrs. Dewey & Co —*Gentlemen:*—Yours of the 24th December, inclosing my pstent for construction of earthquake-proof wall, was duly received last night. I am highly pleased with the way in which the husiness has been done. The ability which carried it through, and the scrupulous care bestowed on its preparation, are above praise; and I will gladly intrust to your hands any further husiness I may have to do, which will soon take place on s very useful and important invention.
Very truly yours, A. McPherson.

We have hsd frequent occasion to have business relations with the psteut agency connected with this establishment, and have had nothing left to desire in regard o it. Fidelity, promptness and courtesy, soon srranged everything for us to our complete satisfaction. Having hsd frequent delays at Washington while in that city, we have been surprised at the promptitude with which some of our friends obtained their patents through the agency of Messrs. Dewey & Co.—*S. F. Spiritual Light.*

Nevada City, Nov. 3d, 1868.

Messrs. Dewey & Co.—Gentlemen:—Your favor of the 30th ult., is just received, informing me of the successfull prosecution of my application for a patent on my "Hair Cutting Shears." Pleaso sccept my sincere thanks for the speedy and successful manner in which you have conducted the case, and believe me, as ever,
Very truly yours, Lee D. Craig.

Mayfield, Csl., June 26, 1869.

Dewey & Co., *Patent Solicitors, San Francisco*—Gentlemen:—In scknowledging the receipt of my Letters Pateut, allow me to express my thanks for the skillful and trustworthy manner in which you have conducted my business before tho Depsrtmeut at Washingtou. I am perfectly sstisfied with the high degree of sbility and integrity displayed in the management of my case, and I know of no similar agency in which I could place corresponding trust. Yours truly, J. M. Johnson.

San Francisco, April 19, 1859.

Messrs. Dewey & Co., Patent Agents.—*Gentlemen:*—Allow me herewith to tender you my sincere thanks for tho efficient assistance you have rendered mo in securing my patent, and other papers, as well as the promptness and energy displayed by you in our husiness transactions. Very respectfully yours, C. E. Jaycox.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.
THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

To Solicitors.

AGENTS WANTED.

One or two active and reliahle Agents can ohtain permanent and profitable employmont by addrossing or calling at this office.

MANUFACTURING Room to Let.

We have a large room, about 18 by 36 feet, in second story at 414 Clay street, near Sansome, which we will rent very low, suitable for printing or manufacturing purposes

DEWEY & CO.,
Publishers Scientific Press, 414 Clay st

Yearly Subscription Reduced to $4.—Jan. 1, 1870.

The Scientific Press

An Illustrated Journal of Mining, Farming and Mechanic Arts.

The Scientific Press, devoted to Scientific and Mechanical Progress, Mining, Farming and Mechanic Arts, contains more Valuable Reading Matter thau any other weekly journal west of the Rocky Mouutains. It is the best printed and ouly finely-illustrated paper on the Coast. Its articles are able, timely, and reliable, and written in a more interesting and easily comprehensive style than scientific papers in general. Now iu its twentieth volume, it is printed on superior paper, coutaining sixteen pages, equal in size to the first-class journals of the Atlantic States and Europe. All our better citizens have an active interest in the new discoveries and in the development and progress of the three great industrial pursuits named above, which are closely allied on this coast and jointly represented in the Press, rendering the paper a popular and influential journal with all industrial readers.

To Inventors on the Pacific Coast.

Our U. S. and Foreign PATENT AGENCY presents many and important advantages as a Home Agency over all others, by reason of loug establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventious patented through our Agency will have the benefit of an illustration or description in the Scientific Press. We transact every hranch of patent business, and obtain patents in all civilized countries.

The large majority of United States and Foreign Patents granted to inventors on the Pacific Coast during the past few years have been obtained through our Agency. Established in 1860, we have an extensive patent lihrary, with full record of cases on this coast, with complete U. S. reports, and can give the best and most reliahle advice as to the patentability of new inventions. Advice and illustrated circulars free. Our prices are now as favorahle as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior.

The Illustration of Inventions

In the Scientific Press is a high recommendation for them, and is the hest and cheapest method of bringing them to the notice of the public in a proper manner, hesides being the most effectual method of selling valuable patent rights and patented articles.

Engraving on Wood

Of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also engraviug ou metals.

DEWEY & CO.,
Publishers and Patent Agents, 414 Clay street, San Francisco.

DEWEY & Co.

American and Foreign

Patent Agents.

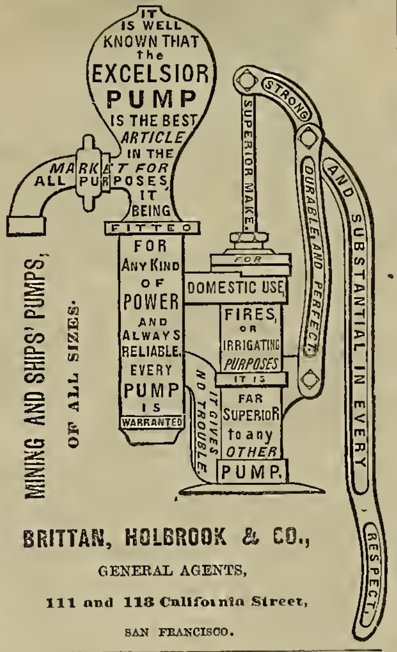
Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Pateuts Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments,
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publisbers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v16

GEO. E. ROGERS,
(Successor to G. W. Bell.)
ASSAYER,
512 California st., San Francisco.
J. A. MARS, Assayer.
Ores csrefully Assayed. Gold and Silver Ores worked.
23v16-qr10pnr


IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE, FIRES, OR IRRIGATING PURPOSES IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE
SUPERIOR MAKE.
STRONG
DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

The Aerial Steam Navigation Company.

At a meeting of the stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cazneau, Henry F. Williams and Simon L. Joues were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars, said shares to he *unassessable.* The funds thus raised sre to he devoted exclusively to the construction of the first aerial steam carriage, and to he deposited in the Bank of British Columhia, to be dishursed upon requisition of Mr. Georgs K. Gluyas, Engineer of Construction. The working, drawings, etc, can he seen at the offics of Gen Thomas N. Cazneau, No. 321 California street, where subscriptions will be received. No invention for navigating the air has before received such positive indorsements from engineers of reputation, or so liheral encouragement from prominent capitalists' as Marriott's Avitor, which now seems sure of hsing thoroughly tested on a large scalo. 2v20-my

W. T. GARRATT,
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURER OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS.
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipo furnished with Fittings, etc, Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metsl."
☞Highest Msrket Price paid for OLD BELLS, COPPER and BRASS. 6-tf

N W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect
Particular attention psid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

STEEN & CUSHING,
AGENTS FOR THE
PURCHASE AND SALE
— OF —
Patent Rights, Engines, Boilers,
— AND —
MACHINERY OF ALL KINDS.
NO. 9 FIRST STREET, SAN FRANCISCO.
WE HAVE ON HAND IN GREAT VARIETY,

Engines and Boilers,
Steam and Hand Pumps,
Pipe,
Presses,
Shafting,
Pulleys,
Boxes,
Mill Stones,
Portable Mills,
Malt Rolls,
Injectors,
Lathes and Planers,
Governors,
Steam Gauges,
Quicksilver,
Gas Stocks and Dies,
Belting,
Water-tanks, etc.,

Which we will sel at a discount of 25 to 75 per cent. on cost of new, in this city. Parties having any kind of machinery for sale, may meet with customers by consigning to us. Purchases made on Commission, and prices guaranteed as low or lower than parties can make themselves.

STEEN & CUSHING,
No. 9 First street, San Francisco.

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
Nsw York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Alhum	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome snd Washington streets,
SUPPLIES ALL
Eastern Perodicals.
BY THE
Yesr, Month, or Numher.

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowod with tho National Land Grant in 1856, furnishes advanced instruction in the various branches of Mathematicsl, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology, and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," Nsw Haven, Conn. 13v6-1y16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, January 22, 1870.

VOLUME XX.
Number 4.

A New Explosive—Dualine.

The attention of mining and military engineers in Europe is much engrossed at the present time in a new explosive, recently invented by Mr. Nobel, inventor of nitro-glycerine and dynamite. It will be recollected that dynamite was devised to meet the objections to the use of nitro-glycerine. We are told that "dualine" has now been introduced to meet the objections to dynamite.

This new explosive consists principally of nitrate of ammonia and very fine saw-dust, which has been acted upon by nitro-sulphuric acid. It is said that it will neither decompose (even by being accidentally brought into contact with acids), nor congeal, nor pack together, nor lose any of its properties, during cold or hot weather. Its explosion does not cause the development of any noxious gases. When fired by a flame or coal, it will burn in the open air without exploding. Twenty-five pounds of dualine, contained in a strongly-made keg, over which a large fire was built, commenced burning rather slowly only after the staves had been burned through. But, if confined in a strong inclosure, as in a well-tamped blast-hole, it can be exploded like powder by a fuse or spark. The stronger the inclosure is, the greater is the effect of the explosion. In open air, or with a tamping of loose sand, or under water, it is necessary to use a cap in order to cause explosion.

Dualine is said to be so little sensitive to concussion that it may, without danger of premature explosion, be used for the bursting charge of shells. It acts on rock and coal less violently than nitro-glycerine and dynamite do; its explosion produces in coal a larger quantity of lumps and round coal than even a corresponding charge of powder. A remarkable insensitiveness to concussion and friction, and its inexplosive nature, render it much less dangerous than common powder. It may be stored, transported, and applied with hardly any risk at all.

Absolutely cheaper than either nitro-glycerine or dynamite, it is also relatively cheaper than common blasting powder; for hardly one-fifth of the work and time required in using the latter is needed for successfully operating with dualine. So free is it from the development of noxious gases that miners may resume their work immediately after a blast has been fired. In the Dudweiler mine, for instance, not well ventilated, five blasts were made in quick succession; yet the miners were not in the least molested by the gases developed by the combustion of ten ounces of dualine used for the charges of these blasts.

From the above description it may be inferred that dualine is very similar, in composition, to gun-cotton, but more convenient for use. In regard to its efficacy as compared with dynamite, it is considered about equal; but slower in action—in this respect corresponding to gun-cotton. However, it is extremely difficult to get at comparative results in blasting experiments, as in most instances, the experimenter must be satisfied with the average results of a great number of trials undertaken under various conditions. But it is nevertheless easy, in one respect, to fix a difference between the two materials, which leaves no doubt as to the superiority of the dynamite for certain purposes.

If equal quantities of dynamite and dualine, provided with primers, are allowed to explode upon iron plates of equal strength, the effect indicates such an evident difference, that one must adjudge to the former a much more rapid and violent action. This will certainly be recognized in blasting rocks. With regard to the burning of dualine, in contact with flame, there appears to be some difference of opinion, notwithstanding the experiment reported above. Of the dynamite, however, it is sufficiently established that it will never explode on holding a flame near it, but simply burn, even if enclosed in strong wooden boxes.

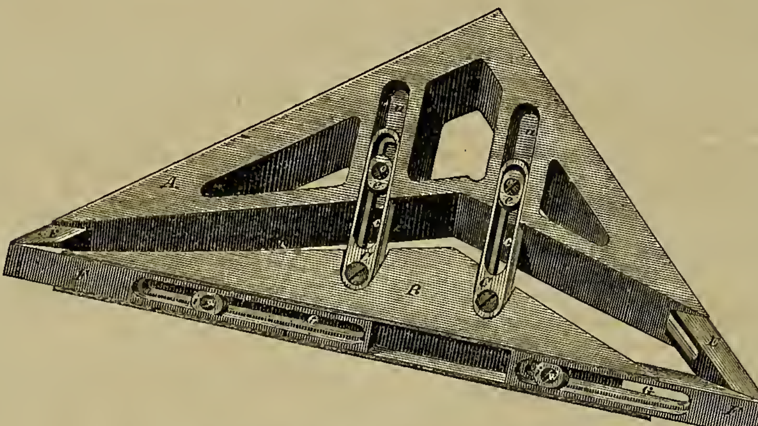
If the facts, as related of this new explosive are correct, it may be destined to occupy, ere long, in *mining* operations on this continent the same place which it appears to have obtained in Europe since last May, when the first trials were made with it. We presume that some of our enterprising manufacturers of explosives have already had their attention called to this new agent, and that in due time, if it really possesses the advantages above described, it will be introduced to practical use on the Pacific coast.

* * *

CALIFORNIA MEDICAL GAZETTE—FLORA OF SAN FRANCISCO.—Prof. H. N. Bolander, late State Botanist, is giving, in the *California Medical Gazette*, a catalogue of the plants growing within a space of one hundred miles north and south of San Francisco and as far east as Mount Diablo. He has been assisted in preparing it by Dr. A. Kellogg and G. H. Bloomer. The Latin and English names of each plant are given, and also its natural *habitat*. The January number of the *Gazette* devotes twelve pages to the catalogue, and it is "to be continued."

Extension Pitch-Board.

In building stairs, the carpenter needs some rule, by means of which he can measure and construct, of exactly the same size, for the same flight, the height and the tread of the steps. Hitherto, for this purpose, stair-builders have commonly used a triangular piece of board, which, however, is seldom available a second time; for, owing to the varying heights of the stories in different houses, and to the various angles at which the stairs are built, a new pitch-board must commonly be made for each flight. Hence, in visiting builders' shops, one often sees in some corner a pile of old triangular boards, which, having served their purpose once, are thrown aside—never, perhaps, to be of use again.



DREW'S PATENT EXTENSION PITCH-BOARD.

To obviate the waste of material thus incurred, and, moreover, to prevent the loss of time consequent on making ever new pitch-boards, an enterprising stair-builder of this city has invented a very ingenious apparatus, which is so constructed that it may be set to the desired size for any flight of stairs. The details of this "extension pitch-board" will be seen from the illustration.

The pitch-board is of triangular shape, with one side shorter than the other. It consists principally of two pieces, A and B, of wood or metal, which, when closed together or when extended to any size, and the sides produced, in the manner hereafter shown, form a right-angled triangle.

The two pieces, A and B, are joined together by the two slides, C, C. One end of these are fitted into a slot in the piece, B, and is there loosely secured by means of pivots, bolts or screws; the other end moves in a channel, *a*, which is made in the piece, A. The slides are provided with a longitudinal slot, *c*, which is countersunk around its upper edge. A small plate, *e*, rests in the sink, and a screw, *o*, passes through it and the slot and into the piece, A, below the slot; so that, by loosening the screw, the piece, B, can be drawn off from A any required distance, and then firmly held there by tightening up the screw. The channel in the piece, A, in which the slides move, may be made in the form of a dove-tail, narrow at the top, in order to keep these steady. The groove or slot in B is cut away on each side of the slide, so as to allow the piece B, to turn to any required angle.

The slides, E, are let into the edges of A, and the slides, F, into the edges of B, so that they are flush with them, and a fair edge is presented whether they are closed up or drawn out. In order to keep these sliding pieces firmly fixed at any desired point, a long slot, G, is made through them, and a plate, *i*, and screw, *n*, serve to secure them in the same way as *e*, and *o* secure the slides, C.

As the relation of the rise to the tread of the stairs varies according to the angle desired, the relative position of B must be made to vary correspondingly, and this is effected by drawing out one of the slides, C, farther then the other. To use this pitch-board, having determined the rise and tread of the stairs, we loosen the screws, *o*, and draw out B. We then produce the slides, E, E, the proper distance, so that the sides of A (thus extended) correspond to rise and tread, and fasten these slides by means of the proper screws. Then producing the slide, F, until it touches the end of a slide, E, and moving B and producing the other slide F until it touches the end of the corresponding slide, E, fasten the whole by the screws *n* and o.

This apparatus has been patented through the SCIENTIFIC PRESS Agency to John R. Drew, of the firm of Dillon & Drew, corner Natoma and Fifth streets San Francisco, to which address any applications for further information or the purchase of State rights, may be made.

* * *

A CALIFORNIA SHINGLE MACHINE.—According to the Humboldt *Times*, the new shingle machine invented by H. C. Babcock, of Eureka, Humboldt county, has been thoroughly tested, and has proved a complete success. It rives and shaves shingles on both sides. The first machine put up is now running on Salmon creek by horse power. Two horses rive and shave from twelve to fifteen thousand shingles per day, and the work is done more accurately than can be with the drawing knife. There is no clogging or trouble in adjusting the shingle bolts.

* * *

EMIGRATION TO COLORADO TERRITORY.—Gov. McCook, in his message to the Territorial Legislature of Colorado, says that he has received communications from three German colonies, one containing forty families, and the other two over 200 families in each, declaring their intention to emigrate to the Territory next spring. He adds that almost every day he receives letters asking for information. He, therefore, wishes preparations to be made for emigrants, and publications issued containing reliable statistics concerning the agricultural and other resources of the country.

Communications.

Mills and Mines of Colorado—No. III.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

Lower Empire.

The mill of the Knickerbocker Company, of New York, is located at what may be termed Lower Empire, a place of some fifty houses, and no very large population; one of those mining towns which have seen better days. It is a beautiful location, being a small valley or flat surrounded by high and rugged mountains. It is very picturesque. I prophesy for it renewed prosperity.

The Knickerbocker Mill

Has twenty stamps of 500 pounds each, and bears more resemblance to our California wet-crushing mills than the ones previously spoken of. The superintendent is Dr. S. C. Monson, of New York. To all wet-crushing mills here are copper plates in abundance—what the copper plates don't take up is lost, and they have about the meanest ores for copper plates imaginable.

There is another feature quite prevalent here, and that is, they clean up the batteries every twenty-four hours. They say they make the rock pay better by doing so. This does not speak very well for the copper plates. There are nine Freiberg pans connected with the mill, which are used now and then for sulphurets.

Rae's Electric Process.

Latterly there has been introduced Rae's Electric Process. For this there are two wooden barrels, with iron heads, twenty-seven inches in diameter and six feet in length. These barrels are so arranged that they revolve around an iron shaft which passes through them. On this shaft are zinc arms, which dip into the material as it revolves. The inside of the barrel is lined with copper. (Zinc and copper thus arranged form the two poles of an electric battery.) The pulp as it flows from the stamps is worked in charges of 1,000 pounds each. In cleaning up, the adjustable heads are taken out and the gold scraped off of the coppers.

What the result has been by this mode of working I have not been able to learn. The process was first brought out by Dr. Rae, in Syracuse, New York, where very satisfactory tests were made.

Remarks on Electrical Processes.

It would seem that we must soon, if we have not already, hit upon the right manner of working our gold and silver ores by electricity. That they are to be so worked, I am fully convinced. There are too many now experimenting in this line not to produce some practical system, either singly or by combinations. One trouble to the advancement of this system is the cold shoulder which anything new gets. There are but few men who can stand the expense of doing all the testing at their own expense, and this when no one gets encouragement. Some depend on encouragement; without it they fail, while others do not ask it. Encouragement is cheap; so let all lend an ear, cull the good and reject the bad. We have not learned all that there is to know in either electricity or metallurgy.

The weather here is quite like California—clear, cloudy, warm and cold by spells. For a few days it will be very cold, down to 10° below zero, then warm and pleasant, all owing to which way the wind blows, and whether the sun is out or in.

◆

Jonah's Gourd.—Commentators, we believe, are pretty generally agreed that the "Jonah's gourd" of the Bible was what is now known as the common castor oil plant. The original *kikayon* translated "gourd" is believed to refer to that plant. Its rapid growth, heavy shading foliage, and the rapidity with which it withers, when injured or cut down, is thought to further favor the idea.

Alaska River—The report of Captain Raymond, of the Engineer Corps, describes the Yukon river in Alaska as the third largest in the world,

The Standish Steam Plow.

[Written for the Scientific Press.]

EDITORS PRESS:—Having some years ago become interested in our swamp and overflowed lands, I have, in the last six years, devoted much thought and study to the proper reclamation and cultivation of the same. Believing that nearly all this work should be done by machinery, I have examined the plans and descriptions of every excavating and embanking machine of note in this country and Europe, as well as of the ponderous engines used in the construction of the Suez Canal, and finding none that would accomplish the work as fast and cheaply as it should be done, I have, as you are aware, invented a machine for ditching and leveeing by steam.

To the matter of steam cultivation, I have given scarcely less attention, having made myself familiar with the various devices that have been put into successful operation, as well as with numberless failures.

Unrivalled in our reaping, mowing, heading, thrashing and other agricultural machinery, we are far behind our English cousins in cultivating by steam. Indeed—must I say it?—behind even benighted Africa—only four steam plows having ever been put into successful operation in the whole United States, though large numbers are employed in England, and at least two hundred were in operation in Egypt seven years ago. Numberless devices have been tried and found wanting, and record of their failures have been published in numerous scientific works. Yet year after year, all over our country, men tread again and again the same beaten track, never once looking at the record, and, therefore ignorant of the lessons to be gathered from the experience of their predecessors, grope their way, as best they can, only to continually reduplicate the story of unsuccessful effort and disheartening failure.

Of all the devices for steam plowing,—and their name is legion,—two only have been successful, and but one entirely satisfactory. Under the former may be classed the Howard and the Fowler plowing apparatus, used in England and Egypt, each of which consists of a gang of plows drawn by stationary engines. Traction engines drawing a gang after them, have thus far been found, after numerous and costly experiments, to be impracticable.

The Fowler and Howard plows may be said to be entirely successful. They certainly plow from fifteen to twenty acres per day, in a more thorough manner, and at less expense per acre, than by the ordinary plow. But these English plows are too expensive for general use. Three have been imported into the United States, at a cost, when put in successful operation, of from twelve to fifteen thousand dollars each. It has been left to California to produce, on an entirely different principle and at much less expense, the only steam plow that can be said to be entirely satisfactory. I do not mean to say that this first trial plow is faultless. Some parts are not sufficiently strong. But the principle upon which it works is regarded by all who have given the matter a thorough examination as greatly superior to that of the English plows, and entirely satisfactory. This plow has lately been at work in this vicinity, and the following editorial from the Petaluma *Argus and Journal*, shows the estimation in which it is held here:

"From the back windows of our sanctum, we look out upon the smoke of the steam plow, as it courses back and forth across the adobe flats, cutting its 12-foot swathe, turning up the annis and soap roots, and leaving them free from dirt, to wither and die in the sun, plowing at times, two acres per hour, and giving the tough, dry, sun-baked adobe, such a cutting and turning, raking and stirring, mixing and whirling, airing and pulverizing, as it never got before, and this, too, with a plow not intended for anything like such heavy work. The adobe has found, at last, its master, and the advent of the steam plow will probably double the value of this class of lands. An acknowledged success in ordinary soil, it was doubted if it would work in adobe. That doubt is now exploded."

Let no one regard this as "rose-tinted" or extravagant. It is correct in every particular. A score of our best citizens attest these facts, as well as the careful and cautious editor of the *Argus and Journal*. Having watched this plow day after day with an eye to its defects, I endorse the whole. It is true, the arrangements for supplying the plow with wood and water were defective. Sometimes the steam would get low, and the plow would be obliged to wait. It is equally true, that a portion of the gearing was weak and frequently gave way. But iron is cheap, and there is no law against making the weak part strong, as an occasional croaker has seemed to imagine. It is a poor brain that supposes these outside and easily-avoided annoyances effect in the least the merits of the invention.

It is true, the old plow is huge and unwieldy. What of that? It was built to test and demonstrate a principle, and it has done so most thoroughly. The drawings for the new plow show that it will be neat, compact, symmetrical and *strong*. There will be no breaking of gearing there. The size and weight, as a whole, has been greatly diminished, while the cutting power is nearly twice as great as before.

It has been perfected at great expense of time and money. The resources of the inventor are running low. Capital, cool, cautious and calculating, is unwilling to invest except upon terms that ignore the right of brain-work to remuneration. Why can not something be done by the Legislature? [Our correspondent will perceive by our last issue that there is already a bill before the Legislature to aid in accomplishing the very thing he devises, in the form of an appropriation of $10,000, to be awarded to the inventor who shall place before the public the best steam plow, provided such plow shall be deemed practical. —EDS. PRESS.]

The introduction of this plow would largely increase our agricultural exports and resources, and add millions to the wealth of the State. Penny-wise and pound-foolish wiseacres may object to it; but an enlightened policy would encourage all inventors, so largely conducive to the welfare of the public. You, yourself, Messrs. Editors, are familiar with all these facts, and I ask for this article the sanction of your endorsement, believing you would thus be largely subserving the public good.

A. B. BOWERS.

Petaluma, Jan. 5, 1870.

◆

Aniline Colors Soluble in Water.—The insoluble colors may thus be made soluble according to Dr. Zinsman: A solution of gelatine in acetic acid of about the consistence of syrup is first made, and the aniline color in fine powder is gradually added, stirring all the time so as to obtain a homogeneous paste. The mixture is then to be heated over a water-bath to the temperature of boiling water, and kept at that heat for some time. Colors in this state, if a very clear gelatine is employed, will be applicable to many decorative purposes. Book-binders, paper-stainers and printers will find them useful. They may also be used to color confectionery and soaps. Before they are used for confectionery, however, it will be well to make sure that no arsenic is present.—*Mechanics' Magazine.*

Oil Boring in Pennsylvania.—"The methods used in boring are constantly changing, and are in some respects quite different now from what they were five years ago. The derricks are built higher and wider, as the wells are generally deeper, and the tools longer and heavier. Wells are bored quicker now than then; instead of five or six months, a well is now bored nine hundred feet deep in forty-five to sixty days. The crude oil is no longer shipped in barrels, but wholly in bulk, in large iron or wooden tanks on the railroad. The refined oil, however, goes in barrels."

Gold and Diamonds in South Africa. The diamond fever in Cape Colony is described in a late Boston letter. The writer says that the natives are searching in thousands, groping about on their hands and knees with iron spoons. White men stand no chance. The writer also gives an account of the gold operations at the Tatin, the fame of which has drawn miners from other parts of the country and from Australia. Some Australians, after going down eighty or ninety feet, struck the vein, and were getting from fourteen to sixteen ounces per ton by crushing.

"J. S." vs. "C. H. A."

EDITORS PRESS:—Ridicule is *not* argument. I shall not, therefore, avail myself of the rather tempting opportunity for the use of this weapon, afforded by the attack of your correspondent "J. S.," the *animus* of which becomes amusingly apparent towards its close. A comparison of this attack with its object, by any one capable of discriminating between positive assertion and the mere expression of opinion, confessedly not irrevocable, will, I think, show that a somewhat strained construction, to say the least, has been put upon portions of the letter.

While I think "J. S." does me some injustice in the charges of self-sufficiency, flippancy and undue prejudice, the letter, at least, of which would not survive the test of personal acquaintance, I freely confess that "querulousness" and "acrimony" do but faintly express my feeling toward that spirit of humbug which fosters the nonsense of "rebellious ores" as a foil to pompous announcements of impending "revolutions in metallurgy;" and, in the desecrated name of science, spreads through the land disgusting capital, discouraging labor, and discrediting our mineral resources.

"J. S." may yet discover, by personal experience, that people without a tithe of his knowledge or ability can obtain, for the crude, abortive conceptions of their brains, that pecuniary aid and favorable consideration which he will with difficulty procure for the finished and proved result of years of patient toil and intelligent investigation. There is such a thing as speculation in processes, as well as in stocks.

With these remarks I dismiss the subject, not to again recur to it unless it should occur to some one to assail the *matter*, rather than the *manner*, of my remarks on rebellious ores and new processes.

C. H. A.

◆

Petroleum Explorations in India.—The English Government has selected Benj. S. Lyman, an American geologist, to make a survey of the oil fields of Indostan, and of the valley of the Himmaleya Mountains. The *United States Railroad Register*, in mentioning the fact, says: "The exceptional character of our Pennsylvanian and Canadian deposits is marked by this enforced selection of an American geologist by the British Government. English geologists are educated in a school of nature rich in coal, but poor in oil. Disturbed and limited, by movements which have been almost incessant in all ages, the English formations are irregular to the last degree; and so cleft and laminated, that nothing of the organic substances, animal and fucoid, when turned to oil, could be retained. But the principal formations were deposited in the ancient seas of this continent under such regular and general conditions, that they spread for hundreds and even thousands of miles, and are superposed with a wonderful conformability. Our oil was forbidden to escape, and hermetically sealed for future use by sheets of mud and layers of clay, hundreds and, in some districts, thousands of feet thick."

Porphyry Pavements.—The Cincinnati *Gazette* says, that in St. Louis somebody had some limestone to sell at four dollars per square, and somebody else some porphyry at twenty-one dollars and eighty-nine cents. It was decided to try porphyry for paving 8,000 squares. Now it is found no better than limestone—indeed not as good—and is already breaking up. The Council is in doubt whether to pay the contractors $14,000 to be released from the contract, or to proceed with the rest of the work. Over $100,000 has already been thrown away.

A Good Idea.—An English physician proposes that druggists be compelled by law to put upon the label of a bottle containing any poisonous substance, not only the word "Poison," as is now done, but also the antidote for that poison, in each particular case; with directions for proceeding in case it is taken by accident, until a physician can be procured.

Pigs.—The pig is naturally the neatest animal on the farm, and yet most farmers compel him to be the dirtiest.

Mechanical Progress.

Improvements in Agricultural Steam Engines.

We condense the following from *Engineering*: "To an unprofessional observer, the portable engine of to-day may appear the same as those exhibited seven or eight years ago; but a careful examination will show numerous points of improvement. Thus, the workmanship generally is better; proportions also are better, and more care is taken to provide ample bearing surfaces and efficient means of lubrication. The pressure of steam carried is gradually creeping up, and portables working regularly at 70 lbs., 80 lbs., and 90 lbs. per square inch are now to be met with. With higher pressure have come improvements in the boiler work. Still there is room for improvement in this direction. We should like to see the practice of placing a large manhole at the side of the fire-box casing abolished, and greater facilities for washing out provided in the form of well-arranged mud-plugs. A mud collector under the barrel of the boiler would do good service, and add scarcely anything to the cost. The flat-topped form of fire-box casing, having the crown stayed directly to the crown of the inside fire-box, which is now becoming a favorite with many locomotive engineers on the Continent, might be adopted for portable engines in many instances with advantage, and with a saving not only of dead weight, but we believe of cost also; while in all engines worked at the higher pressures we hope to see longitudinal lap joints superseded by welded joints or by butt-joints with inside and outside covering strips. All engines, too, should be provided with two safety-valves, and more care should be taken to protect the boiler by efficient cleading. As pressures increase, it will be found advisable to relieve the boiler of the strain due to the working of the engine by connecting the cylinder and crank-shaft plummer-blocks by framing of some kind, the boiler being of course allowed to expand and contract freely. On the Continent this is now very generally done by the fixing of the engine proper on a cast iron base plate, which is in its turn fitted to the top of the boiler.

Then again, we find that steam-jacketing is now becoming the ordinary rule with all the best makers. Arrangements of some kind for heating the feed water by the exhaust steam are now supplied by almost all makers, and the practice of leading the exhaust pipe through the boiler is becoming a thing of the past. In the construction of the details, steel is coming extensively into use, and portable engines with steel crank shafts, piston rods, guide bars, and even connecting rods, are now far from rare."

A French Compressed-Air Brake.—This differs from the one which we have before described. The inventor is Auguste de Bergue: "When the steam is cut off the air may be admitted through adit valves in front of the engine to the exhaust pipes, and thence to the steam chests, where it forms a sort of cushion of resistance, the momentum of the train compressing the air constantly until the whole force is deadened and the cars finally brought to a stand-still. The compression is so even and gradual that all shocks and jerks are avoided, and the stoppage is effected in about the same time as that required by the friction brakes, while the wear and tear upon wheels and tracks is wholly obviated. In cases of emergency it may be reinforced by the hand-brakes, and a train going at the rate of 30 miles an hour be brought to a sudden stand."

Rubber Tubes Made Gas-Tight.—M. Jouanne's method is to give the tube a thin coating of a varnish made by dissolving two parts of gum arabic and one and a half of treacle in seven parts of white wine and three and a half of strong alcohol. The alcohol is added slowly, and at the last,—and with constant stirring, or the gum will be thrown down.

New Boiler Jacket.—One of the latest plans consists in surrounding the boiler with a sheet iron envelope which is larger, and filling the space between with plaster of paris. When this becomes hard, the envelo e may be removed if desired.

Imitations of Damasked Steel.

In a review of Crookes and Röhrig's translation of Kerl's Metallurgy, the third volume of which is just out, the London *Mining Journal* of Dec. 11th thus remarks upon the method in use at the Don Steel Works, Sheffield, to produce imitations of damasked steel: "It was introduced by Mushet in 1801, and consists in melting malleable scrap iron with charcoal and oxide of manganese, in crucibles directly, without using any blister steel. The furnaces are 288 in number, each being of sufficient size to contain two pots, charged with 100 lbs. With the whole number at work, a casting of twenty-five tons weight may be made, the pouring of the 576 pots being completed in five minutes. In order to keep up the supply, the pots are conveyed from their melting holes to the casting-place on small barrows, instead of being carried by tongs, as was formerly the custom. The steel produced is to a great extent employed in making castings for immediate use, such as railway crossings, wheels and bells, instead of being run into ingots to be subsequently worked up under the hammer. The molds used for this purpose are made sufficiently refractory by the use of a thin layer of burnt clay produced by grinding old melting pots; this is applied immediately over the pattern, the remainder of the box being filled with ordinary molding sand. This method of steel casting was first practiced at Bochum, in Westphalia, where it is still carried out on a very large scale. Castings made to pattern, and not intended to be subsequently hammered, must be annealed, and allowed to cool very slowly. A very similar process has recently been introduced in the United States by Messrs. Smith, of Philadelphia, for casting iron, and some artistic specimens recently exhibited at the Boston Institute of Technology excited great admiration."

Forty-Horse Turbine on Thirteen Feet Fall.—Gwynne & Co., London, have built a turbine forty-two inches in diameter to take the place, at a Yorkshire flour-mill, of an iron water-wheel nineteen feet diameter and twelve feet broad. It does double the work with the same amount of water. *Engineering* describes and figures it. We copy part of the description: "The water is conducted by pipes to a cast iron spiral casing which rests on a strong cast iron cylinder with six large openings for the escape of that part of the water which flows out at the bottom of the wheel. This cylinder forms the foundation plate of the turbine, and carries a bearing, lined with lignum vitæ, for guiding the bottom end of the turbine shaft, the weight of the shaft and wheel being carried by a strong thrust bearing at the top. In the spiral casing is fitted the guide wheel, which can at any time be taken out, by unscrewing a few bolts, without disturbing any other part of the turbine, should this be necessary for clearing the water ports or for repairs. The guide wheel has twenty guide vanes, through which the water is directed, in a nearly tangential direction, to the wheels. The buckets of the wheel are formed in two symmetrical halves, joining in the middle in a sharp edge, and the water enters the buckets at this edge, which divides it into two halves, one half flowing through the upper half of the buckets, the other through the lower."

Large Single Standard Steam Hammer. *Engineering* for Dec. 17th illustrates and describes a 4-ton steam hammer recently constructed by Berry & Sons, which is the largest ever made with a single standard. "The standard is built up of wrought iron plates and angle irons, forming a strong box girder which is united at the base to a massive cast iron base plate. The cylinder is twenty-eight inches in diameter and five feet stroke, and is bolted firmly to the side plates of the standard, these plates being made of double thickness at the point of attachment. The cylinder has top and bottom flanges cast on it which fit the upper and lower edges of the side plates, and relieve the bolts of strain. The hammer bar is thirteen inches in diameter, and is forged in one piece with the piston."

Titanic Steel.—The London *Mining Journal* says that one tool made of "Mushet's special steel," the product of the Titanic Steel Co., is equal to about twenty made of any other. Some works are using it entirely for lathe tools and drills.

Scientific Progress.

A Final Zoic Catastrophe.

The following is part of the conclusion to a memoir by Prof. H. Wurtz. We are obliged, by lack of space, to reduce and condense:

"There are chemical changes now active on the earth's surface, whose continuance must inevitably bring about the final extinction of man, and ultimately that of all other life upon our planet.

What furnishes the actual fundamental chemical nutriment or pabulum of vital existence? No chemist will contradict, when I say that it is the carbonic acid of the atmosphere. How long is this going to last? There is one mode of consumption, active and continuous, which will ultimately exhaust the air of its carbonic acid, and thus put an end to organic life. This agency is itself due to vital influences. It is that by which marine animals with calcareous shells or skeletons secrete carbonates from the ocean water, the carbonic acid of these carbonates having been originally derived from the atmosphere. Such carbonic acid thus passes into solid forms, permanent and forever unavailable thereafter. This is where the great machine runs down, and Affinity obtains its final victory over its mysterious antagonist, Vitality.

Whenever the last molecule of carbonic acid produced from the combustion of all the carbon on the earth shall have been locked up in this shape, no form of life now known to us can any longer be possible, and the present Zoic Cycle must end. Comparatively and geologically speaking, the end is near; though millions of years may yet intervene. But long before this end of *all* life, the atmosphere must gradually diminish in its capacity to produce food suitable for man. Man, by burning up the carbon stored in eras past in the earth's *viscera*, is doing his utmost to preserve the status of the machine, possibly even partially and temporarily *rewinding* it; but it must still continuously run down. In the oceanic depths, this precious constituent of the air is continually undergoing

"A sea-change
Into something rich and strange,"

Never to reappear in form available to life, until indeed that time shall arrive when "the elements shall melt with fervent heat;" and, when, under the influence of this heat, the calcic and magnesic carbonates shall be converted into igneous silicates, rendering up again the treasure of carbonic acid in their marble grasp, the atmospheric oxygen, representative of Affinity, enemy of Vitality, shall also then be at least partially withdrawn by oxidation of sulphides and of ferrous oxide; and the earth be thus far advanced in preparation for a new Zoic Cycle."

Mollusks Akin to Vertebrates.—A letter has just been published from Prof. Kupffer, of Kiel, the distinguished embryologist, in which he states that startling vertebrate features are traceable in the early stage of development of a species of *Phallusia* which he has been studying. The new London scientific periodical, *Nature*, says:

"He reserves for the present the details about the exact formation of the nervous system, but quite confirms the fact of the existence of a notochord. He says: 'At this stage one could not imagine a more beautiful model of a vertebrate embryo, with the neural tube on one side of the axis and a visceral tube on the other.' He describes the neural tube as not merely an almost spherical vesicle, but as prolonged in the form of a fine hollow thread into the tail above the notochord or axis."

Dr. Livingstone.—An extract of a late letter from Dr. Livingstone is as follows: "The work to be done is only to connect the sources which I have discovered from 500 to 700 miles south of Speke and Baker's with their Nile. The volume of water which flows north from latitude 12° south is so large, I suspect that I have been working at the sources of the Congo as well as those of the Nile. I have to go down the eastern line of drainage to Baker's turning point. Tanganyika, Nyige, Chowambe (Baker's?) are one water, and the head of it is 300 miles south of this. The western and central lines of drainage converge into an unvisited lake west or southwest of this. The outflow of this, whether to Congo or Nile, I have to ascertain."

Polarization of the Corona.

Prof. Pickering figures and describes, in the *Journal of the Franklin Institute*, the form of the polariscope with which his observations were made. A sheet iron tube is closed at one end with a plate of quartz, and at the other with a prism of Rochon, which has the property of giving two images of any object seen through it, separated by an angle of nearly 3°. We quote:

"Looking through the tube we see two images of the quartz touching, but not overlapping. When the light is polarized, these images assume complementary tints, which vary with the plane of polarization and the thickness of the quartz."

With this instrument, which he says is very delicate, Prof. P. draws the conclusion that the light of the corona is unpolarized. He closes the article thus:

"The strongest argument against the polarization of the corona is furnished by the spectroscope; the presence of bright lines and absence of dark ones, as observed by Prof. Young, denoting incandescence, a view strengthened by the consideration that each square centimetre of the surface of the corona would receive several thousand units of heat per minute. I am well aware that my results are at variance with those obtained by previous observers, including some of the most eminent astronomers of the day, but, as far as I can learn, this form of polariscope has not been used for the purpose, and therefore hope that my experiment may be repeated during the next eclipse."

Another Oxygen Process.—The London *Mechanics' Magazine* has the following: "The mineral sources of oxygen being comparatively expensive, MM. Montmagnon and Delaire have betaken themselves to that cheap reservoir, the atmosphere, and have further availed themselves of the discriminative action of wood charcoal and water on certain saline solutions. According to our authors, 100 liters of fresh wood charcoal will, when exposed to atmospheric air, occlude 925 liters of oxygen but only 705 liters of nitrogen. Now it would appear that when the charcoal saturated with gas is thoroughly saturated with water, there will be expelled 650 liters of nitrogen but only 350 liters of oxygen. Thus we have now left in the pores of the charcoal 575 liters of oxygen and only 45 liters of nitrogen; that is, oxygen practically pure for industrial purposes. To extract the gases, the authors employ a pump, and they tell us that if again exposed to charcoal, the oxygen will be obtained almost pure. There can be no doubt of it. They give no account of the cost of oxygen; but it is clear that it will be represented chiefly by the machinery and the cost of working it."

Molecules, not Structures, Producible in the Laboratory.—The following is from Dr. Debus, before the Chemical Section of the British Association: "Alizarine, the beautiful compound of the madder-root, has been obtained by artificial means in the course of the year by Messrs. Lieberman and Græbe. Results of such a nature render it highly probable that, at no distant period, it will be in our power to prepare, artificially, nearly all, if not all, the substances found in plants and animals. Here I must not be misunderstood. Organic structures, such as muscular fiber or the leaves of a tree, the science of chemistry is incapable of producing, but molecules, like those found in a loaf, or in the stem of a tree, will no doubt one day be manufactured from their elements."

Sheffield Scientific School.—The Geological Department has received,—says the last annual report,—several very valuable additions. Among these, the most remarkable is a slab with twenty-one footprints of the Otozoum upon it, each of which is about fifteen inches in length. The slab is of a correspondingly gigantic size, measuring twenty by thirty feet.

Photographs of the Megalithic Monuments.—At a recent meeting of the Ethnological Society, London, it was stated that a scheme is in progress to obtain funds for the purpose of procuring a series of photographic representations of the megalithic monuments found in England and France, and if possible in other parts of Europe and in Algeria.

Mining Summary.

THE following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

CLAIM SOLD.—*Chronicle*, Jan. 8th: The Good Hope has been sold to H. F. McCarty for a Philadelphia Co. This claim is in the Alpine District, three miles from Markleeville. We learn that work will commence in a short time.

COMMENCED.—On Wednesday work was commenced on Buckeye No. 2 claim by the Exchequer Co. of London. On Monday, additional men will be put on.

GOOD AVERAGE.—Some ore from the Pennsylvania mine assayed at Silver City averaged $62.99 in gold and silver to the ton.

SCHENECTADY.—*Miner*, 8th: Fine ore is now being taken out. Rumor has it that the building of a quartz mill will be commenced by the Co. within the next 60 days.

TARSHISH.—The same journal gives a history of the ore deposit from '62 to date. The Monitor C. M. Co. and the S. S. M. Co. are now taking out the genuine Tarshish ore, and skeptics in regard to its value are advised to reserve their decision for a few months.

AMADOR COUNTY.

ONEIDA.—*Ledger*, 15th: We learn that the mill will soon be started again. During the past month extensive repairs have been made, and it is in splendid order. The shaft has been pushed with vigor, and is in condition to be worked to advantage.

WATER.—We learn that a survey is to be made to bring the Butte ditch on the hill above Sutter Creek for the quartz mills.

BUTTE COUNTY.

REPORTED RICH STRIKE.—Oroville *Record*, 15th: We hear a rumor that the Cherokee Flat Blue Gravel Co., have struck dirt that will pay by the million. They are tunneling into Table mountain, and are liable at any day to break through the rim rock into pay dirt. If the reports are true, Cherokee has quadrupled in value.

THE RAIN.—The miners at Cherokee Flat commenced washing on Thursday morning, but they will not be able to work many days unless the rain continues.

CALAVERAS COUNTY.

RAILROAD FLAT.—*Chronicle*, 15th: Chapmen & Co. are negotiating for additional machinery; the engine at their mine not being of sufficient power. "Salty" & Co. have been taking out very rich ore; the walls enclosing the vein and vein-matter, are ten feet apart and present unmistakable indications of a true vein....Sundermyer & Co. discovered a new vein, parallel with their mine, near Wet Gulch. The ledge was considerably broken up at the surface, but in a few feet a solid vein appeared, a foot wide, containing considerable gold, visible to the eye....Jerome ——, struck rich gravel near Nelson's Gulch, in a ravine which has paid well, up to a lava formation. He sunk a shaft through the lava 30 feet deep, finding gravel on the bed-rock which prospects as high as $4 to the pan....The sulphuret works of Mr. Thoss, at West Point, are expected to be running this week. Several lots of heavy sulphuret ore are in readiness here, to test the efficiency of the "Thoss process."

EL DORADO COUNTY.

OREGON HILL.—Placerville *Democrat*, 15th: Shepherd & Co. are still hammering away with the Pacific mill on rock from the Oregon Hill mine, to the tune of from $2,000 to $3,000 per week.

GOLD DUST.—Shipped, last week, from this place, $9,000. The amount shipped in 1869, $410,000. The total yield for El Dorado county for that year will not vary much from $1,000,000.

INYO COUNTY.

CERRO GORDO.—A Los Angeles telegram dated 11th, says: Five tons of argentiferous galena arrived this afternoon from the Union Smelting Works at Cerro Gordo.

LOS ANGELES COUNTY.

JAPALA—A telegram dated 13th is as follows: An average assay of rock from a newly-developed ledge in the Japala Silver mine, gives $188 to the ton. It will soon be actively worked.

NEW STRIKE.—Telegram, 15th; Rich diggings have been struck near Soledad cañon, three miles from Sears' mill, by two Mexicans. They took out $450 with one mule and a very small arastra, from three tons of rock.

NEVADA COUNTY.

BOWERY.—Grass Valley *National*, 12th: This company are now taking out ore from drifts in the 72-foot level, which will pay $100 to the ton. They are hauling to the Gold Hill mill. A crushing of 95 tons, made a few weeks ago, yielded over $100 per ton.

WHITE PINE.—This ledge, near Deadman's Flat, will be prospected again. Lumber is being hauled to the ground, and it is the intention to commence sinking a shaft.

WM. HENN MINE.—Same of 15th: We saw a load of excellent ore, from this mine, to-day, being hauled to Larimer's mill. Gold in abundance could be plainly seen. The company are now down over 200 feet, and prospects are flattering.

O'CONNOR.—*Union*, 13th: We saw some rock yesterday at Ben Macauley's mill, from the O'Connor, or rather the Grass Valley Consolidated mine. Good judges say that the forty tons will give $30 per ton. The hoisting works are complete and in good order. A thirty-five horse power engine is used. The ledge is from 3 to 6 feet thick, and is opened up by drifts and shafts extensively.

WEST EUREKA MINE.—Same of 16th: Work is being prosecuted with vigor. The ledge in the shaft looks well, and bears heavy sulphurets. In a week or two the miners will commence drifting.

MANZANITA CLAIMS.—*Gazette*, 13th: Marselus & Maltman started up their hydraulic works last week. The apparatus is of the most improved style. They have one of the (32-inch) Globe nozzles, and are running from 650 to 700 inches of water. This is forced through an aperture of 5⅞ inches in diameter, the head being 175 feet. The stream is of immense power, and does 50 per cent. more work than the same amount of water with the same head would do if divided into four streams. They have fifteen Chinamen employed. In addition they employ four or five white men, who are engaged in blasting. There is a deep bed of pipe-clay lying over gravel, which is blasted out, and then picked into pieces that will run through the flumes. The entire length of flume is 3,500 feet. The tunnel has been run 1,100 feet, and another year will be required to complete it. On the first of January, the running was suspended, but will be resumed if sufficient rain falls to warrant a fair supply of water. Mr. Maltman thinks we have scarcely commenced placer mining in this county.

CHANCE FOR MINERS.—Same of 15th: The California mine, mill and hoisting works will be leased on favorable terms. The mine is in good condition to work; the machinery is new and of the best kind.

PLACER COUNTY.

NEW AND RICH DISTRICT.—Grass Valley *Union*, Jan. 14th: A party organized here three weeks ago for prospecting, report success, having struck quartz in the eastern part of Placer. A location called the Champion has been made, and rock brought to this place to be tested. The Champion is from two to six feet thick, and stands almost perpendicularly. It is so situated as to be easily drained, and convenient to it is all the water needed for hoisting and other purposes. The prospectors, who are men of experience, are sure that they have discovered a district which will be one of note. The rock shows beautifully in free gold, and is not picked rock.

PLUMAS COUNTY.

RUNNING.—Quincy *National*, 8th: We hear that Judkins & Kellogg have rented and are running the Caledonia quartz mill. They are also extending their ditch to the McClellan ravine.

A SLUG.—Waggoner, in the old Cummings claim on Dutch Hill, took out a 28-ounce chispa one day last week.

ENGINE.—The Indian Valley Co. (Blood & Treadwell) has a water engine on the way to furnish power for the mill. It weighs about 7,000 pounds. The owners expect to have it running within two months. It is a recent invention.

EXCITEMENT.—Messrs. Banker, Lowrey & Whittaker have struck a pay streak in the gravel in one of the ravines opposite Greenville, and are now averaging about a half ounce per day to the hand. A large number of claims, covering acres of ground, have been located. As soon as a supply of water can be had, the claims will all be worked.

SAN BERNARDINO COUNTY.

COSO.—Los Angeles telegram, 12th: Receipts of bullion and dust here are quite large, a steady yield of dust and small lumps of gold being received from the Coso mines, San Bernardino county.

SIERRA COUNTY.

NORTH SIDE—SLATE CREEK.—Gibsonville cor. of *Messenger*, 15th: Cook's tunnel at Whisky Diggings is in 700 feet, and progressing. Next above and running for the same ridge is the tunnel of Messrs. Porter, Brown & Stewart. This was several years ago run 900 feet, when work was suspended. It is now resumed in a business-like manner. Gravel was struck near the commencement, but very little pay found, and the present object is to push ahead in search of a more extensive channel in the rear. Old Pilot Tunnel No. 1, run in 500 feet to hard cement ten years ago, is being opened again by Hoffenden, McDonald and others, under a belief that the cement formerly struck is but a narrow dike with a gravel channel behind it. The Niagara claims are laid up. The North American Co., with a large yard of gravel, is awaiting water. These claims lie so high that only the melting of snow will give a supply. They have 800 feet of their new tunnel completed. Phœnix and Gem Redding companies are said to be getting out first-class gravel. There is not much doing in the old Swiftsure claims. One or two are skirting about for pay gravel. The Nevada Co's lower diggings, which they work through an incline from their tunnel, have been flooded since water to run their wheel failed them. They have them cleared, and are at work below now.

GRASS FLAT DISTRICT.—The same journal publishes the new laws of this district, formerly known as Gardner's Point District, which were adopted at a Miners' Meeting held on the 6th of November last. Ten dollars in coin or work, holds a claim for one year, each year dating from December 1st.

SISKIYOU COUNTY.

QUARTZ.—Yreka *Union*, January 14th: It is rumored that a good vein of quartz has been struck near Maxwell's mill, Shasta Butte. Pieces of float rock, containing gold, have been found in that vicinity for the last seven or eight years.

Arizona.

POINTER.—Prescott *Miner*, January 1st: We are indebted to "Uncle" Billy Pointer and Thos. W. Boggs for specimens of ore from the Pointer lode, Walker's District. One is decomposed, showing free gold; the other is said to contain plenty of gold in sulphurets.

PROSPECTING PARTY.—To-morrow, some 25 or 30 frontiersmen will start for the country north, with the purpose of giving it a thorough prospecting.

BIG BUG.—Messrs. L. C. Gray and F. H. Wunderlich arrived in town Thursday, from Big Bug District. When they left, the mill was running. It was crushing ore from the extension claim on the Eugenie lode. The ledge was looking first-rate. Hitchcock and McCarthy, who were running the mill, were well pleased with the prospects.

VULTURE.—A Los Angeles telegram of the 17th says: Three hundred ounces, gold bars, were received from Arizona within the past few days, by one house. A large portion of it was from the Vulture mine.

Colorado.

AT GOLD DIRT.—Boulder *News*, January 4th: We learn that Sam. Conger has discovered another silver lode between the Boulders, with a large crevice, samples from it assaying over $15,000 per ton. The Grand Island lode has been worked the past fall, and the ores hauled to Black Hawk, 18 miles, and sold to Prof. Hill, netting the miners over $100 per ton, when properly assorted.

SMITH & PARMELEE. — Central City *Herald*, January 4th: The ore lately taken from the mine has given a larger yield than for some time back. About sixty hands are now employed; the largest force by any single company in the mountains. The 25 stamps are kept at work to their full capacity, night and day.

BALD MOUNTAIN.—The warm weather has enabled the mills in Nevada and Black Hawk to resume work. Chatfield is running Pyrenees quartz. Whitcomb, Clayton's, and the Quartz Hill companies are running to their full capacity. The latter has a new pump, which supplies all the water wanted.

MINING ITEMS.—Georgetown *Miner*, 6th: The Par is turning out large quantities of very rich ore....Huepeden & Co. shipped, during December, silver bullion $5,951.74, coin value....The grading for the new reduction works of Stewart is progressing. ....A new discovery has been made on Sherman mountain, the surface ore of which assays $76.27 per ton....The new shaft on the Caledonia is being sunk with good results. The walls are well defined, and the ore deposit is looking well....The Monster lode crevice is wider and the mineral deposit stronger than was supposed....Frank DeLamar presented us yesterday with some fine specimens of ore from the North America lode. Work is going on rapidly on the lode.

BULLION FOR 1869.—The same journal gives a full report, with details. The total value of bullion, gold dust and ore shipped during the past year, is $400,000.

SHERMAN MOUNTAIN.—An assay of selected ore from the E Pluribus Unum gave a yield of $4,500 per ton, and 65 pounds of very select, treated at Stewart's, by smelting in crucibles, gave a yield of $13,000 per ton.

EDGAR MOUNTAIN.—At the Bank may be seen specimens from the Shaffter lode, with metallic gold, that would in California create a sensation. Yet the shaft is only 15 feet deep. Ten tons of ore are now under treatment at the Fairmount mill.....Discovery shaft on Edgar lode is 74 feet deep. Drifting is going on at 42 feet. It is a true fissure vein, with a strong deposit of pay mineral.

REPUBLICAN MOUNTAIN.—The Toronto tunnel cuts the trend of the richest belt of lodes in the country....A contract has been let to drive Griffith tunnel 300 feet.... Par tunnel is to be driven 600 feet further.

ITEMS.—Central City *Register*, 13th: The Franklin Co.'s mill in Gilson gulch has been running on Seaton ore with success.... Brastow's stamp mill in Lake gulch is running on ores from the California lode, Nevada, for Stalker. Cheney is repairing his mill....Chas. H. Morris has accepted the management of the Whale mine....L. A. Klein, of the German claim, brought in a pan heaped full of specimens that fairly glistened with the gold, which was all through them. The weight is about eighteen pounds, and the value estimated at $500.

GILSON GULCH.—We saw nearly a thousand ounces of silver retort the other day at the Franklin mill. A lot of Seaton ore assayed 300 ounces to the ton....The Freeman lode has 4 to 6 inches solid ore.... The parties who have leased Kinney's claim are down 120 feet, and have a vein 6 to 10 inches wide which is worth 120 ozs. per ton.

Montana.

BULLION FOR 1869.—*New North-West*, Dec. 31st: Deer Lodge county produced in 1869, $24,270,000 in gold, besides $100,000 in silver from Philipsburgh.

RUNNING.—The James Stuart mill at Philipsburgh is running constantly on Hope ore. The machinery is in excellent order. Times are brightening.

ROCHESTER.—Cor. of same: Hendree & Woodworth's mill is pounding away on rock from the French lode. Hitchcock & Williams are running a tunnel on Kitty Redus lode, taking out fair quartz. Lewis & Marshall are sinking on the Fellowcraft.

CEDAR CREEK MINES.—Correspondents generally confirm the reports of the richness of the new mines. "Old Stone" says jumping is going on, and that before June 1st there will be hard fighting. Claims have also been taken up in Oregon gulch, the north fork of Cedar creek. Few claims have been opened yet. No chance left to get claims, though there will probably be plenty in the spring, for many of the farmers of the county own claims. He thinks it will be as good a camp as Alder.

HIGHLAND GULCH.—Little doing, except on the Only Chance lode, and in the gulch below town. In Basin gulch, Allen, Mills, and Boyer have struck pay, and Leach & Hotchkiss have refused $5,000 each for their ground.

PHILIPSBURG.—Cor. of Helena *Gazette*, Jan. 16th: The mill is running; but three more might be added without pressing the mines, or reducing the price of crushing. The present machinery will reduce twenty tons per day; at $20 per ton, here is $400 per day, while the cost cannot be estimated at more than $120.

RADERSBURG.—Cor. of same: There has been some excitement in this camp within the past few days, over the discovery of new diggings in Keating gulch. As high as three dollars to the pan has been found.

THE NEW MINES.—A Cedar Creek letter from James and Barney Haney says: "On No. 14 above discovery the pay streak is 32 feet wide and 7½ feet of gravel, and on No. 26 it is 4½ feet; above this there is not more than 2 feet of gravel. There is water on 9 miles of the gulch, when it sinks and there is none on the 3 miles below. The highest prospect found on Nos. 14 and 26 above discovery, is twenty cents to the pan. There are from 50 to 60 men coming and leaving the gulch every day."

"Stampeder" writes that the accounts are very conflicting. Another writes that the whole county is staked off, and that every man must be there by May 15th, or his claim is jumpable. Another says the gulch is narrow and the claims shallow. John Wing writes: "The more I see and hear the more I am convinced of the uncertainty of there ever being much of a camp here. Indeed, the chances are ten to one that it will prove a small camp, and probably a second Elk Creek bilk. To say the least, if the mines are extensive, they have yet to be found."

MORE BRICKS.—We saw yesterday, at the banking house, two nice gold bricks. One was the product of the I. X. L. mill, and turned the scale at 192 ozs. The other belonged to the Whitlach Co., and was the result of their last run in the Diamond City mill. This weighed 172 ozs.

Idaho.

FLINT DISRICT.—*Tidal Wave*, Jan. 13th: From. W. H. Clark we learn that Flint is still alive. The Baldhead, the Faderland, the Never Sweat, the Tenants in Common, the Justice, and two other companies, are at work. Clark brought over the result of his first clean-up from the Twilight, which we hear looked healthy. There is a report that the Rising Star intends to resume work in a short time.

Nevada.

COPE DISTRICT.

ORE.—Elko *Independent*, Jan. 12th: Six tons of ore from the Mountain City Mine, reached this place yesterday. It is to be forwarded to San Francisco for reduction.

MILLS.—The Atchison & Drew mill, at Mountain City, is running on good rock, and the Canty mill will be started to-day on choice ore.

NEW DISCOVERY.—We learn that George Cowles has discovered a fine quartz ledge seven miles from Mountain City, in the direction of Bull Run. The ledge comes up boldly, and the top rock assays $350 to the ton in silver.

MINING SALE.—Same of 15th: One hundred feet in the Argenta mine was sold last week to Dixon & Riley for $5,000 in coin.

HUMBOLDT.

GOLD RUN DISTRICT.—*Register*, 15th: A shaft 67 feet deep has been sunk on the Register vein, which, at that depth, is three feet wide. The ore is argentiferous galena, and averages 60 per cent. lead, and from $49 to $60 per ton silver. Several tons have been shipped to San Francisco.

RAILROAD DISTRICT.—*Independent*, 13th: R. F. Hafford this week brought some gorgeous specimens of copper-silver ore from the Indian Chief, a ledge discovered thirty days ago near the summit of the railroad range. The vein is six feet in width, and shows a regular foot-wall at the surface. The ore assays in silver from $60 to $170, and averages 50 per cent. in copper.

REESE RIVER.

BULLION.—*Reveille*, 10th: Yesterday the Manhattan Co. shipped six bars of bullion, and to-day five more, which, with the six bars Saturday, make the total $29,674.54, shipped overland to New York.

SECRET VALLEY ORE.—Same of 11th; We gave last week the working of fifteen tons of ore, which averaged $550 per ton, produced by the Corwin & Paige mine. We were shown last night three samples of ore from as many claims. The miner who exhibited the dark, waxy looking rich ore. told us of several large lots that were about to be hauled to this city for reduction, the yield of which has been estimated at over $650 per ton.

HOT CREEK.—Same of 13th: This district is again attracting attention. We learn of important operations to be commenced in the early spring.

SARATOGA.—Same of 15th: This mine, one of the early locations on Lander Hill, belongs to the New York and Austin Co. The lessees have tapped a chimney of superb ore. Twenty tons have just been worked at the Manhattan mill, the first class of which—a small lot—yielded upwards of $3,000 to the ton. The yield of the second class was large, but we have mislaid the figures. Even the finely pulverized matter, which is usually thrown upon the dump, yielded at the rate of $238 of silver per ton.

BULLION.—For the week ending this date (15th) the Manhattan mill produced 16,472 ounces of bullion.

WASHOE.

OPHIR.—*Enterprise*, 11th: The company are hoisting away again with two tanks. The pump is also kept in constant operation.

IN OPERATION.—Same, 13th: Nearly all our mills are in full operation on ore, principally from the Comstock range—though several so-called "outside" mines are yielding good ore.

GOULD & CURRY.—14th: An assessment of $15 per share is levied.

The Mariposa mill, on Cedar ravine, is now running on Hale & Norcross ore, and the Summit mill on ore from the Sacramento, Cedar Hill.

SUTRO MINE.—16th: A considerable amount of ore has been taken from this mine and will be sent to the Evans mill, on Cedar ravine, below the Mariposa, this week for crushing.

WHITE PINE.

WEEKLY MINING REVIEW.—*News*, 15th: Nothing startling for the week. We are just now in the hibernating condition, and a few weeks of dullness must be counted upon. The bullion shipment for the week is very light—$46,397.33. Operations are resuming in almost every one of the undeveloped mines.

BULLION FOR THE YEAR.—Total shipped from White Pine District for 1869, is $1,938,888.44. That shipped from the 20-stamp mill at Newark is not included in this statement.

ITEMS.—Aurora Consolidated takes out 20 tons per day. Ore improves in quality. ....Aurora South has 5,000 tons on dumps, and work is progressing favorably....Auburn has 200 tons out, and waits for a mill. ....Farewell is now shipping ore to the Chicago mill....The agent of a New York Co. has secured the Grant & Colfax.... Original Hidden Treasure talks of a tunnel. ....Mountain Boy shaft 20 feet down. Ore to be worked at Staples' mill....Minor's Dream wants ore milled....Manhattan is pushing work vigorously....Mineral Point has rich base metal....Vulcan has struck it at 18 feet....Pogonip & Othello have shut down until Spring....Silver Vault prospect was never better.... Truckee has 50 tons on dump; has suspended operations for 60 days.

MILLS AND FURNACES.—Wiland & Co.'s furnace has resumed operations. Now running on ore from the Cody and Imperial. Capacity, 3½ tons bullion in 12 hours. Shipment this week, 18 tons bullion of average of $94 silver silver the ton of metal....Rathburn & Co's furnace has been relined, and was fired yesterday....Van Wyck & Co's furnace will start up next week....Silver Springs smelting works at Shermantown, are again in full blast....The Hawthorne Co. has nearly completed its furnace....A smelting furnace has been in operation for ten days in Clover District....Staples Mill Co. have bought the dump of the Sagebrush mine, containing 300 tons of fair ore. ....Bartlett & Vreeland mill is working ore from the Hemlock mine, on Pogonip Flat.

OUTSIDE DISTRICTS.—*News*, 15th: Outside districts are languishing for want of capital—except, perhaps, Eureka, Egan, and Ely. The latter has met with a check in passing below base and finding free milling ore, just as its large smelting works were in full blast. Egan is proving more extensive and richer than it was thought to be. Eureka is building furnaces at a rapid rate, and is already shipping base bullion. Cave, Patterson, Robinson, San Francisco, Nevada, Warren, Snake, Silver Cañon and Silver Creek districts are noiseless. Robinson (41 miles east) has a new 5-stamp mill, motionless, incomplete, and under attachment. Silver Park and Shoshone will each have two mills early in the spring; and Cooper, Sacramento, Piermont and Kern each expect one.

New Incorporations.

The following have been recorded in the Secretary of State's office, Sacramento:

NENADA AND MOUNTAIN LAKE ICE CO.—Jan. 10. Capital stock, $100,000. Place of business, Nevada City, Cal. Object: To procure and sell ice, pack and refrigerate meats, and buy and sell stock in California and Nevada.

HARTWELL M. CO.—White Pine, Nev. Jan. 6. Capital stock, $1,680,000. Trustees: Geo. F. Hartwell, Chas. B. Gould, Henry J. Young, Joseph Fuller and David Avery. The principal place of business to be in San Francisco.

HOME PILE TUNNEL CO.—White Pine. Jan. 6. Capital stock, $1,640,000. Trustees: James Brodie, L. W. Kline, John Hay and Anson Scholfield.

THE PIUTE M. AND M. COMPANY.—Piute district, Nev. Jan. 11. Capital stock $1,600,000. Trustees: E. P. Swett, W. A. Dunbar, Edward Read, B. J. Hull and W. D. Read.

CAL. PACIFIC STEAMBOAT CO.—Jan. 11. Capital stock, $1,000,000; to continue five years. The trustees for the first year are D. C. Haskin, James W. Ryder, Wm. F. Rolofson, J. P. Jackson, Francis Avery, L. C. Fowler and D. W. C. Rice. Place of business, San Francisco and Vallejo. Object: Navigation of the waters of the San Francisco and San Pablo Bays, the Straits of Carquines, and the Sacramento and Feather rivers, with steam vessels and barges.

CALIFORNIA SILK CULTURE ASSOCIATION. Jan. 13th. Capital stock, $250,000. Trustees: Henry Hamilton, Thos. A. Garey. Geo. J. Clark, John H. Stewart and Dudley Pine.

SAN DIEGO BAY-SHORE R. R. CO.—Jan. 13th. Capital stock, $100.000. Directors: Levi Chase, S. S. Culverwell, E. W. Morse, W. A. Winder, W. Jeff. Gatewood, J. S. Menassec and Geo. A. Johnson.

GEARY STREET AND OCEAN R. R. CO. Jan. 19th. Capital stock, $80,000. Trustees: J. B. Haggin, H. S. Gates, John A. Wise, Geo. A. Rossiter and Tyler Curtis.

The following have filed articles of incorporation with the County Clerk, S. F.:

CALIFORNIA PAVING CO.—Capital stock, $500,000, in 500 shares of $1,000 each. Trustees: J. T. Doyle, A. W. Von Schmidt, A. S. Hallidie, James P. Flint and John Heuston, Jr.

FATHER MATTHEW TOTAL ABSTINENCE AND BENEVOLENT SOCIETY.—Jan. 18th. Trustees: Thos. H. Gallagher, Peter Rafferty, Thomas Davenport, Edward V. Poole and Joseph Boyd.

WEST INDIAN BENEVOLENT ASSOCIATION. Jan. 18. Trustees: R. E. Muir, Wm. J. Simmonds, Jas. E. Francis, E. F. Carleton, Wm. Smith and Edward Hall.

Meetings, Elections, Etc.

AMADOR M. CO.—Jan. 17th. Trustees: J. D. Fry, President; Thomas Bell, Vice President; M. J. McDonald, J. W. Gashwiler, M. Reese. J. F. Lightner, Sec., and John A. Faull, Supt.

CONSOLIDATED VIRGINIA S. M. CO.—Jan. 6th. Trustees: Thomas Bell, Solomon Heydenfelt, Wm. E. Barron, A. K. P. Harmon and H. J. O'Reilly.

CALIFORNIA INSTITUTE OF ARCHITECTS. Jan. 17th. President, D. Farquharson; Vice President, S. C. Bugbee; Corresponding Secretary, L. R. Townsend; Recording Secretary, W. H. Williams; Treasurer, S. H. Williams.

San Francisco Mining Stock Market.

The market for mining stocks, during the past week, has been tolerably active, if we take into consideration the present state of the weather and the rather apathetic feeling which has prevailed for some time past. Chollar-Potosi and Yellow Jacket were extensively dealt in, early in the week selling at an advanced price; but toward the close a recession in price is noticeable. Savage, Sierra Nevada, and Original Hidden Treasure also sold to a large extent.

CHOLLAR-POTOSI—has been prominently before the Board. During the week closing January 14th, 1,073 tons of ore were extracted. We have nothing new to report from the ore-producing localities. Work at the new shaft has been carried on in day-time only, but by the 20th they expect to have everything in readiness to continue operations day and night. On the 14th they sent forward bullion amounting to $20,647 49, and on the 18th, $11,620 85.

BELCHER—also ruled active toward the close, at a slight recession. On the 18th inst. the first bullion for some time past was dispatched to the office in this city, being valued at $6,131 87. They have sent 906 tons of ore to the mill, leaving 200 tons at the dump. At the above date the stope was reported to be twelve feet thick and of good quality. ——CROWN POINT also exhibited increased activity toward the close at a reduced price. On the 15th inst. the main east drift from the shaft, on the 1,100 level, was in 655 feet—face in porphyry; and the east drift from the 1,000 level had attained a distance of 500 feet, the face also showing porphyry.

GOULD & CURRY—attracted few buyers. For the week ending January 16th, 452 tons of ore were extracted. In the southwest drift, on the seventh station, the quartz indications have given out, and they have come to heavy clay and porphyry. In the northwest drift, same level, on the 18th inst., they found a small bunch of quartz, which shows no metal.

HALE & NORCROSS—was dull of sale. During the week closing January 15th the mine yielded as follows: Upper mine, 175 level, 76½ tons; 300 level, 127; lower mine, third level, 16½; fifth level, 4½; sixth level, 1,185½; total, 1,410 tons. On hand at dumps, 6,505 tons of ore, of which 2,309 is low grade. The mine continues to look well.

SIERRA NEVADA—commanded considerable attention during the past week, at quite firm rates. Letters to the 15th inst. state that the east gravel deposit is proving to be a large body, and is reported to show good prospects. The Superintendent thinks it of more importance than the west body. For the week ending the 14th inst., 10 tons have been taken from the ledge, and about 423 from the gravel deposit.——OVERMAN is not in large demand. It is stated that the improvements in the "raise" on the 500 level continue to look well. The yield of ore from that point for the week has considerably increased, having extracted 710 tons.

MINING STOCK QUOTATIONS, JAN. 21, 1869.

	Bid.	Asked.		Bid.	Asked.
WASHOE.					
Alpha Con.....	$ 11½	$ 12	Gold Hill Q M.O.	$ 25	$ 30
American	—	—	Hale & Norcross.	159	160
Belcher..........	15	15½	Imperial..........	31½	32
Bullion...........	—	10	Justice..........	—	1
Crown Point.....	11½	12	Julia.............	50c	—
Cole, Va..........	—	—	Kentuck..........	133	135
Confidence......	—	15	Lady Bryan......	2⅝	3
Chollar-Potosi..	18¼	18¾	Occidental.......	13	13½
Con. Virginia...	—	—	Ophir............	14	—
Daney...........	—	—	Overman	67	68
Empire..........	20	25	Savage..........	43¼	43¾
Exchequer......	7	7½	Sierra Nevada...	8	8¼
Flowery.	—	—	Seg. Belcher....	8	—
Gould & Curry..	50½	51	Yellow Jacket...	51½	52
WHITE PINE.					
	Bid.	Asked.		Bid.	Asked.
Aurora Con....	$ 8	$ —	Noonday..........	—	—
Brodt............	—	25c	Orig. Hidden Tr.	7¾	8
Chloride Con....	—	—	Pocotillo.........	—	—
Featherstone ...	—	—	Pogonip & Oth'n	—	—
Hidden Tr. Con.	—	—	Silver Wave.....	—	—
Mammoth.......	40c	45c	Virginia..........	—	—
CALIFORNIA.					
Amador.........	$310	$315	Eureka...........	$240	$250
IDAHO.					
Golden Char't.	$ 10	$ —	Silver Cord....	$ —	$ —
Rising Star......	—	—			

—*Commercial Herald.*

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alleghany, Sierra co., Dec. 20, 50c............	Feb. 7	Feb. 28*
Cons. Chloride Flat, W. P., ec 14, $1......	Jan. 29	Feb. 24
Crown Point, Storey co., Jan. 5, $7.50.......	Feb. 8	Feb. 28
Cons. Virginia, Storey co, Jan. 7, $2........	Feb. 12	March 6
Cosala, Mex., Dec 8, $1 50.....................	Jan 19	Feb. 4
Osney, Lyon co., Nov., Dec. 7, $1............	Jan 9	Jan. 28
Empire M. & M, Storey co, Jan. 7, $10....	Feb. 11	March 7
Glenwood, El Dorado co., Dec. 13, 20c......	Jan. 10	Feb. 17.
Gold Hill Tunnel, Dec. 17, $1.50...............	Jan. 19	Feb. 5
Gould & Curry, Jan. 12, $15..................	Feb. 16	March 9
Hope Gravel, Nevada co., Dec. 10, $1........	Jan. 17	Feb. 7
Imperial, White Pine, Jan. 5, 25c...........	Feb. 10	Feb. 28*
Julia, Storey co., Dec. 23, 50c	Jan. 25	Feb. 12
Kincaid Flat, Tuolumne co., Dec. 9, $2.50..	Jan. 12	Jan. 29*
Kearsarge, Inyo co, Dec. 29, $5.............	Jan. 31	Feb. 19
Latawana, W. P., Nov. 22, 10c	Jan. 29	Feb. 19
Lady Bryan, Storey co, Jan. 12, $2 50....	Payable immed'ly	
Meadow Valley, Lincoln co., Dec. 4, 25c......	Jan. 5	Jan 25
Mammoth, White Pine, Jan 4, 20c........	Feb. 14	March 7
Ophir, Storey co., Jan 8, $2..................	Feb. 11	March 2
Pilot, W. P., Nov. 23, 10c.......................	Jan. 3	Feb. 21*
Pinto, White Pine, Jan. 3, 15c.......	Jan. 15	March 7*
Sierra, Douglas co., Nev., Dec. 3, $1.25........	Jan. 6	Feb. 4
Silver Vault, W. P., Nov. 22 5c..............	Jan. 11	Feb. 7
Tallulah, Nev., Nov. 22, $2	Dec. 31	Jan. 25
Taylor, El Dorado co., Jan 5, 60c...........	Feb. 7	Feb. 28*
White Pine Mutual, Sept. 29, 50c............	Nov. 22	Jan. 20
Yellow Jacket, Storey co., Nov 26, $5.......	Dec. 28	Jan. 31

MEETINGS TO BE HELD.

Amador....................................	Meeting Jan. 17
Belcher....................................	Annual Meeting Jan 25

LATEST DIVIDENDS—(Within Three Months).

Amador Co., div. $12 per share...........	Payable Jan. 7, 1870
Chollar-Potosi, div., $1.....................	Payable Dec. 6, 1869
Eureka, div. $7 50...........................	Payable Dec. 6, 1869
Ida Elmore, div. $t	Payable Dec. 14, 1869
Kentuck, div., $10 per share...............	Payable Jan. 6, 1870
San Marcial, div. 50c.........................	Payable Jan. 21, 187

——*Advertised in this journal.

Mines of Missouri.

The value of the mineral deposits of Missouri are hardly appreciated by the world in general. The immense amounts of iron and lead and other metals will some day give large returns and add greatly to the wealth of the State. We mentioned, some time ago, the discoveries of tin there, which promised well. From a private letter of a mining engineer of considerable experience and talent, a graduate of Freiberg, we make the following extracts:

I could have shown you as big a thing right here in the midst of civilization, as you found anywhere in those Rocky Mountain regions. I do not refer to actual mountains of iron or of lead, although we have those here, but to tin. Will you believe me (whatever the papers may say on the subject) when I tell you that we have here inexhaustible quantities of ore, resembling the Altenberg (Saxony) tin Zwitter [or "Stockwerk," where the ore impregnates the rock to quite a distance around the veins, and the whole mass is treated.—ED.], but containing from 3 to 5 per ct. of tin. (?) I have satisfied myself by upwards of thirty assays, made from average specimens which I broke off from the lode and conducted by myself in such a way that "salting" was an impossibility. Analysis of the button, obtained by assay, gave a slight trace of iron as the only impurity.

The above is in a very favorable situation for working. A couple of mammoth lodes, cut perpendicularly through a mountain about one thousand feet high, at the base of which is a fine little river, furnishing water enough for as extensive a dressing-mill as may be desired. The mining can all be done by adits, and the ore be dumped directly into the crusher feed-box, and pass *downward* through the whole process, until the metallic tin finally runs out of the refining kettle into molds at the bottom. The mines are only eight miles from the railroad. * * *

Times have been dull this season in Missouri, so far as mining is concerned, except for the iron men. Several new furnaces have been and are being built at Carondelet, and a host of new iron banks have been opened along the railroad lines. * * * The great lead mine of the United States, the *Mine la Motte*, a tract of 26,000 acres, and unlimited lead, nickel, copper and iron deposits thereon, changed hands this summer, and operations on a large scale are now being carried on. * * * The lead deposits of this State are very rich and very extensive; but the slovenly and desultory way in which mining is carried on, hides them under a bushel, as it were. * * *

This want of engineering skill has been the great draw-back in Missouri. People there are unwilling to go to the expense of getting educated engineers, and hence waste a great deal of money by not knowing how to manage. Hitherto operations have been carried on in a miserable manner and at odd hours by anybody. In fact, there are but one or two mines there which have been conducted at all properly. But the deposits are immense and very rich, and the numerous railroads, which run through the State, render easy access to the great markets.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

Cashmere Goats from the East.

By the Colorado, from Panama, on Thursday last, there arrived at this port a large importation of Angora or Cashmere goats, direct from the region of the Black Sea, where this superb wool-bearing animal flourishes in its highest perfection. The entire number which reached here was 90. They were from the provinces of Angora, Castambar, and Babyzar. They were taken, in teams, direct from the steamer to the 17-mile house on the San José road, where they will remain about 20 days, and where a portion of the flock will be offered for sale. Those remaining unsold after that time, will be taken to the ranch of Butterfield & Son, on the San Bonita creek, Monterey county.

Some of these animals were driven 800 miles to reach Constantinople, their first shipping point, from whence they were shipped to Liverpool, and thence to this port, *via* New York. About thirty head died during the transit—twelve between here and New York, mostly young kids, from the effects of Isthmus water. We inspected them at the steamer the day after their arrival, and were surprised at the remarkably good condition in which they appeared after so long and tedious a trip. Their condition, under the circumstances, fully demonstrates the hardiness and vigor of these animals. Messrs. Deihl & Brown were the importers.

Messrs. Butterfield & Son have a large number of these animals on their ranch, of various grades, such as seven-eighths, five-sixths, and higher up to full-blooded. They have now about 200 rams fit for service. Mr. B. assures us that these animals do even better in this State than in their own country. The introduction of blooded sheep and goats into California is worth the attention of wool growers throughout the Pacific coast. The fleece of these Cashmere goats commands a high price, and the breed is invaluable for mixing with our common breeds. The efforts of Mr. Butterfield, and other stock masters, to improve our breed of sheep and goats is most praiseworthy, and cannot fail to lead to important results in the rapidly increasing wool-growing interest of this coast. We shall have something to say at an early day with regard to the facilities which our foot-hills present for this business.

Improvement of Grain by Natural Selection.

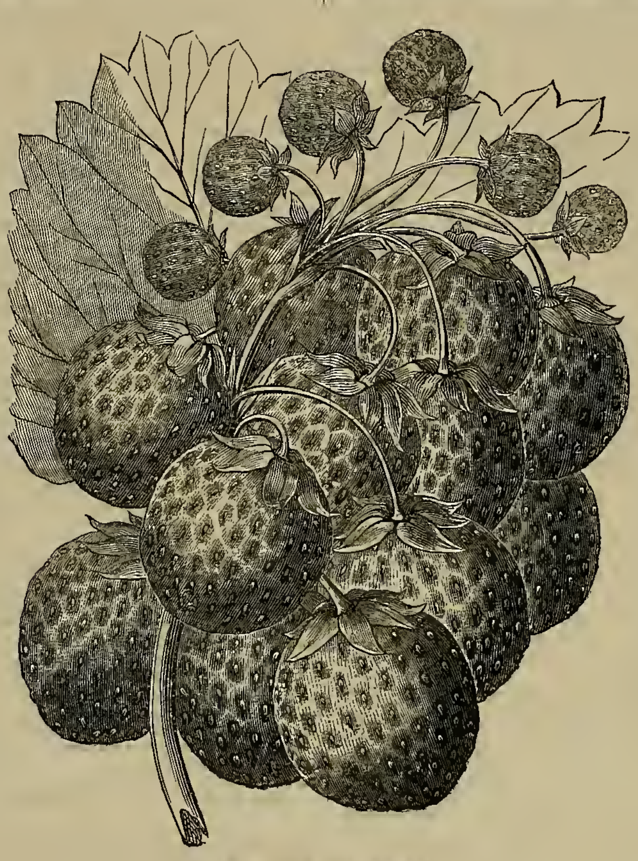
At the Exeter meeting of the British Association, Mr. Hallet, of Brighton, read a paper giving an account of his experiments upon the improvement of grain by applying the principles of "natural selection." By this method he succeeded in obtaining a grain of wheat, which, when sown, produced a whole multitude of stalks, each of which bore a magnificent ear well filled with grain. The quality is maintained by the descendant seed, and the produce is thus increased more than a hundred fold. Mr. Hallet lays down the following principles as the result of his observations:

1. Every fully developed plant, whether of wheat, oats or barley, has an ear superior in productive powers to any of the rest on that plant. 2. Every such plant contains one grain which proves more productive than any other. 3. The best grain in any plant is found in its best ear. 4. The superior vigor of this grain is transmissible in different degrees to its progeny. 5. By repeated careful selections the superiority is accumulated. 6. The improvement, after a long series of years, reaches a limit. 7. By still continuing to select, the improvement is maintained, and practically a fixed type is the result.

WINDSOR FOREST has about 1,700 deer. The Athol Forest, in Scotland, has 30,000 deer on its 80,000 acres.

The Strawberry.

Fifty years ago we were dependent for this delicious fruit almost entirely upon the four or five wild species which were found growing, naturally, in the fields. Indeed, it is only about thirty years since any special efforts were made on this continent to produce new and improved varieties from seed. The country owes a debt of gratitude to Mr. Hovey, who was one of the first to move in the matter, by the introduction of his famous Hovey's Seedling. The narration of what has been accomplished since that time would require a volume. It is wonderful to compare the small, seedy, dry berries—the best known forty years ago—with the large and luscious varieties which are now numbered by hundreds. Careful and improved cultivation has not only improved and increased our varieties, but has been equally successful in increasing the yield from a given vine or tract of ground.



THE COLFAX STRAWBERRY.

There is no fruit in the world that is grown so easily, so successfully, or so economically, in every country and clime, as the delicious strawberry. While it adapts itself more perfectly and more readily than any other to the varied conditions of climate and soil, it is, at the same time, more susceptible to improved conditions of culture. Still, many are deterred from planting from a mistaken idea that they do not understand its culture, or that it requires much care to raise it.

There are, of course, sorts that are better adapted to extremes of temperature and climate than others, and there are some modes of cultivation that are better than others; but we have neither time nor space now to go into particulars. The special object of this present writing is to call attention to one of the most approved varieties now cultivated, though not of very recent origin, which bears the name of our present honored Vice President, Schuyler Colfax. This plump, round and delicious berry is faithfully delineated in the accompanying engraving. It fairly makes one's mouth water to look at the picture.

The Colfax Strawberry

Was first introduced at South Bend, Ind., about fifteen years ago, by Mr. Colfax, it being one of a number of seedling berries that had been presented to him by an amateur friend. The "Small Fruit Instructor," a pamphlet published by Messrs. Purdy & Johnston, at Palmyra, New York, from which we gather the facts here given with regard to this variety, says of it:

> "We have known it for twelve years, and must say that, for productiveness and hardiness of plant we have never seen its equal; and we are prepared at any time to pay $100 for 100 plants of any sort that will produce as much fruit from the same sized bed for as many years in succession as this sort, or for even one season. * * * The plant is purplish green, and extremely hardy. * * * It forms astonishing hills —fully double the size of the Green Prolific, the Agriculturist, or of any grown in the same specimen bed the past season—over thirty in all. The fruit is medium size, round, and very uniform, hanging in clusters that have been the astonishment of all who have seen it; color, very dark crimson; flavor, sub-acid, with a very large percentage of juice. Not sufficiently firm to carry to distant markets."

This berry does not seem to have been very generally known to the pomological world until quite recently, when its cultivation was undertaken by Messrs. Purdy & Johnston, at their nursery in Palmyra. They have recently named it as above, and introduced it to the world. In a circular now before us they say:

> "We have tried to trace its origin, but unsuccessfully. We, therefore, on account of his first introducing it, have named it the 'Colfax.' It is no new, untried 'mushroom' sort with us, and we can, therefore, speak of it understandingly. * * * We venture nothing in saying it is the most productive strawberry within our knowledge."

LARGE VS. SMALL FARMS.—One great trouble with large farms arises from the fact that farmers owning large tracts of land usually have all their means locked up in land, and, therefore, have no capital to farm with. In such cases we would say, "Sell one-third of your land for the means to properly work the balance with, and you will have just as much produce as before, have plenty of money, and keep out of debt." The farmer needs capital to carry on his business as much as the merchant; but as things now are in this State, it is rare that the farmer gets any bank accommodation until he gets his wheat into the storehouse, and then it comes second-hand, with increased rates, and storage and wastage added. Very few farmers in California have anything like the capital they could use to advantage.

Diversified Products.

We would call the attention of our readers to the following summary of facts, as indicative of the progress being made in the introduction of diversified products into the great agricultural industry of this State:

An experimental crop of Louisiana sugar cane will be planted the coming spring at Twitchell's Island, in the Sacramento river, near the junction of the San Joaquin. If its growth can be made practical, a sugar manufactory will be established there.

Parties in Solano county have raised, during the past season, large quantities of canary seed. From eight to twelve hundred pounds of this seed can be raised to the acre, and it brings from five to ten cents per pound in this market.

Other parties, also in that county, have raised about 50 tons of coriander seed, the yield of which is about one ton to the acre. It is extensively used in the manufacture of bitters, cordials, etc., and the price ranges from four to ten cents per pound.

We have already noticed the fact that parties in Monterey and San José counties have been experimenting in the culture of the sorghum or the Chinese sugar cane, with gratifying results.

Large quantities of the ramie plant will be raised in the neighborhood of San Francisco bay the coming season. Fifty thousand roots have been ordered from New Orleans, portions of which will be sold to parties who may desire to enter into this branch of culture. Arrangements have been made with an English house to take all that may be produced in this State.

The same parties who ordered the ramie roots from New Orleans have also ordered, from France, a large quantity of madder seed, which, we presume, it is their design to sell to such parties as are desirous to undertake its culture. They have also set out 20,000 cuttings of yellow osiers.

Some successful experiments in tobacco culture have been made the past season in San Diego county, which will no doubt be repeated on a larger scale next season. The tobacco crop of Indiana, the past season, was about 12,000 hogsheads. There is no reason why that culture should not succeed better here than there.

A Los Angeles gentleman has been experimenting with cotton the past season, and the result has convinced him that it may be successfully grown in that county, without irrigation. The bolls gathered were of good size, finely opened, and the staple pronounced "remarkably fine." We do not regard the experiments hitherto undertaken on this coast for the culture of cotton, and pronounced failures, as by any means conclusive that we may not yet be able to produce our own cotton in California.

The culture of flax might and ought to be largely increased in this State. So far, as we have been able to learn, it has been a universally profitable crop here (much more profitable than wheat), when the location was chosen with judgment. There is a good demand for the seed. The oil mill in this city has been obliged to import 250 tons the first year, more than half its entire supply. The castor oil bean should also be more generally cultivated. The culture of broom corn might also be profitably extended. The same might be said of chiccory. The gathering of wild mustard, or its cultivation as a special crop, might undoubtedly be made a profitable business. Probably one of the most profitable manufactures which might be undertaken in this State, that would properly come under an enumeration of this kind, is opium. We are not aware that the culture of the poppy has ever been attempted here. An interesting and most successful experiment has been made in Vermont, the particulars of which we will endeavor to give next week. What our State most needs is a diversified and improved system of agriculture, and a more general application of capital and intelligence to this branch of industry. When our energies are properly exercised in this direction, this State will grow and thrive as it has never yet done since the first ten years of the gold excitement.

Transplanting Trees—Good Advice.

Mr. W. F. Kelsey, of Kelsey's Nursery, in Oakland, makes the following sensible remarks in his descriptive catalogue, recently published:

It is universally admitted by experienced orchardists, that nursery trees grown without irrigation are better adapted to stand transplanting in our dry soils, and hot climate, than irrigated trees. Trees so cultivated are not forced to grow out of season; the wood and buds are well ripened, and the bark is fresh and healthy. They are not overgrown, are in better root, in stronger stock, and in more fully matured growth.

In the selection of trees, a good stocky tree, of stout and vigorous habit, with unimpaired constitution, of neither stunted nor of forced growth, young and healthy, should be chosen for orchard planting.

In the preparation of the soil, that which is deeply and thoroughly tilled is the best. Where the trees are to have little or no irrigation, the ground must be plowed deep, and kept very light by cultivation. Capillary attraction operates to bring the moisture from the subsoil to the surface. Could the moisture collected be retained in the soil, it would supply the plants during our long dry summers. A loose surface prevents the moisture beneath from soon escaping in the air. Allow no grain, grass or weeds to grow among them, as such plants exhaust the soil of moisture, to the damage, if not the death of the tree. And to further insure the tree against the drouth of summer, a few inches of litter or coarse manure, as a mulching, will be of great service. If the supply of moisture is very plentiful, vegetables may be cultivated in the orchard, but not otherwise.

In moving, handling, etc., care should be used so that it should be done without tearing, twisting or breaking the roots, and the roots should *never* be allowed to get dry. When moved to a distance, they should be carefully packed together, and bundled with straw, or some material that will exclude the sun and air from the roots and protect the tree from getting bruised. At all times avoid exposing the roots to the sun, dry air, frost and bruising. Keep covered and moist.

Before planting, all broken roots should have the ends smoothly trimmed with a sharp knife. If a tree should get badly dried, lay it down and bury it root and top for two or three days, or until it fills with sap, and the bark looks fresh. Then, when planted, the trunk should be protected from the sun and winds.

Every young tree, excepting evergreens, when first transplanted should have its branches cut back to within a few inches of the trunk. Enough buds should be left to make new branches, and supply the tree with leaves. It is also expedient to cut the tree back to the height at which the head is desired to form. A new and vigorous growth is preferable to old limbs in a transplanted tree. Fresh bark and rich foliage are certainly better than thin, scattering leaves and sun-burnt branches.

Leaves are the lungs, and must be healthy, or the tree will suffer. They are also a shade for the branches and trunk, keeping the bark fresh in summer. On a newly-transplanted tree the leaves are most likely to be strong and luxuriant when started quite close about the trunk, while if long, slender limbs are allowed to remain, the bark gets shriveled, and the leaves are sickly.

THE STANDISH STEAM PLOW.—An interesting communication, under the above head, will be found on another page of our present issue, from a well known civil engineer. It was received too late for our last issue. We bespeak for it the consideration which the importance of the subject deserves. We regard the success of the Standish steam plow as intimately connected with the agricultural prosperity of this State, and fully indorse the remarks of the writer with regard to its practicability. If California fails to render the necessary aid to this invention, the honor and chief profit of the enterprise will eventually be enjoyed by some other locality.

GIVE YOUR STOCK GOOD WATER.—Stagnant or foul water is injurious to all animals. It causes blood poisoning, and this leads to many febrile complaints, and is one of the great causes of abortion in cows and other animals.

Herdwick or Navarre Sheep for the Sierras.

BY PROFESSOR ROWLANDSON, F. G. S. L.

It is claimed that there exists in California not less than 40,000,000 acres of soil, suitable for arable cultivation. This would still leave a balance of 120,000,000, the possible employment of which merits some consideration. If we deduct one-third from the latter named figures for forests, naked rocks and snow-covered mountain tops, there will remain 80,000,000 acres susceptible of agricultural utilization. The question is, "How can this be most economically and rapidly accomplished?" My reply to this question is, that it can in no way be better done than by covering our elevated lands and steep declivities with the Herdwick or Navarre sheep. The identity of the two has been apparent to me since I perused the article in the SCIENTIFIC PRESS, describing the latter as having been introduced into Missouri, and at the same time noticing some of their prominent qualities. I have, since last noticing the subject, obtained additional and strongly corroborative proof of the correctness of this pre-formed theory of the origin of the Herdwicks.

A California Witness.

Knowing and being personally known to a considerable number of the French sheep butchers residing in this city, I have, since my attention has been re-drawn to the subject, taken advantage of this acquaintance, with the object of ascertaining whether any of these persons were acquainted with the indigenous sheep of the mountainous district around Navarre. Amongst others, I have conversed with M. Jean Bayle, who informed me that he is a native of the department of the Pyrennes, where he has lived until he came to America. M. Bayle, being to my personal knowledge a well-informed, observant and truthful person, it will be seen that it was fortunate that I met with him, so far as further elucidation of the origin of the Herdwicks is concerned. He describes the Pyrennian sheep as possessing long necks, "rimy" faces, and "rimy" and speckled legs, and active travelers. So active are they that in a country celebrated for the athlectic character of its natives, the possession of any extraordinary amount of this quality by any one is commonly locally described as being as *lishe* as a Herdwick. He concluded his observations, without any prompting, to the effect that when penned (that is, folded,) they will not feed, a quality also pertaining to the Herdwicks.

Respecting the anatomical peculiarity of possessing an additional rib as compared with the generality of sheep, M. Bayle could not afford any information, as he never had his attention drawn to the subject. If, on future examination, it is found that this extra rib is common to both Herdwick and Pyrennean sheep, the identity of the two races will be reduced to a certainty. In any event, however, this fact appears certain—that, identical or not, the Herdwick and Navarre breeds of sheep form the species of stock best adapted to the secondary and still greater inferior soils of our more elevated foothills and Sierras.

Possibilities of Sheep Raising in California.

Assuming 80,000,000 acres of our mountainous tracts to be available for rearing and feeding the breeds of sheep under notice, and making the large allowance of eight acres to each ewe, wether or buck, of two years and upwards, along with their due proportion of younger animals, the space named would amply suffice for feeding 10,000,000 grown animals, with their natural quota of yearlings and lambs, the annual value of which may be estimated as follows:

Sale of 2,500,000 full mouthed wethers and drafted ewes @ $3	$7,500,000
Sale of 1,500,000 lambs @ $1	1,500,000
Sale of 40,000,000 ℔s wool @ 12½c	5,000,000
Total	$14,000,000

From which deduct:

Wages and rations for 5,000 shepherds, assistants, etc., at $50 per month, or $600 per annum	$3,000,000	
Sundry other charges, say	500,000	
		$3,500,000
Net annual return		$10,500,000

This magnificent amount, be it reflected, is capable of absolute realization, proving, in the most remarkable manner, the truth of the old Spanish proverb, "That wherever the foot of the sheep treads, the land is turned into gold." No danger here arising from "rebellious ores" (which, however, is only another name for metallurgic ignorance), "caving in," being drowned, or petering out; for nature annually renews the verdant supply.

Briefly Summing Up.

Amongst other concomitant advantages may be mentioned these prominent ones, viz: The mutton would be in constant demand; as it would be the finest in the world, superior to Southdown, it would also be most convenient to the best markets—the mining districts. The wool of a quality suitable for blanketing and coarse clothing; adjacent to water power, that could economically manufacture it into the necessary fabrics, and also near to where these goods are chiefly in demand. The actual profits, however, would be more than those set down, when the land becomes fully stocked, as the amount of lambs that might be annually drafted would amount to more than the number above set forth.

The very limited area previously known to me, on which are domiciled the variety of sheep possessing in so eminent a degree the fitness for mountain pasturage, is one reason why I never urged this subject on the flock-masters or the owners of Scottish moorlands, seeing the difficulty that existed in producing a change of breed, within any reasonable period; for it is to be borne in remembrance that such lands are already occupied by another—the black-faced breed. As, however, I learn now, almost to a certainty, that any number of similar sheep can be procured from the Pyrennes, it is my intention to call the attention of the proprietors of Scotch and Welsh mountain sheep walks to the benefits that would accrue to them by energetically promoting the change of breed which I have indicated—a task which to them will not be so easy as to residents of the United States; because the latter have only to begin *de novo*. But in Britain they will also require to extirpate the pre-occupants.

The Pacific Railroad Company,

Possessing, as it does, such an immense area calculated for no other variety but sheep and goat husbandry, is particularly interested in this matter, and ought to vigorously promote the object recommended. To do so advantageously, however, in place of the allotment of alternate sections of 640 acres each, larger ones of our more elevated mountain land should be allowed—comprising territory sufficient to feed, say 8,000 sheep per section, and give occupation to four shepherds. In such an event private sheep marks ought to be recorded, the obliteration or falsification of which should be made a misdemeanor punishable by imprisonment.

The Growth of Tree-Trunks.

A paragraph has been round the scientific papers stating that a French naturalist has been measuring the tree-trunks in a forest, and found them all broader in the east-west than in the north-south direction; the cause of the unsymmetry being ascribed, not very obviously, to the rotation of the earth. Well, another French arborist has been similarly gauging the trees in the neighborhood of Toulouse, and he finds that the greatest swelling of their trunks is towards the east-south-east point of the compass. The explanation offered by this second investigator is more philosophical than that of his predecessor. He refers the deformation to the early morning sun, which warms the easterly parts of the tree more suddenly than the rest, stimulates the flow of the sap, which grows sluggish during the cool of the night, and draws up the nourishing moisture from the soil in greater abundance on the excited side than on those portions of the trunk where the warming is more gradual and its effects less active. Naturally, increased vitality on one side, be it animal or plant, results in developments, or larger growth of that side. There are traditions of some plants turning their flowers toward the sun; the truth may be that the sun only promotes the growth of those blossoms upon which it sheds its direct warmth. As Dulong said, every degree of the thermometer entails a law of nature.—*Every Saturday.*

MILK AND PORK.—According to the experiments made at the Michigan Agricultural College, the amount of milk consumed by pigs to produce one pound of increase was, for the first week, 7.20 lbs.; for the second week, 7.70 lbs.; for the third week, 12.52 lbs.; for the fourth week, 10.66 lbs.

Our High Mountain Lands.

The editor of the Lower Lake *Courier*, having made a trip through some of the more elevated portions of the mountain lands of Lake county, says:

Here is a large scope of country that the Government surveyors have not considered worth their while to survey; nor is it hardly worth the expense. It is not now, nor will it ever be, agricultural land. It will never pay to locate it in 160-acre lots, and pay Government prices for it. Still, were there some way that a person or persons could purchase a large tract in which many spots of pasturage would be inclosed, it would then be worth something to its owners as a stock range, and to the State in the way of assessments. As it now is, merely held in possession, of course no taxes are paid on it; the open spots of land are grazed by the stock that are driven from one to another, as the grass is eaten off them, and abandonment and "jumping" of claims held by possession is the occasion of frequent and bloody conflicts, and encourages a loose and lawless state of society. Were the General Government to donate all lands returned by the surveyors as "bad lands" to States in which they lay—for school purposes—and the States then to auction them off in 1,000-acre lots to the highest bidder, giving a title therefor, it would be a vast improvement on the present state of affairs.

This paragraph has an important bearing in connection with the communication of Prof. Rowlandson, in another column. We think the suggestions of the Professor and of the *Courier* eminently worthy of a careful consideration.

GROWERS' COMBINATION FOR THE SALE OF PRODUCE.—The Humboldt *Times* recommends that the farmers of that county should do as those of San Mateo have done—form a club for their mutual benefit and protection. It says that such a combination is necessary to prevent losses and exhorbitant commissions in the sale of potatoes and other produce in this city.

A POOR CROP requires nearly as much labor for cultivation and harvesting as a good one, while the profits of such a crop are annually eaten up in high wages; but a good crop leaves a handsome balance for profit. Viewing the situation, then, in whatever light we may, one fact is prominent—the necessities and advantages of improved farming.

AGRICULTURAL LECTURES.—Farmers in the vicinity of Centralia, Ill., have made arrangements to have a course of agricultural lectures delivered at that place during next month.

San Francisco Market Rates.

Wholesale Prices.

THURSDAY EVENING, January 20, 1870.

Flour, Extra, ℘ bbl	$5 00	@ $5 50
Do. Superfine	4 50	@ 4 75
Corn Meal, ℘ 100 ℔s	2 00	@ 2 25
Wheat, ℘ 100 ℔s	1 15	@ 1 65
Oats, ℘ 100 ℔s	1 15	@ 1 50
Barley, ℘ 100 ℔s	1 10	@ 1 25
Beans, ℘ 100 ℔s	2 50	@ 3 50
Potatoes, ℘ 100 ℔s	75	@ 1 00
Hay, ℘ ton	11 00	@ 17 00
Live Oak Wood, ℘ cord	9 00	@ 14 00
Beef, extra, dressed, ℘ ℔	7	@ 10
Sheep, on foot	2 50	@ 3
Hogs, on foot, ℘ ℔	5	@
Hogs, dressed, ℘ ℔	8	@

GROCERIES, ETC.

Sugar, crushed, ℘ ℔	14	@ 14¼
Do. Hawaiian	8	@ 11
Coffee, Costa Rica, ℘ ℔	18½	@ 19
Do. Rio	18½	@ 19
Tea, Japan, ℘ ℔	75	@ 90
Do. Green	60	@ 1 25
Hawaiian Rice, ℘ ℔	9½	@ 10
China Rice, ℘ ℔	5½	@ 6
Coal Oil, ℘ gallon	42½	@ 45
Candles, ℘ ℔	16	@ 18
Overland Butter	20	@ 40
Ranch Butter, ℘ ℔	40	@ 50
Isthmus Butter, ℘ ℔	25	@ 40
Cheese, California, ℘ ℔	16	@ 20
Eggs, ℘ dozen	45	@ 50
Lard, ℘ ℔	12½	@ 14
Ham and Bacon, ℘ ℔	16	@ 18
Shoulders, ℘ ℔	10	@ 12

Retail Prices.

Butter, California, fresh, ℘ ℔	50	@ 60
do. pickled, ℘ ℔	40	@ 50
do. Oregon, ℘ ℔	25	@ 30
do. New York, ℘ ℔	40	@ 50
Cheese, ℘ ℔	20	@ 25
Honey, ℘ ℔	25	@ 30
Eggs, ℘ dozen	60	@ 65
Lard, ℘ ℔	20	@ 22½
Hams and Bacon, ℘ ℔	22	@ 25
Cranberries, ℘ gallon	1 00	@ 1 25
Potatoes, ℘ ℔	2	@ 3
Potatoes, Sweet, ℘ ℔	—	@ 2
Tomatoes, ℘ ℔	2	@ 3
Onions, ℘ ℔	3	@ 5
Apples, No. 1, ℘ ℔	4	@ 6
Pears, Table, ℘ ℔	5	@
Plums, dried, ℘ ℔	10	@ 12
Peaches, dried, ℘ ℔	10	@ 15
Oranges, ℘ dozen	50	@ 75
Lemons, ℘ dozen	—	@ 1 00
Chickens, apiece	75	@ 1 00
Turkeys, ℘ ℔	—	@ 25
Soap, Pale and O. O.		@ 12
Soap, Castile, ℘ ℔		@ 20

Scientific Press.

W. B. EWER..........................SENIOR EDITOR.

A. T. DEWEY. W. B. EWER.

DEWEY & CO., Publishers.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance	$4 00
One copy, six months, in advance	2 50
Delivered by city carriers, per month	60

Rates of Advertising.

One square (ten lines agate), one week	$ 1 00
One square, one month	3 00
One column, one month	40 00
One column, one year	400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, Jan. 22, 1870.

Table of Contents.

Extension Pitch Board—Ill. 49
A New Explosive 49
Mills of Colorado 50
Standish Steam Plow 50
Drilling Machines 56
Cheap Railroads—Ill. 56
Notes on Contributions to Our Cabinet 56
To Correspondents 56
Mines of Missouri 53
Glass Making 67
Pacific Coast Inventions for 1869 67
Notices of Recent Patents 67
New Incorporations 63
MECHANICAL PROGRESS.—Improvements in Agricultural Steam Engines; Compressed Air-Brake; Imitations of Damasked Steel; Steam Hammer. 51
Underground Railways. 68
SCIENTIFIC PROGRESS.—A Final Zoic Catastrophe; Dr. Livingstone; Polarization of the Corona; Another Oxygen Process; Molecules, etc. 51
FARMING AND GARDENING.—Cashmere Goats from the East, Improvement of Grain; The Strawberry; Farms; Diversified Products; Transplanting; The Growth of Tree Trunks; Herdwick or Navarre Sheep for the Sierras; Our High Mountain Lands; S. F. Market Rates, etc. 65
READING FOR THE HOUR.—The Lightning's Autograph—Ill; Small Feet in China; Hints and Recipes, etc. 60
S. F. Shareholders' Directory 53
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Colorado, Idaho, Montana and Nevada. 42

Notices to Correspondents.

"L. C.," Bulliona, Alpine Co.—The crystals sent were of zincblende; for the test, see "Notes on Contributions to Our Cabinet."

"J. W. L."—If your ore is chromic iron, it should have a black to brownish black color, give a brown streak, be hard enough to scratch glass, opaque, brittle, and have a luster between that of metallic and that of non-metallic substances. Before the blowpipe, it should be infusible; but melted (with difficulty) with borax, it should give a fine green glass. The ore usually occurs in serpentine. It is valuable for the manufacture of chrome colors.

THE YOSEMITE VALLEY.—It is stated that Messrs. Hutchings and Lamon have gone to Washington, to try to get a confirmation of their claims to the Yosemite. It would seem to be the general opinion that these gentlemen have rights as *bona-fide* settlers, under the preëmption laws, but that the valley must rema in State property, the Legislature of California giving them a fair equivalent. What outsiders think, may be seen from the following paragraph from the Chicago *Tribune*:

> If Messrs. Hutchings and Lamon have any preëmption rights, Congress is not the place to enforce them. If they have none, Congress ought not to give them any. If they had a case which would probably result, through an action of law, in giving them the land which they claim, then we think that the offer made to them by the Commissioners of the Valley, of leases for ten years at a nominal rent, with an agreement to purchase their improvements, ought to satisfy them.

◆

A VERY NEAT PUBLICATION is the January number of the *Railroad Gazetteer*, which appears in an improved shape. It contains a large amount of gratuitous information of interest to travelers, to whom it is given without charge. The whole affair reflects great credit, with regard to both form and matter, on the enterprising publishers, Messrs. H. S. Crocker & Co., of Sacramento.

◆

THE DAILY CHRONICLE announces the commencement of its eleventh volume. DeYoung & Co. have conducted it during the past year with a great deal of spirit and activity; frequently issuing a double-sheet well stuffed with attractive reading. It is a cheap (five-cent) daily, and its success indicates that Californians appreciate their half dimes in the new order of things.

Drilling Machines.

There is a wide field for good drilling machines on our coast, and the need of them is deeply felt. The cost of hand-boring is such that explorations cannot be carried on to a sufficient extent in many cases where there is every favorable indication present to warrant such exploration, and the want of a large capital, consequently, is fatal to many operations which would add immensely to our wealth if they only could be prosecuted properly.

There seems to be a movement among the owners of drilling machines to try to introduce them into this State; but we fear that the proper method is not being taken. It will not do to first form a company with a large capital, sell to them the State right to the patent at an enormous price, and then throw all the responsibility as to the future success of the machine on their shoulders. The non-success, moreover, of one such case would have a damaging effect on all succeeding machines, however good they might be.

The only proper way to introduce any such invention is, to take contracts, and thereby practically demonstrate its worth. Statements of what has been done in some regions to us practically unknown, and bare assertions of what can be done, are not sufficient. Nor is it enough to select a certain spot, and invite the public to see a machine run a few moments; everything may be fair, but nobody is satisfied.

The value of any such machine is simply in the economy effected over present methods. However beautiful one may be constructed, or however nicely it may work in theory, if it cannot do more practical work in our mines, at a less expense than what we may have already, it has not the slightest real value for practical men; and the greater or less value of any machine corresponds to the greater or less amount saved by using it. Miners, therefore, naturally, and rightly, demand that it should be practically demonstrated, in their own particular cases, that they will be gainers by using any such apparatus. An invention which can thus satisfy them will be universally adopted; one which will not, does not deserve success.

We call, then, upon the inventors of such machines to commence by taking contracts and competing, in fact, with hand labor. There is no want of persons who are ready and desirous of giving such contracts, and every facility for a fair trial will be offered. In this way there will be no chance for suspicions of unfair play, nor will there be any difficulty in disposing of large numbers of any successful machine at reasonable prices. A successful trial will be advertised far and wide, and success once established, there will be no danger, in so broad a field as ours, with regard to the profits.

◆

LEFFEL'S AMERICAN DOUBLE TURBINE WATER WHEEL.—These wheels, used extensively in the East for a long time, it will be seen by an advertisement on the last page of this paper, are being adopted in many places on this coast. Leffel & Myers, of Portland, Oregon, are the manufacturers, and P. S. Sanderson, No. 112 California street, San Francisco, the general agent.

◆

GAS-LIGHT JOURNAL.—We welcome the number for Jan 3d,—which is, for some unaccountable reason, the first we have seen of this valuable journal for several weeks. We regret the loss of Prof. Wurtz's *Chemical Repertory* for so long a time. We always find something good in it.

◆

RAILROAD CONSTRUCTION. — The New York *Tribune* estimates that, in 1869, 7,845 miles of railroad were constructed, at a cost of about $300,000,000, which would be over 100 miles more than were built in any one year. The next largest number comes in 1856, when 3,643 miles were built.

Cheap Railroads.

The subject of building cheap railroads, in order to be able not only to extend them more generally throughout a thinly-settled country, but also to check the increase of huge monopolies, is attracting considerable attention at the present day. Could we have a system of roads cheaply and extensively constructed throughout the western part of our country, the beneficial results would be immense.

Saint-Pierre and Goudal System.

Among others who have given their attention to this subject, two French engineers—MM. Saint-Pierre and Gondal—have invented a railway which is interesting in its details, and for a description of which we are indebted to *La Propagation Industrielle*. This requires but one rail and an asphaltum road-way, and can be constructed at a very moderate expense. Moreover, it admits of quite heavy grades, and it is not always necessary to build a special embankment, as a common roadway can be used if moderately level.

The Rail.

The rail, shown on a large scale in Fig. 2, has the shape of an inverted V, and is fastened on wooden stringers. Its weight is about fifty pounds to the running yard. It rises about four inches above the surface of the ground. Where carriage roads cross the track, this rail is discontinued the proper distance, and is replaced by two "counter-rails," firmly fixed in the ground and about two inches high, which serve as guides to the running wheels of the locomotive, and prevent them from diverging to either side.

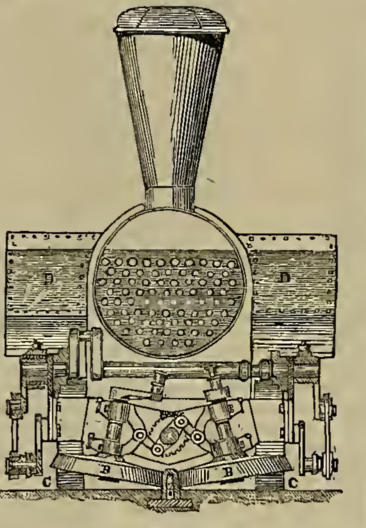


FIG. 1.—THE ENGINE.

One peculiar feature is, that it is proposed to lay a telegraph cable along the inside of the rail, as shown at A, Fig. 2, instead of having wires supported on posts, as is commonly done.

The Roadway.

On each side of the track, at equal distances from it, are laid two bands of compressed asphaltum, about ten inches wide and four inches thick, which rest on four-inch beds of beton. These are laid after the French manner of compressing pulverized asphaltum, by passing heated rollers over it (instead of melting the substance and running it into the required shape), and are placed about 3¼ feet apart, making the whole width of the road some five feet. On these bands or layers run the vertical driving-wheels of the locomotive.

The Locomotive

Is represented in section in Fig. 1. The distinguishing features which need mention here are, principally, the different sets of wheels and the apparatus for holding the water and fuel.

There are two sets of wheels: the running or vertical ones, C, C, which are worked similarly to those of the common locomotive driving-wheels, and those marked B, B. These latter are four in number, and have the inclination shown in the illustration. They are of the same size as the wheels C, C, and are worked at the same speed and by the same power. They press with a certain degree of force on the rails, and thus aid in propelling the locomotive, and at the same time keep it going in the right direction. By means of this additional power, the train can be run up the necessary inclines, and the wearing of the asphaltum ways by the slipping of the wheels, C, C, is reduced to a minimum.

On the front part of the locomotive, and on the wagons, are smaller wheels, placed in the same position as B, B, which serve to guide them, and prevent their getting off of the road. A vertical wheel before and one behind run on the rail, and take a part of the load off of the driving-wheel. The coal and water are carried in tanks, D, D, on each side of the boiler, thus rendering unnecessary the use of a tender. A cow-catcher removes sticks, stones, etc., from the asphaltum roadway.

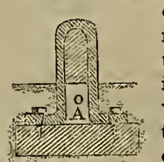


FIG. 2.

We have not space to give further details, and merely add the estimated expenses of constructing such a road.

Expenses of Construction.

It must be remembered that the estimates given are on a French basis, and that the price of labor in France makes things much cheaper than they would be in this country. The estimates are for each mile, calculated for a line twenty miles long, and are as follows:

Making and laying the rail complete	$3,366 per mile.
Making and laying the asphaltum ways.	1,868 per mile.
Rolling and stationary stock, comprising 3 stations, 3 water tanks, 4 locomotives, 6 passenger wagons, 12 freight wagons.	1,546 per mile.
Various	213 per mile.
Total	$6,993 per mile.

Say, then, the cost varies from $7,000 to $8,000 to the running mile for a line of the length of twenty miles, calculated for a railroad in good condition. This is merely a very general calculation, of course, as in a proposed line the number of bridges and other works which make up a very large item, cannot be generalized with accuracy.

◆

Notes on Contributions to Our Cabinet.*

We give the following examinations, as examples of how they are conducted, and as we often receive letters, asking how to determine a given mineral. The specimens examined were among those which happened to be sent to us. The first was examined by Mr. Henry G. Hanks, of San Francisco, whose interest in, and knowledge of, the minerals of this coast, are inferior to those of no other person:

1. Ilmenite (No. 453) from Georgetown, El Dorado Co.—Color, black; lustre, sub-metallic; streak, iron black; hardness, 5; sp. gravity, 4.6; powder, magnetic; fusible only on the thinnest edges; with microcosmic salt and with borax gives the reactions of oxide of iron; with microcosmic salt and tin gives the reaction of titanic acid; after fusion with bisulphate of potassa, the aqueous solution throws down a dense precipitate of titanic acid on being boiled.

2. Zincblende from Bulliona, Alpine Co. Outward characteristics: color, black and yellow; streak, dark brown to yellow; lustre, resinous and brilliant on a cleavage face; easily cleavable; hardness, 4; crystalline form, combinations principally of dodecahedrons. Blowpipe reactions: infusible; on charcoal with strong heat get zinc sublimate, which is yellow when hot, and white when cold; melted with soda, stains silver (sulphur); treated with protonitrate of cobalt gives the green color of zinc.

---

* Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be sent to us by mail or express prepaid. Each article will be numbered, marked with the name of the donor and the locality, and placed in our cabinet. A full account of the place, occurrence, etc., adds much to the value of such specimens.

◆

DR W. A. BAYLIS is preparing ground on the Coyote River, for planting twelve acres of mulberry trees.

Our Home Industries.

Glass-Making.

The manufacture of glass, besides being a very important industry, is also in some of its details one of the most interesting and beautiful of all processes. It demands, moreover, great skill and experience; and a large amount of brain has been put into even the most common of our bottles and glasses.

Its History on this Coast.

The enterprising firm of Baker & Cutting were the first to start works on this coast; but their attempt was not long continued on account of the great difficulty in getting good workmen, materials, etc. Some time after their trial, Dr. Geo. W. Post, in traveling about the country, thought that he saw sufficient inducements to warrant another experiment, and in 1862 he, with Messrs. Taylor, Cutting, Kohler and Turner, erected a small experimental furnace at North Beach. The initiatory attempts promised well; but the police authorities objecting to such a factory in that vicinity, they removed to the Potrero, raised their capital to $100,000, and in 1863 commenced running what are known as the Pacific Glass Works. In 1866, these works were leased to Messrs. Bennett & Co., who have kept them going up to the present time.

The San Francisco Glass Works.

These were put in operation in 1863 by Newman & Brenaan, and were located on Townsend street, between Third and Fourth. The list of articles manufactured was very large, including various kinds of white as well as black and green glass, and the quality was equal to that of imported ware. Forty men and boys were employed. The furnace contained eight large crucibles. The works, after running very successfully over three years, were destroyed by fire. But they are to be rebuilt at the corner of R street and Fifth avenue, South San Francisco, near the end of the second long bridge, and will be in operation in a few months under the efficient management of the former superintendent, Mr. C. Newman. All classes of druggists' and chemists' ware, lamp chimneys, funnels, demijohns, carboys, bottles of all descriptions, etc., are to be made. The manufacture of pressed ware, which includes glasses and goblets, is eventually to be introduced. The details of the manufacture are similar to those hereafter described at

The Pacific Glass Works.

This factory stands at the corner of Iowa and Mariposa streets, at the Potrero, not far from the Long Bridge. Mr. J. C. Bennett is the superintendent, and very kindly conducted us over the works, showing us the various details of this very interesting manufacture. The agent is Mr. John Taylor, 514 Washington street.

The Materials.

The sand for common glass comes from Oakland, some 40 tons being used monthly. For superior work, the finer and more costly Monterey sand is used. The lime comes from San José; the soda-ash (about 40,000 pounds used monthly) comes mostly from England. Arsenic is used to give brilliancy to the glass; black oxide of manganese (from Red Rock) to remove the green color of iron oxide and to give an amber tint; zaffre (a cobalt mixture), for a blue color; Hungarian black lead (plumbago) for the amber tinge; salt and saltpeter for fluxes. Some 100 to 115 tons of Sidney coal are used monthly in the furnace, and 10 cords of pine wood weekly in the annealing ovens. The fire-clay for the crucibles comes mostly from Germany, partly from England; the dressed rattan for the wicker-work around the demijohns from China.

Making the Crucibles

Is a very important part of the business, and requires great skill and care. The imported clay is freed from external impurities and burned (in part) thoroughly in an oven. Then two parts of burned and one part of raw clay are ground together in a mill, put into a box, moistened, and thoroughly worked from three to four weeks by daily turning and treading with the bare feet. It is then built up by hand in a mold to crucibles 33 inches high and 40 inches in diameter, the bottom being 4 and the sides 2½ to 3 inches thick. These stand in the drying room generally about six months, that they may acquire the requisite hardness and dryness. When needed, they are put into the "pot-arch," gradually and carefully heated during 36 hours, until they are red hot, and then carried on an iron carriage and deposited in the furnace.

Mixing the Materials.

In the mixing room the various materials are put on the floor and thoroughly mixed together. The sand is taken as a basis, and to this some 40 per cent. of soda-ash, 15 per cent. of lime, and the requisite amount of the other articles, together with broken bottles, are added. The mixing is done in the day-time, and at evening, when the blowers have finished work, the ingredients are put into the crucibles. Enough is added at various times to fill the pots with molten material, the melting occupying the whole of the night. In the morning the mass is as fluid almost as water. It is then allowed to cool and thicken a little, and just before the blowers commence work, is heated again to the proper consistency.

The Furnace

Is round, and contains seven crucibles and seven corresponding openings in the dome-like top. The one now in use—of the Greenhouse pattern—has lasted two years, an unusually long time, having been very carefully constructed. Six months is a good average time. The crucibles last about eight weeks. Around the furnace runs a raised platform, on which the blowers work, and at whose edge are fastened the molds, etc.

The Process of Blowing.

The blower takes a hollow steel pipe, some six feet long, and dipping one end into the liquid mass in the crucible, gently turns it until the requisite quantity adheres. Then quickly removing it, he rolls the mass on a flat stone, to shape it a little, and then plunging it into the mold, blows through the tube until the mold is filled with the hollow glass. Removing the bottle, whose body is now made, he places it in the door of the furnace, deftly breaks off the neck, which he has drawn out until it is very long and thin; with another iron tool runs a small quantity of melted glass around the neck, and shapes this with a small instrument. In much less time than it has taken to describe the process, the bottle is completed and placed in the annealing oven, where it takes three days to harden and anneal.

To each one or two of the blowers there is a boy to hand the tools, take them away, etc. The neatness and celerity with which each different bottle is formed, makes the process extremely interesting and instructive.

The Packing, Blacksmith Shop, Etc.

The bottles after being annealed (without which process they would be extremely brittle), are carried to the sorter, who, by holding them up to the light, immediately detects any flaw or imperfection, in which case the bottle is rejected and goes back to the mixing room. The sound bottles are carefully packed in cases for the market.

In the blacksmith shop are innumerable molds of every shape and size. Those wishing it, can have their bottles cast in special molds, with their name, trade mark, etc., on them, these being reproduced on the bottle.

Demijohns.

The making of demijohns is a speciality here, and all sizes are manufactured. After being blown, the article is carried to a lower room, where rattans, which have been soaked several days to make them more flexible, are woven around them in a peculiar fashion, which forms a strong protection. The superiority of this wicker-work is such, that a demijohn can be dropped from a height of several feet on to a hard floor without the least danger of breaking, as the superintendent practically proved.

Workmen.

When under full headway, there are employed 18 blowers with 21 boy assistants, 16 outside men in various capacities, and from 5 to 30 Chinamen to make the wicker-work for the demijohns. The blowers are paid by the piece. An experienced hand can turn out daily 75 to 80 soda-water bottles, 115 to 120 dozen mustard bottles, 50 to 70 dozen half-gallon jars, or 75 to 80 dozen ordinary black wine-bottles.

At the factory are made green and black bottles of all shades, shapes and sizes; demijohns and carboys of superior quality; telegraph insulators of a new pattern; side-walk and sky-lights, and other articles too numerous to mention. The value of the articles made amounts yearly in round numbers to $100,000, or from $8,000 to $13,000 per month.

Patents and Inventions.

New Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending January 11th.

Medicine or Liniment for Treating Nervous Diseases.—Joel F. Smith, Forest Hill, Cal.

Platform Attachment for Grain Separator.—John Whiteside, Salinas, Cal.

DESIGN.

Printers' Type.—Thomas M. Cash, San Francisco, Cal., assignor to Hsgar & Co., New York City.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than any other agency.

Pacific Coast Inventions for 1869.

It is a subject of general remark that California produces a larger number of valuable patents than any other portion of the United States with a similar number of inhabitants. The only reason that we can assign for this fact is, that we are an observing people.

Nearly all improvements and inventions have been brought about by employing some common and well known mechanical power or movement, or some manufacture as a means of producing or avoiding an effect analogous to that which originally impressed the inventor or discoverer. A subject, an idea, and then a principle, is the common process of inventing; and whether our California people are naturally more observing than the inhabitants of other portions of the country, or whether "necessity is the mother" of their efforts, we will not attempt to establish.

California presents a field for more varied pursuits than any other portion of our country of an equal area. This fact may, in a degree, account for the versatility of our inventions. Improvements in apparatus for working the precious metals are subjects of frequent patents, and we have had, during the past year, quite a number of valuable ideas patented in this line. No little stir was made at one time concerning an electric process employed by Messrs. Pioche & Nolf, of this city; but we believe that besides the patent obtained by them, only one other, that of Prof. A. F. W. Partz, of Oakland, has been issued. Chas. D. Smith, of Drytown, Cal., has patented a Revolving Sluice Concentrator, which promises to be a valuable aid in saving sulphurets, while various other patents have been obtained for improvements in mining apparatus, some promising well. We cannot refrain, in this connection, from alluding to a new crushing mill, patented by J. Harvey Day, of Walla Walla, W. T., which, although not yet practically tested, is expected to perform wonders in reducing our auriferous boulders.

In the agricultural line, we have a steam plow, patented by Linus Stewart, of this city, while in gang-plows, which seems to be a favorite hobby of our California inventors, a large number have been patented, and some have met with success. Besides these inventions, a large number of agricultural implements and tools have also been brought out.

We note for the year an unusual number of patents under the head of Navigation—both aerial and marine. Among the former, is Mr. Marriott's "Avitor," which, the inventor has proved, will so far accomplish the object he is seeking as to move through the air in obedience to its rudder. Mr. Marriott has shown in aerial navigation what Fulton did with his first steamboat—he has demonstrated that a body having a certain amount of buoyancy, and constructed upon correct principles for the purpose for which it is intended, can be driven through the air by propellers. Whether or not a practical success will be made, we wait to see. In marine navigation, we have several propellers, patented respectively by Adam Wingard, Simon B. Morey, A. C. Loud and C. T. Finlayson, each claimed as having decided advantages over the common paddle-wheel. Steam engines have been improved by several patents, and a method of preventing the destruction of boiler tubes in surface condensing engines, patented both in this country and England, by Geo. Hawxhurst, of Somersville, Cal., is meeting with decided success; being used, we believe, on most of the large steamships on this coast.

Hardly had the terror inspired by our last heavy earthquake been dissipated, when our inventors turned their attention to overcome or alleviate the effects of the next one. The first idea seemed to be the want of some registering or telegraphing apparatus, which would give timely warning of the approach of the earth-wave. This idea seems to have been abandoned; and we immediately have various patents on the construction of buildings in order to render them "earthquake proof;" amongst which, we name one by William H. Foyo, of this city; another by A. MoPherson, of Santa Cruz, both having decided points of merit. Mr. A. F. Cooper, of this city, has secured a patent on an elastic foundation for houses, which he claims will break the force of the shock before it reaches the structure; while various devices have been secured to prevent the falling of chimneys during the shock.

We can calculate, if we accept the plans of these gentlemen, that the next shock will meet with less encouragement than the last, in which case we would hope that its disgust will cause it to leave us alone thereafter.

The hook-and-eye machine, exhibited at the late Mechanics' Fair, was an invention of this year, and one of great merit, especially so as no machine for that purpose was ever patented in the United States before.

On sewing machines, we have quite a variety of patents. A great desire has been manifested by inventors to do away with the treadle motion or pedals for driving the machine, and applying some mechanical motor. Patents on various devices driven by spring power have been obtained, and one by Jacob Zuckeman, of this city, is, we believe, meeting with success in the East. An electric motor has also been invented in this city, which many think will finally take the place of both the spring and foot power.

The above are but a few of the more interesting and important patents which have been secured for inventors during the past year, by Dewey & Co., of the Scientific Press.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Platform Attachment for Grain Separators.—John Whiteside, Salinas, Cal.—Inventions for the better convenience of workmen on any machine always repay the addditional cost, when there is any, with a high rate of interest. All our experience tends to prove that the better the comfort of the laborer is attended to by the employer, the more profitable to all is his work. The object of this invention is to save time and money by attaching certain platforms to grain separators, enabling the persons handling the grain to work with greater ease and rapidity. In the hitherto usual manner of attending to these machines, boxes or trestles are used by the band-cutters to stand upon, which are very inconvenient. Instead of these, the inventor attaches platforms, one on each side of the feeder's platform, which are light, and can readily be detached from the separator when desired. By the use of these platform attachments much inconvenience and trouble are obviated, as the ground in front of the separator is left free and unobstructed, so that any loose grain can be removed at any time, whether the machine is at work or not, without interfering in the least with the table tenders.

Liniment for Nervous Diseases.—J. F. Smith, Forest Hill, Placer County, Cal. This is a compound for relieving pain and effecting a cure of nervous diseases, as neuralgia, rheumatism, nervous headache, paralysis, toothache, and others of a similar character, by external application. This compound is to be known as "Smith's Pain Eradicating Liniment."

Elevated and Underground Railways in New York.

The New York elevated railway, the principle of the construction of which was fully described in the Scientific Press of the 27th of March last, is now completed and in running order, from the foot of Greenwich street, near the Battery, to 39th street. It was the intention to have had a formal opening of the road for public travel on the first of January; but unexpected delays have compelled a postponement for another month.

The novel, aerial look of this road, has impressed some that there is danger from its apparently frail support; but engineering skill has fully provided against anything of that kind. The only remaining special fear that the cars may run off the track, has also been properly and surely guarded against, by engineering devices, by which, if they do leave the rail, they cannot fall from the frame-work, or in any way endanger the lives of the passengers. It is probable that the cars will run every three or five minutes. The speed on this road will be three or four times as great as that of the ordinary street cars. The road, thus far, has cost about $800,000. Should the experiment, to its present outward terminus, at the Hudson river depot, prove a success, it will be extended to the northern limits of the city, and another will also be built on the eastern side of the island.

An Underground Road.

Notwithstanding the promise of success for the elevated railway, the project for an underground railway, to start from near the City Hall, and to extend to the Central Park and beyond, is more talked of than ever. Ten or twelve millions of dollars will be required for the construction of such a road. Efforts are now being made to secure the necessary capital, and work will not be commenced until sufficient is subscribed to complete it with all possible dispatch, to Union Square. It is proposed that work shall be commenced simultaneously, at short intervals, all along the line. The excavation will be pushed forward day and night, most of the earth being hauled away during the night, while the streets are unobstructed. At least 1,000 carts will be at once set to work for this purpose. Cars will commence to run as soon as the road is completed to Union Square. If the road proves a success, it will be continued on to Central Park and beyond, with the ultimate purpose of passing under the Hudson river, and thus opening an uninterrupted railroad communication with the main land.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
E. M. Dewey—California.
S. H. Herring—California.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Sacramento.—M. S. Senter.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City and Idaho Ter.—Sam. Heidelberger.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
London—George Street, 30 Cornhill, E. C.
Henson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $6. Delivered in the city, per month, 60 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

DEWEY & CO.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and ze.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

Advertising and Subscription Rates for the Scientific Press.

Subscriptions in Advance:—One year, $4; six months, $2.50; single copies, 10 cents; Monthly Series, $4.50 per annum; Quarterly Series (stiff paper binding) $5.

Lowest Rates for Advertising:

We shall adhere to the following rates (payable in gold coin) for advertising in the Scientific Press from this date:

	1 week.	*1 month.*	*3 months.*	*1 year.*
One sq. (10 lines agate)	$1 50	$ 3 00	$ 8 00	$ 32 00
Two squares	3 00	6 00	15 00	60 00
Three squares	4 50	9 00	20 00	76 00
One-fourth column	6 00	12 00	28 00	100 00
Half column	12 00	20 00	54 00	200 00
One column	20 00	40 00	100 00	400 00

RATES BY THE LINE.

Per line.—One week, 25 cents; one month, 80 cents; three months, $2; one year, $5.

Per line, ten lines or more.—One week, 20 cents; one month, 30 cents; three months, 80 cents; one year, $3.20.

Mining and Legal Advertisements will be inserted at special rates—less than one-half the cost of daily publication.

Particular attention will be given to preparing engravings, inserting advertisements in conspicuous, novel and attractive form. We will otherwise assist advertisers in getting up their notices, when desired.

☞ All advertisements in the Press appear in both the ☞ the Monthly and Quarterly Series of the SCIEN- ☞ TIFIC PRESS, which (by special arrangement) are ☞ placed for free reading in the principal hotels, ☞ steamboat and steamship saloons, depots, and pub- ☞ lic reading rooms and libraries in San Francisco and ☞ Pacific States. Many volumes are also bound, thus ☞ affording permanent advertising.

The Press now receives the largest and best advertising patronage of any weekly paper west of the Rocky Mountains.

In regard to the value of advertising in our journal, we refer with pleasure to those who can speak from experience—*our advertisers.* Better referees, or more reliable names, cannot be found in the advertising columns of any newspaper in the world.

DEWEY & CO.,
Publishers and Patent Agents.
No. 414 Clay street, San Francisco. Jan. 1, 1870.

To Solicitors.

AGENTS WANTED.

One or two active and reliable Agents can obtain permanent and profitable employment by addressing or calling at this office.

GEO. E. ROGERS,
(Successor to O. W. Boll.)
ASSAYER,
512 California st., San Francisco.
J. A. MARS, Assayer.
Ores carefully Assayed. Gold and Silver Ores worked.
23v16.qr10pnr

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.
Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	6 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

For Miners, Millmen and Metallurgists.

KUSTEL'S NEW WORK,
CONCENTRATION
Of all kinds of Ores, and the
CHLORINATION PROCESS,
For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price, - - - - $7.50

A liberal discount to the Trade. For sale by the Booksellers
Sent to any part of the United States, postage paid, on receipt of the price. Address,
DEWEY & CO., Publishers,
Office of the Scientific Press, 414 Clay street,
1v16tf AN FRANCISCO. 1868.

Sheffield Scientific School
Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology. and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School." New Haven, Conn 13v6-1v18n

OCCIDENTAL
Insurance Company,
OF SAN FRANCISCO.

Cash Capital, - - - - - - $300,000
GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

CHR. CHRISTIANSEN, President
B. Rothschild, Secretary 20v17-3m

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.
DIVIDED INTO 1,200,000 SHARES OF
TEN DOLLARS EACH,
FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President........SAMUEL MERRITT.
Vice-President........MICHAEL REESE.
Treasurer........J. SELIGMAN & CO.
Secretary and General Agent........W. K. VAN ALEN.

Board of Trustees—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm. H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, seven miles in length by four thousand feet in width, embracing five thousand and twenty acres.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of all mines discovered by the Tunnel.

4th—A royalty forever of two dollars on each and every ton of ore extracted from any part of the Comstock Lode, and

6th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of this great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast,

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full-paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
Secretary and General Agent,
626 Montgomery street,
Opp. Montgomery Block.
3v20-3m

Business Cards.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

T. D. YOUNG,
IMP TER OF MACHINISTS' TOOLS
113 and 114 Beale St., San Francisco
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent. and upwards. 23v17qr

---

H. S. CROCKER & CO.,

Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM
PRINTING ESTABLISHMENT.

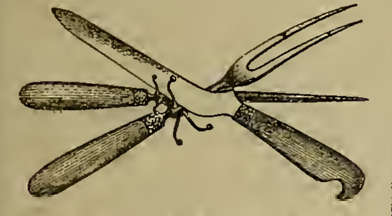
Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf



M. PRICE, Maker,
No. 415 KEARNY STREET,
BETWEEN PINE AND CALIFORNIA, SAN FRANCISCO.
20v19-3m

International Hotel,
JACKSON STREET'
BETWEEN MONTGOMERY AND KEARNY STS.,
SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.

Prices varying from $1 50 to $2 per day for Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

☞ Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House FREE OF CHARGE, and to any part of the city for **50** cents
21v12 F. E. WEYGANT, Proprietor.

Professional Cards.

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street.................... San Francisc

(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to **331** Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JOHN ROACH, Optician,
Has removed from 622 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.
2v15-1qy

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. R. R. ROBERTS,
The Great Magnetizer,
Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all CURABLE Chronic Diseases by ANIMAL MAGNETISM and the SWEDISH MOVEMENT CURE. 2v20-1y

---

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods CHEAPLY, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent. off to the trade. Address,
HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

HIBBERD, SANBORN & CO.,
STAIR BUILDERS.

[South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Nowels and Ba'usters.

FROM The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED
$65
WEED
Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hour, 329 Kearny St. S. F., Agt.
TO **$500**

WONDERFUL
Scientific Discovery,
THE GREATEST EVER MADE,
Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No EXAGGERATION, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, JOHN STAPLETON,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.
24v18-1m

J. J. JONES,
CARPENTER and BUILDER,
No. 324 Jackson street, between Sansome and Battery,
Stores and Offices fitted up with neatness and dispatch.
7v18tf

W. C. CAMPBELL,
PATTERN AND MODEL MAKER,
No. **20** Fremont street, over Phœnix Iron Works, San Francisco.
Particular attention given to MODELS for the Patent Office Brands and Pattern Letters Cut. 4v18mtf

---

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers.
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

---

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

---

SPAULDING & BARTO,

BOOK AND JOB PRINTERS,

Scientific Press Office,

NO. 414 CLAY STREET,

SAN FRANCISCO.

CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,
AND
PRINTING OF ALL KINDS FOR BUSINESS MEN
BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,

Neatly, Correctly and Promptly Printed.

California Steam Navigation
COMPANY,

Steamer CAPITAL.................CAPT. E. A. POOLE
" CHRYSOPOLIS.............CAPT. A. FOSTER.
" YOSEMITE..................—— ——
" CORNELIA..................CAPT. W. BROMLEY
" JULIA.........................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets,
B. M. HARTSHORNE,
13v12 **President**

Metallurgy.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at

No. 36 FREMONT STREET.

And WORKS at H. J. BOOTH & CO'S FOUNDRY, northeast corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.

Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.

By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public. ☞ Mines Examined and Reports made.

REFERENCES.—William Bosworth, Thomas Varnsy, Egbert Judson, E. T. Steen, Wm. Bellshaw, P. Reichling, W. O. Sleeper, J. L. N. Shepard, Norbert Landry.

CHAS. PLETZ & CO.

CHAS. PLETZ, Analytical Chemist.
FRED. MORRIS, Amalgamator and Millman. 25v19-3m

G. W. STRONG,
ASSAYER AND WORKER OF ORES,
No. 10 Stevenson street, near First, San Francisco.
Highest price paid for choice lots of Ores, Sulphurets, Assay Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14v15qr.

H. W. GRAY. J. ROSEBERRY. D. S. LOOMIS.
Ores of all Kinds Crushed and Sampled,
H. W. GRAY & CO.,
YOLO MILLS.
Corner Market and Beale Sts., San Francisco.
24v19-3m

$1. Postage Paid. $1.

A CHEAP AND HANDY BOOK
—FOR—
Mechanics, Inventors and Students.

SCIENTIFIC PRESS
NEW EDITION
— OF —
507 MECHANICAL MOVEMENTS.

PUBLISHED BY
DEWEY & CO.

LIST OF CONTENTS.

Æolipile.
Balance, Compensation: Barometer; Blower, Fan; Brake, Friction.
Cams; Capstans; Centrolinead; Clutches; Chasers; Clamps, bench and screw; Cock, four-way; Column, oscillating; Compasses, proportion; Counters of revolutions; Coupling, union; Crank—substitute for the, variable; Cranks, bell and compound; Cyclograph.
Differential Movements; Drag-link; Drill—Fiddle and Persian; Drills, Cramp; Drop; Drum and Rope; Driver, Pile; Dynamometers.
Eccentrics; Ejectors, Bilge; Ellipsograph, Engine, Disk; Engines—Rotary, Steam, Valve Gear for; Epicyclic Trains; Escapements.
Fountain, Hero's: Fusees.
Gasometers; Gauge, Bisecting; Gauges, Pressure; Gear, Steering; Gearing—Bevel, Brush, Capstan, Conical, Crown, Eccentric, Elliptical, Face, Friction, Internal, Irregular, Multiple, Mutilated, Scroll, Sector, Spur, Step, Stud, Sun and Planet; Gearing—Variable, Worm; Governors; Guides; Gyroscope.
Hammers—Atmospheric, Bell, Compressed Air, Trip, Steam; Helicograph; Hook—Boat-detaching, Releasing; Hooks, Centrifugal Check; Hyperbolas, Instrument for Drawing.
Intermittent Movements.
Jack—Hydrostatic, Lifting; Joint—Ball and Socket, Bayonet, Universal.
Ladder—Folding, Self-Adjusting; Lazy-tongs; Level, Self-recording; Lever—Bell-crank or Elbow, Knee; Lewis; Link. Detachable Chain.
Machine—Bohnenberger's, Drilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; Meter—Gas (wet and dry), Water; Mill—Barker's, Crushing, Tread, Wind; Miscellaneous Movements; Motion—Alternating Traverse, Rocking, Self-reversing, Shuttle; Motions—Feed, Link, Parallel, Pump, Traverse, Variable Traverse.
Pantograph; Parabolas, Instrument for Drawing; Paradox, Mechanical; Pendulum, Conical; Pendulums, Compensation; Pinion—Lantern, Mutilated, Slotted, Two-toothed; Power, Horse; Presses, Hydrostatic; Propeller, Screw; Pulley—Expanding, Friction: Pulleys—Anti-friction Bearing for, Chain; Pump—Air, Balance, Bellows, Chain, Diaphragm, Steam-siphon; Pumps—Double-acting, Force, Lift, Rotary; Punching Machine.
Rack—Mangle, Mutilated; Racks and Pinions; Ram, Montgolfier's Water; Ratchets and Pawls: Regulator—Gas, Watch, Reversing Motion, Self; Revolver; Rollers, Oblique; Rolls—Anti-friction, Drawing, Feed; Rulers, Parallel.
Saw—Endless Band, Gig, Pendulum; Screw, Archimedes, Differential, Double Reversed, Micrometer; Screws—Endless, Right-and-left Hand; Sectors; See-saw; Shears; Stamps; Stand, Mirror; Stop—for Hoisting Apparatus, for Lantern Wheels, for Ratchet Wheels, for Spur Gear; Stops for Winding Watches.
Test, Friction; Throttle, Spinning; Toggle-joint; Tongs, Lifting; Trap, Steam: Treadles.
Water, Machines for Raising: Weir, Self-acting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Paddle, Water; Windlass—Chinese, Friction; Windmills; Wipers.

This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.

A liberal discount made to the trade. Single copies, $1—sent postage free. Address orders,

DEWEY & CO.,
Patent Agents, San Francisco.

Reading for the Hour.

When we were in Colorado last summer, we were told a very characteristic story of Governor Gilpin. The Governor once took a party of gentlemen out to see some of his estates, which he was rather anxious to dispose of. At one place, rather uninviting to the eye—in fact, rather similar to the surroundings of San Francisco—he proceeded to point out the advantages of the location in his own peculiar way. "See there," he said, with an imposing sweep of the arm; "in a few years these hills will be covered with the purple clusters of the productive vine." "But, Governor," remarked one of the party, who was rather inclined to murmur at the barren prospect, "what will you do with all that sand?" "That sand?" replied the Gilpin; "that sand? With that sand we shall make the bottles to bottle up the wine." How the Governor might have proceeded to make those bottles, the reader may learn from our column on "Home Industries."

Gentlemanly Conduct.—It is getting to be a fashion now-a-days among those who lay great stress on being considered "gentlemen" (and who are obliged to proclaim the fact that they are such, that people may know it) to flog any person smaller than they are, in return for any real or fancied insult. A telegram from Virginia City lately announced, that the superintendent of a mine there horse-whipped Mr. Wiegand, editor of the *Peoples' Tribune*, on account of articles published in the paper which reflected on him. This seems to show that the articles are true; at least, that is what we must think, as no defense is made. The superintendent by his action has put himself on a level with the common rough, who knows no other than the knock-down argument—so far as the telegraph report shows.

John Smith, or Jim Smith, or Joe, or Billy, or some other Smith, in a discussion before the Board of Supervisors the other day, mildly intimated to a limb of the law that a certain statement made by such limb, if repeated when not under the protection of the Board, might result in something dreadful. The limb disclaimed any intention to repeat, and hence, we fear the local papers will lose a sensational item. [N. B.—Two other gentlemen did commence outside an interchange of compliments; but, unfortunately, a policeman was at hand, and no damage resulted.]

The Finest Country in the World.—Every day we are hearing of this place. Yesterday it was Nevada, day before yesterday, Montana; to-day, according to Gov. Safford, who has written to the New York *Sun* a long letter on the subject, it is Arizona. Here the climate is the most delightful, the soil the finest, the mines the richest, of any place on the coast. If any one of our readers thinks he does not know enough about that Territory, he can learn a great many *new* facts by reading the letter.

Patents.—We notice a number of patents issued to Californians in the Scientific Press every week, but none as yet is announced to Stanford & Co., for making telescopes out of railroad cars.—*Yreka Union.*

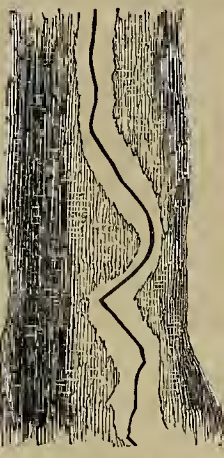
True, but if you will wait awhile you will probably hear of a patent having been secured through this office for an invention to *prevent* making telescopes out of railroad cars.

Modesty.—There is a man who thinks so poorly of himself, that he has written to the Board of Supervisors of this city, stating that he is willing to accept any good paying office at their disposal, from Chief Justice up (or down) to any other place. Give him a large contract to remove himself from the State.

The Lightning's Autograph.

On the 10th of September last year, an elm tree near Acton, Middlesex county, England, was struck by lightning, which left its mark along the trunk in a remarkable manner. Mr. H. J. Slack wrote to the London *Student* an account, from which we take the following:

The tree is about sixty or seventy feet high, and fifteen in girth, and stands, in the neighborhood of others, about forty yards from a house, which, on a steep hill, is a conspicuous object for many miles around. The groove cut by the lightning was not burned at the edges, or noticeably ragged. It was such as might have been made with a rather blunt square-edged chisel driven through the inner bark and descending a little into the sap-wood. It was about three-fourths of an inch wide, and one-fouth to one-half an inch deep, not reckoning the thickness of the displaced bark. It was traced from the ground to a height of about forty feet, and then lost amid ivy and branches. The bark was stripped off to an average breadth of about nine inches.



The Lightning's Track.

That the tree did not suffer greater injury may be ascribed to the heavy rain falling at the time, and to the good conducting powers of its abundant sap. In some places in and near the groove was noticed a slight growth of blue mould; the sap globules killed by the stroke having formed a fit medium to promote its development. The tree did not seem any worse for its accident, but it may possible suffer next year.

Those who are familiar with electrical experiments, must have noticed how often a long strong spark from a prime conductor of a frictional machine takes the zig-zag form. The first impression of those who saw the groove was, that the electric spark had made an exact imitation of its own zig-zag course through the air; and it may not be inaptly termed the lightning's autograph.

The most wretched country in the world, is, according to a correspondent of the New York *Tribune*, Egypt, at least in some respects and for some people. This is what he says:

In Egypt I saw for the first time a misery among the people that I could not endure. Heaven knows there is enough of it in Europe. A man need not leave London to find it; nor can he escape it in any city or country. I had seen Ireland; you know what that is. I have seen French villages, where men and women work sixteen hours on two meals of boiled greens; I had spent three months in Spain, the most wretched country in Europe, and counted one afternoon in the main street of Madrid, half a mile long, a hundred and forty-seven horrible beggars. But in Egypt it is obtrusive and oppressive, and at last intolerable. Till you have seen Egypt you have no conception of what poverty is—the poverty which weighs not on individuals as a consequence of idleness or misfortune or want of work, but the poverty which is the heritage of a whole race of patient men and women.

An Honorable Challenge.—M. P. Shannon, of Knight's Landing, challenges any boot maker in Yolo county to make a boot with him, on a wager of from $100 to $500; the wager to be given to the poor of the county.

Small Feet in China.

In China, long nails and small feet convey the idea of gentility and exemption from labor. But on the small size of the foot special stress is laid. It is only the most abject poverty or the direst necessity, which can lay an interdict on this essential of all female beauty. The richer the family, the earlier in life is the compression commenced. The strength of this fashion may be judged of from the very poorest striving to conform to it. Fashion leads mothers not to neglect this part of the education of their daughters, however careless in other matters. Few girls are taught to read, almost all have their feet bound. Fashion must always prevail over conveniences. Women ought never to appear in public; in state affairs they neither assist by their counsel, nor disturb by their ambition; and thus, to make the maxim more observed, they are taught that small feet constitute beauty, and the mothers first care, therefore, is to make her daughter fashionable, by making her a cripple.

Different Fashions.

The ladies in the south of China desire a three-inch foot. The Tartar women, on the other hand, do not wear the small shoes, but shoes with a large square piece of wood in the middle of the sole. These appear very inconvenient; but in wet weather or muddy streets, they raise the finely embroidered satin slippers above danger. In Pekin the Tartar element is so strong that small feet are less frequently seen than in the south. A milder form of compression, especially among the country people, exists; the four toes being bound under the foot without changing the direction of the heel very much.

The Emperor's wives and concubines must belong to the large-footed class; women of no other class are permitted to enter the palace; and some have said, with what degree of truth I know not, that a small-footed women entering the palace would be put to death immediately. The Chinese generally choose a small-footed woman for their first, or principal wife; and they add to this, by purchase or otherwise, a large-footed concubine; and, *vice versa*, a Mantchu with a large-footed wife, if of sufficient means to maintain more, adds the desired number of small-footed secondary wives to his stock.

How the Foot is Compressed.

The fashionable size is about three inches, but oftener five, and sometimes seven. The size depends upon the time when the compression is begun, and the regularity and tightness with which it is maintained. The bandages are never left off; for, after the standard size has been obtained, they are still retained to keep the shape and give strength to the foot. Without them, walking would be impossible; the unbound and unsupported foot is too weak to support the super-incumbent weight. The feet are never incased in iron shoes, as some have thought. Simple bandages are all that are employed, and are so applied across the foot as to carry the second, third and fourth toes, and especially the fifth toe, quite under the foot, and so obtain the least possible breadth; and by one or two turns of a figure-of-8 bandage, the foot is shortened, the heel is brought close to the ball of the big toe, and instead of forming an angle with the leg bones, it looks more like a continuation of them.

The Effect.

The bones of the instep are pushed out of place, and made to bulge, thus giving a great prominence, and an arched crescent form to that part. The three points upon which the foot rests are the heel in its new position, the ball of the great toe, and the fourth and fifth toes—their upper surface having now become part of the sole. The foot and leg become greatly atrophied, and the skin shriveled. The leg tapers from the thigh-joint to the foot, in the form of a cone, without the usual feminine risings and depressions, owing to the undeveloped calf; and that again is caused chiefly by want of exercise and proper motion to call these muscles into action.

The knee and ankle joints do not bend; all movement is from the thigh joint; the gait is mincing, with the arms slinging from side to side, and the body never straight or steady. They walk or stand, one might say, on their heels; and yet, from the nature of the shoe, with heel one or two inches higher than the toes, they may be said to walk on their toes.—*Chinese Recorder.*

Jupiter's Belts, according to astronomers, are changing. Some one suggests they are being handed over to Mars.

Hints and Recipes.

Butter and Flour.—In a family of ten persons, including two or three children, a barrel of flour lasts about thirty-six days. The same family consumes an average of one pound of butter per day, including that used in cooking. The average retail price here, for such articles, has been for some time past, about $12 per barrel for flour, and 60 cents per pound for butter. (Butter is a little cheaper just now.) According to these figures, it takes $21.60 worth of butter to use up $12 worth of flour—or an excess of $9.60. Few persons, we presume, have ever thought how much more it costs to keep a family in butter than it does to purchase their flour; yet we in California send twice as much flour abroad as we consume at home, and import more than half our butter. A more short-sighted policy can hardly be conceived of.

The Best Noon Mark is a pole so set that the shadow will fall at noon exactly in the middle of a walk, upon a row of small white stones, perhaps. It also offers another means of telling when it is noon, by the *shortness* of the shadow; for it is shortest when the sun is highest, and he is highest when he passes the meridian—which is noon.

Poisoned by Wool.—A lady in Marion county, Ky., was recently poisoned by the grease upon some wool she was spinning getting into a fresh cut upon one of her fingers. The hand and arm soon became badly inflamed, and erysipelas finally set in—of which she died in a few days. It is always dangerous to allow any thing which may be especially liable to carry poison, to come in contact with a flesh wound.

The Best way to Clean Paint, according to the *Coachmaker's Journal*, is to dip a slightly moistened flannel in whiting and apply the same to the paint in the same manner as for cleaning glass. After which, wash with clean warm water and rub dry with soft chamois skin. No soap is used. Paint thus cleaned looks much better than when cleaned with soap, and even the most delicate colors are uninjured. It does not require half the time and labor as when soap is used.

To Make Potato Yeast.—Boil one pint of hops in two quarts of water, strain the water from the hops, grate five good-sized potatoes, put into a kettle, add one cup of sugar, one tablespoonful of salt, one of ginger, boil ten minutes, add more water if too thick. Strain through a colander, cool, add yeast (to rise), bottle. It will keep a number of weeks.

No Longer Peculiarly American.—The custom of "dropping" a man can no longer be claimed to be peculiarly American when adopted by a foreign prince. On June 10th, two seconds of the editor of the *Marseillaise*, of Paris, called on Prince Pierre Bonapart, to arrange the details of an intended match between the Prince and the editor. An altercation took place, when the Prince seized his revolver and fired twice, killing instantly one of his visitors. The custom having received sanction from so high a source, will, we expect, become quite general.

Beautiful.—A child, speaking of his home to a friend, was asked: "Where is your home?" Looking with loving eyes at his mother, he replied: "Where mother is." What a beautiful tribute from a dutiful child to a faithful mother.

Down on the Clergy.—A German tailor has just been tried at Berlin for attempting to shoot a clergyman in a church during the services. The man desired to do some famous thing, and so performed this act.

The Washington *National Intelligencer* nominated Salmon P. Chase for President, and Robert E. Lee for Vice President for 1872, and then, totally used up by the exertion, collapsed, and ceased to exist.

Volunteer Compliments.

From an endless series of appreciative testimonials and frank acknowledgements, we give the following:

SUISUN CITY, Cal., June 26, 1869.

MESSRS. DEWEY & CO:—This is the third time you have presented me with Letters Patent within twelve months. Gentlemen, you have done all I have asked of you—you have been honest; you are men that an inventor can rely upon for doing business for him, and he need not fear of being swindled or wronged in any way. I would give you business to do in your various departments in preference to any one else. Many thanks to you for your success. You have obtained valuable patents for me, and I appreciate your kindness, your honesty, ability and success. Yours, RICHARD KNOTT.

"TIDAL WAVE" OFFICE, SILVER CITY, }
IDAHO TERRITORY, July 27th, 1869. }

MESSRS. DEWEY & CO.—GENTLEMEN:—Allow me to express my high appreciation of the ability and business management of the Mining and Scientific Press Patent Agency, and to say that our business relations have been marked with the utmost promptitude upon your part and with entire satisfaction upon mine.

Yours, etc., JNO. S. BUTLER.

SAN FRANCISCO, May 5, 1869.—MESSRS. DEWEY & CO. Gentlemen:—Allow me to express to you many thanks for services rendered me in procuring my patent, which has just come to hand. I would also say that your work has been faithfully done, and your advice and representations have in all cases been honest and truthful.

Respectfully, GEO. INWOOD.

SAN FRANCISCO, April 19, 1859.

MESSRS. DEWEY & CO., Patent Agents.—*Gentlemen:*—Allow me herewith to tender you my sincere thanks for the efficient assistance you have rendered me in securing my patent, and other papers, as well as the promptness and energy displayed by you in our business transactions. Very respectfully yours, C. E. JAYCOX.

GRASS VALLEY, Dec. 2, 1868—*Messrs. Dewey & Co:*—Having received the patent for Symons & Co's Tossing and Refining Concentrator, through your Agency, we return our sincere thanks to you for your unrivalled success. Yours, respectfully, SYMONS & HARRY.

MAYFIELD, Cal., June 26, 1869.

DEWEY & CO., *Patent Solicitors, San Francisco*—Gentlemen:—In acknowledging the receipt of my Letters Patent, allow me to express my thanks for the skillful and trustworthy manner in which you have conducted my business before the Department at Washington. I am perfectly satisfied with the high degree of ability and integrity displayed in the management of my case, and I know of no similar agency in which I could place corresponding trust. Yours truly, J. M. JOHNSON.

STOCKTON, April 8th, 1869.

MESSRS. DEWEY & CO.:—Your favor of the 6th inst., accompanying patent for improvement in horse shoes, is received. I beg you will accept the earnest assurance of my gratitude for your kind assistance and valuable services. Very truly yours, W. R. WATSON.

SOMERSVILLE, CAL., August 25th, 186.

MESSRS. DEWEY & CO.—Dear Sirs: Allow me to return you my thanks for the very able manner in which you have conducted the business entrusted to your care. You will please forward the document (British Patent) by Bamber's Express to this place. Yours, respectfully,

GEO. HAWXHURST.

JAMESTOWN, Cal., July 6th, 1869.

MESSRS. DEWEY & CO.—GENTLEMEN:—The Patent for our Ore Washer and Concentrator was duly received by express. We return you our thanks for the promptness and successful manner which have attended your efforts in our behalf. Yours, WM. G. HESLEP.

SANTA CRUZ, December 30, 1869.

MESSRS. DEWEY & CO —*Gentlemen:*—Yours of the 24th December, inclosing my patent for construction of earthquake-proof wall, was duly received last night. I am highly pleased with the way in which the business has been done. The ability which carried it through, and the scrupulous care bestowed on its preparation, are above praise; and I will gladly intrust to your hands any further business I may have to do, which will soon take place on a very useful and important invention.

Very truly yours, A. MCPHERSON.

We have had frequent occasion to have business relations with the patent agency connected with this establishment, and have had nothing left to desire in regard to it. Fidelity, promptness and courtesy, soon arranged everything for us to our complete satisfaction. Having had frequent delays at Washington while in that city, we have been surprised at the promptitude with which some of our friends obtained their patents through the agency of Messrs. Dewey & Co.—*S. F. Spiritual Light.*

NEVADA CITY, Nov. 3d, 1868.

MESSRS. DEWEY & CO.—Gentlemen:—Your favor of the 30th ult., is just received, informing me of the successfull prosecution of my application for a patent on my "Hair Cutting Shears." Please accept my sincere thanks for the speedy and successful manner in which you have conducted the case, and believe me, as ever,

Very truly yours, LEE D. CRAIG.

SCIENTIFIC PRESS.—This paper, indispensable to every mine and mining man on the Pacific coast, closes volume nineteen with the number now before us. The proprietors have reduced the price to four dollars per year, and say: "Profited by the experience of the past, and encouraged with liberal patronage, we shall add improvements which will render the next volume of the Press much superior to its former issues.—*Alpine Miner.*

SCIENTIFIC PRESS.—The Mining and Scientific Press, which has been a faithful exponent of the scientific, mechanical and industrial interests of our western coast, entered upon its twentieth volume on the first of January, and at the same time adopted the shorter and equally comprehensive title of Scientific Press. This journal has, for some time past, maintained a department specially devoted to agricultural matters, and has filled it with useful and interesting information.—*Contra Costa Gazette, Jan.*, 1870.

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block San Francisco. 24v18-4w

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.

10v18 6m B. F. HOWLAND.

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

RETURNED.—Dr. J. H. Paine, Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

"SEE, the conquering hero comes," with a pair of C. Muller's spectacles a-stride his nose. He got them at 205 Montgomery street. *

New Mining Notices.

Arctic Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the seventeenth day of December, 1869, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B W Hathaway	unissued	75	$225 00
Louis Dionne	unissued	5	15 00
A H Emanuel	unissued	2	6 00
I E Brockow	unissued	3	9 00
A D Meacham	unissued	25	75 00
Robt Hawxhurst	unissued	25	75 00
J P Moore	unissued	50	150 00
Emma E Snyder	unissued	5	15 00
J D Wilson	unissued	10	30 00

An in accordance with law, and an order of the Board of Trustees, made on the 17th day of December, 1869, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the eighth day of February, 1870, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. N. VAN BRUNT, Secretary.

Office, 426 Montgomery street, San Francisco. ja22

Cassell Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

NOTICE.—There are delinquent upon the followed described stock, on account of assessment levied on the seventeenth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B W Hathaway	unissued	75	$225 00
Robt Hawxhurst	unissued	10	30 00
A D Meacham	unissued	45	135 00
R Yaeger	unissued	6	18 00
Emma E Snyder	unissued	5	15 00
S L Goulding	unissued	5	15 00

And in accordance with law, and an order of the Board of Trustees, made on the seventeenth day of December, 1869, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the eighth day of February, 1870, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessments thereon, together with costs of advertising and expenses of sale.

R. N. VAN BRUNT, Secretary.

Office 426 Montgomery street, San Francisco. ja22

Idaho Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the seventeenth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A D Meacham	unissued	50	$150 00
J Spruance	unissued	75	225 00

And in accordance with law and an order of the Board of Trustees, made on the seventeenth day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the salesroom of Maurice Dore & Co., 327 Montgomery street, San Francisco, on the eighth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. N. VAN BRUNT. Secretary.

Office, 426 Montgomery street, San Francisco. ja22

Mining Notices--Continued.

Alleghany Consolidated Gold Mining Company, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirtieth day of December, 1869, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the seventh day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, 37 New Merchants' Exchange, California street, San Francisco. jan8

Glenwood Mill and Mining Company.—

Location of Works: Greenwood, El Dorado County, California.

NOTICE.—There are delinquent on the following described stock, on account of assessment levied on the seventh day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Lucy Janeson	24	70	$14 00
Michael McCarthy	15	70	14 00
J H Sayre	36	140	28 00
J H Wood	31	67	13 40
J H Wood	not issued	105	21 00
J J Miller	balance due 34	220	30 75

And in accordance with law and an order of the Board of Trustees, made on the seventh day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, No. 318 California street, San Francisco, Cal., on Tuesday, the first day of February, 1870 at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. D. SQUIRE, Secretary.

Office, 418 California street, San Francisco. jan15

Imperial Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifth day of January, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable within thirty days, in United States gold and silver coin, to the Secretary, No. 319 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the tenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eight day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. E. MOODY, Secretary.

Office, 319 California street, San Francisco. jan15

Latawana Mining Company.---Location: Hamilton City, White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees, held on the twenty-second day of December, 1869, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, or at 526 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the nineteenth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. dec18

Pinto Mining Company.—Location of Works: Silverado, Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of January, 1870, an assessment of fifteen (15) cents per share was levied upon the capital stock of said Company, payable on the fifth day of January, 1870, in United States gold coin, to the Secretary, No. 426 Montgomery street, San Francisco, Cal., or to HOMER S. KING, ESQ., Agent of Wells, Fargo & Co., Hamilton, Nevada.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the seventh day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street, San Francisco. jan8

Pilot Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of November, 1869, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room No. 7, 428 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Monday, the third day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-first day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. M. BARRON, Secretary.

Office, Room No. 7, 428 California street, San Francisco, California. jan8

Taylor Mill and Mining Company.—Location of Works: Georgetown District, El Dorado Co., State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifth day of January, 1870, an assessment of sixty cents per share was levied upon each and every share of the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 520 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventh day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of February, 1870, to pay the delinquent assessment, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

SAM'L S. MURFEY, Secretary.

Office, No. 520 Montgomery street, over Sather's Bank, San Francisco, Cal. jan8

New Advertisements.

RICE'S PATENT
SELF-ADJUSTING
UNIFORM STAMP LIFT.

A Model of this valuable invention can be seen at the MINERS' FOUNDRY CO-OPERATIVE, 235 to 245 First street, San Francisco. 4v20-1m

Illustrate your Inventions

IN THE SCIENTIFIC PRESS,

An illustrated journal of Mining, Farming, Mechanic Arts and Industries on the Pacific Coast. It costs no more for a superior engraving by our experienced artists than is usually charged for a less perfect picture. If you wish to introduce a new invention properly before the public, the first steps in so doing are important ones. A full description and correct representation in the PRESS will go further and prove more quickly effective than any other means.

The fact that an illustration is admitted into our columns, guarantees the invention important consideration in the minds of thousands of the most intelligent readers—at home and abroad—who would not notice it so favorably or so thoroughly, if at all, when presented through an unreliable medium or indifferent source.

The model of an invention sent to us is sufficient for making a good engraving, Sometimes a photographic view is sufficient; but it is always best accompanied with drawings or a copy of the patent. A first-class illustration has proved to be one of the best and cheapest means of obtaining purchasers for a good machine or a valuable patent.

Cuts ordered for illustration are the property of the inventor who pays for them, and can generally be used for circulars, pamphlets, books, or other newspapers. The engravings to be seen in each issue of the SCIENTIFIC PRESS are a fair sample of the work of the artists who can always be found in our office.

DEWEY & CO.,
Publishers Scientific Press, American and Foreign Patent Agents, San Francisco.

EVENING DRAWING SCHOOL
—BY—
N. P. LANGLAND,

(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 536 MARKET STREET, over Occidental Market. ☞School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3y20-3m

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

August 2, 1869. THOMAS MOONEY, President. 6v19-1m

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & CO., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

The Aerial Steam Navigation Company.

At a meeting of the stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cazneau, Henry F. Williams and Simon L. Jones were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars, said shares to be *unassessable.* The funds thus raised are to be devoted exclusively to the construction of the first aerial steam carriage, and to be deposited in the Bank of British Columbia, to be disbursed upon requisition of Mr George K. Gluyas, Engineer of Construction. The working, drawings, etc, can be seen at the office of Gen Thomas N. Cazneau, No. 321 California street, where subscriptions will be received. No invention for navigating the air has before received such positive indorsements from engineers of reputation, or so liberal encouragement from prominent capitalists' as Marriott's Avitor, which now seems sure of being thoroughly tested on a large scale. 2v20-my

Advertise Rightly and You will Surely Profit by it.

THE SCIENTIFIC PRESS is the best and cheapest advertising medium in the Pacific States

For advertising Mining and Farming Inventions, Machinery and Implements, Tools for Workshops, and all Industrial Pursuits on the Coast, and in fact, all matters which advertisers wish to have known to the most intelligent and industrial classes throughout this Coast.

The Scientific Press is printed in superior style on fine paper, and great care is taken to display advertisements conspicuously and in good taste.

A large edition of the Press is bound in Monthly Parts (pamphlet form) and also a large edition in Quarterly Series (stiff binding); which are furnished to hotels, libraries, reading rooms, ferry boats, bay, river and ocean steamers, R. R. depots, etc., throughout the Pacific Coast. Our advertising columns are the best patronized of any weekly paper west of the Rocky Mountains. Our advertisements are longer continued than those of any other paper. As to the value of the Scientific Press as an advertising medium, we refer to our list of patrons. No paper in the world has a better class of intelligent, reliable customers.

DEWEY & CO.,
Publishers and Patent Agents, 414 Clay street.

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broad
SAN FRANCISCO.
☞ Belt Leather for sale.

urs o.
is order be
eks before the
, in the SCIEN-
ublished in said
Probate Judge.
). jan8-4w

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,
SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.
21v16-3m W. McCRINDLE, Manage.

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,
SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.
2v17-3m **T. G. DURNING & CO**

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

J. P. GALLAGHER. J. H. WEED V. KINGWELL.
9v13-1y

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS.
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,
Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,
Wrought Iron Girders, and all kinds of Housesmith work, Bridge, Prison
FORGING AND MACHINE WORK,
IMPROVED FIRE-PROOF SAFES,
FIRE AND BURGLAR-PROOF SAFES
Of a superior make. Sole manufacturer of the celebrated
MONITOR SAFE.
BANK VAULTS AND SAFES,
Of every description, made to order at short notice. A large stock of SAFES of all kinds constantly on hand. Agency for the ISHAM KEY REGISTER BANK AND SAFE LOCK, the only first class Lock in the United States
1v17tf

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
13 and **15** Fremont street, near Market, San Francisco.
10v14qr

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

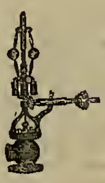
STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,
WILCOX'S PATENT WATER LIFTERS,
Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.
All kinds of Mining Machinery.
Street, between N and O streets,
SACRAMENTO CITY

Boa
ing that
paying off
Justice up
Give him a
self from th

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,
SAN FRANCISCO.



MANUFACTURER OF
PRACY'S IMPROVED
PATENT STEAM ENGINE
GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR
L. W. POND'S CELEBRATED TOOLS,
— SUCH AS —
Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,
Which I will offer at very low rates. Also,
MORSE'S TWIST DRILLS,
AND CHUCKS OF ALL KINDS.
MANUFACTURER OF
Steam Engines, and Mill Work Generally.

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED............APRIL 30, 1868.
CAPITAL............$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	James Pollock,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON............President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD............Secretary.
24v17-qy

SAN FRANCISCO
Pioneer Screen Works.

JOHN W. QUICK,

203 Fremont street, near Howard, San Francisco.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at greatly reduced rates.

ORDERS SOLICITED AND PROMPTLY ATTENDED TO.

I would call special attention to my slot cut and slot punched Screens which are attracting much attention and giving universal satisfaction, both as regards their efficiency and durability. This is the only establishment on the coast devoted entirely to the manufacture of Screens. It has furnished screens for the principal mills and firms on the coast for many years. 10v19tf

---

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,
Between Third and Fourth, San Francisco.
W. WUSTHOFF, L. KRAMER, M. HARRIS. J. BURKE.

NEW FILES OF EVERY DESCRIPTION
ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.
REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended to. 9v19-qy

---

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery,
16v16q No. 28 Fremont street, San Francisco.

FOUNDRY FACINGS.

BENJAMIN ELLIOT,

No. 433 Brannan street............San Francisco,
Manufactures Foundry Facings constantly, from choice coals. Bituminous, packed in tight sacks. Anthracite and Charcoal ground together or separate, packed in barrels. Black Lead, Coke and Soapstone ground to order.
☞ Foundrymen located far from choice material, can rely on having superior Facings forwarded to order.
10v18qr

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT.

UNION IRON WORKS,

CORNER FIRST AND MISSION STREETS,
SAN FRANCISCO.

MANUFACTURE

ALL KINDS OF MACHINERY

MARINE, LOCOMOTIVE,
And Stationary Engines,
Booker Patent Locomotive Stack,
ARMSTRONG PATENT
Heater, Condenser and Filter, Combined.
BOILERS, HIGH AND LOW PRESSURE,

Pump, Pipe and Sheet Iron Work of all kinds; Quartz Crushing and Amalgamating Machinery, including High and Low Mortar for wet or dry crushing; Furnaces for roasting ores; Horn, Wheeler's, Patton's, and Belding's Amalgamating Pans and Settlers; Hendy's Concentrator; Hungerford's Concentrator; Hunt's Grinder; Blake's Crushers; Stamp Shoes and Dies of the best white iron; Russia Iron Screens, etc.; Flour Mill and Saw Mill Machinery in every variety; Hendy, Gang, Saw Mill, Pumping and Hoisting Machinery; Excelsior Force Pump, for domestic, ship and mining use—the simplest and best in use; Iron and Brass Castings of every description; Steamboat Repairs; Boiler Making executed with despatch. Steam Engines and Boilers constantly on hand and for sale.

We would call particular attention to our

SCOTT & ECKART CUT-OFF ENGINE.

As a simple, effective, fuel-saving, first-class Engine, it has no equal. We have twenty-five of our Cut-Offs at works on this coast, every one of which gives entire satisfaction. We refer with pleasure to the report of the Committee on Engines at the Sixth Industrial Fair, which we annex. They say:

"*Horizontal Steam Engine of the Union Iron Works.*—This Engine is 16 inches diameter of cylinder, 3-foot stroke of piston, and is provided with Scott & Eckart's Patent Variable Expansion Valve. It is very substantially built, well proportioned, and capable of doing severe duty. This Engine was used every third day to drive the machinery of the Exhibition, *working very smoothly and steadily under all circumstances, and with great economy.* The friction brake was applied to this engine; but owing to the fact that the belt which had been provided for merely driving the machinery of the Exhibition was not of a suitable size to transmit the full power of the engine, the test was not applied above 30-horse power; *and up to this point the power was developed with the greatest possible economy in the expenditure of steam.* In speaking of the performance of this engine, the variable expansion valves of Messrs. Scott & Eckart deserve special mention of the ingenuity displayed in the arrangement of the valves and in the attachment of the same to the governor, whereby the position of the slides is changed so quickly to accommodate any change of load upon the engine *that the correct speed of the engine is maintained with* WONDERFUL UNIFORMITY *under all circumstances.* This engine will work 50 or 60-horse power with ease and economy. Awarded silver medal. Wm. Burnett, Mont'y Fletcher, John Myers."

Pickering Governors, Machinists' Lathes,

Plainers, Shapers, Drills, Etc.

On hand and for sale. Drawings furnished free of cost. Orders promptly attended to. A complete stock of fittings on hand.
☞ We are prepared to furnish all kinds of Machinery at short notice, as our facilities are unequalled on the Pacific Coast.

H. J. BOOTH & CO.

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,
143 Beale St., bet. Mission and Howard,
SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.
21v17-qy **J. WEICHHART, Proprietor.**

SAN FRANCISCO
Gold and Silver Plating Works.

ATTENTION.

Quartz Mill Men,
MINERS,
HOTEL KEEPERS,
— AND —
OTHERS.

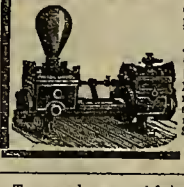
ATTENTION.

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. OLD GOODS of all kinds re-plated for hotels, restaurants, etc.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.
☞ All work done at the lowest prices. 1v20-3m

Blake's Patent.



THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's

Patent Steam PUMP

It is SIMPLE, COMPACT and POWERFUL, needs no expert to run it, and will start at any point. Is warranted POSITIVE under all circumstances. Send for a circular.

BERRY & PLACE, 112 and 114 California st., San Francisco.

To ALL who may wish to obtain a thorough knowledge of the industrial resources of the Pacific Coast, the PRESS will be found a valuable paper.—*Oakland Transcript.*

HAYWARD & COLEMAN

IMPORTERS AND REFINERS
—OF—
Illuminating, Lubricating,
—AND—
PAINT OILS,
CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.
—ALSO—
Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!
An elegant and complete assortment.

SOLE IMPORTERS OF
Devoe's Illuminating Oil
PATENT CANS.
5v17-tf **414 Front street,** San Francisco.

The Perfection of Prepared Cocoa.

MARAVILLA COCOA.

Sole Proprietors—TAYLOR BROTHERS, London.

The Cocoa (or Cacao) of Maravilla is the true Theobroma of Linnæus. Cocoa is indigenous to South America, of which Maravilla is a favored portion. TAYLOR BROTHERS having secured the exclusive supply of this unrivalled Cocoa have, by the skillful application of their soluble principle and elaborate machinery, produced what is so undeniably the perfection of Prepared Cocoa, that it has not only secured the preference of homœopaths and cocoa-drinkers generally, but many who had hitherto not found any preparation to suit them, have, after one trial, adopted the Maravilla Cocoa as their constant beverage for breakfast, luncheon. etc.

"A SUCCESS UNPRECEDENTED."

[See following extract from the Globe of May 14, 1868.]

"Various importers and manufacturers have attempted to attain a perfection for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage."

Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills, Brick Lane, London.
8v19-6m

Ayer's Cherry Pectoral,

For Diseases of the Throat and Lungs, such as Coughs, Colds, Whooping Cough, Bronchitis, Asthma, and Consumption.

Probably never before in the whole history of medicine, has anything won so widely and so deeply upon the confidence of mankind, as this excellent remedy for pulmonary complaints. Through a long series of years, and among most of the races of men it has risen higher and higher in their estimation, as it has become better known. Its uniform character and power to cure the various affections of the lungs and throat, have made it known as a reliable protector against them. While adapted to milder forms of disease and to young children, it is at the same time the most effectual remedy that can be given for incipient consumption, and the dangerous affections of the throat and lungs. As a provision against sudden attacks of *Croup*, it should be kept on hand in every family, and indeed as all are sometimes subject to colds and coughs, all should be provided with this antidote for them.

Although settled *Consumption* is thought incurable, still great numbers of cases where the disease seemed settled, have been completely cured, and the patient restored to sound health by the *Cherry Pectoral.* So complete is its mastery over the disorders of the Lungs and Throat, that the most obstinate of them yield to it. When nothing else could reach them, under the *Cherry Pectoral* they subside and disappear.

Singers and Public Speakers find great protection from it.

Asthma is always relieved and often wholly cured by it.

Bronchitis is generally cured by taking the *Cherry Pectoral* in small and frequent doses.

So generally are its virtues known that we need not publish the certificates of them here, or do more than assure the public that its qualities are fully maintained.

Ayer's Ague Cure,

For Fever and Ague, Intermittent Fever, Chill Fever, Remittent Fever, Dumb Ague, Periodical or Bilious Fever, &c., and indeed all the affections which arise from malarious, marsh, or miasmatic poisons.

As its name implies, it does *Cure*, and does not fail. Containing neither Arsenic, Quinine, Bismuth, Zinc, nor any other mineral or poisonous substance whatever, it in nowise injures any patient. The number and importance of its cures in the ague districts, are literally beyond account, and we believe without a parallel in the history of Ague medicine. Our pride is gratified by the acknowledgments we receive of the radical cures effected in obstinate cases, and where other remedies had wholly failed.

Unacclimated persons, either resident in, or travelling through miasmatic localities, will be protected by taking the *AGUE CURE* daily.

For *Liver Complaints*, arising from torpidity of the Liver, it is an excellent remedy, stimulating the Liver into healthy activity.

For Bilious Disorders and Liver Complaints, it is an excellent remedy, producing many truly remarkable cures, where other medicines had failed.

Prepared by DR. J. C. AYER & Co., Practical and Analytical Chemists, Lowell, Mass., and sold all round the world.

PRICE, $1.00 PER BOTTLE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 15v19eow-4m

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Friday, January , 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ₽ 100 lbs.; Bar, 1@1½c ₽ lb; Sheet, polished, 3c ₽ lb; common, 1½@1¾c ₽ lb; Plate, 1½c ₽ lb; Pipe, 1½c ₽ lb; Galvanized, 2½c ₽ lb.

Scotch and Eng. Pig Iron, ₽ ton	$32 50	@$35 00
White Pig, ₽ ton	30 00	@ 31 00
Refined Bar, bad assortment, ₽ lb	— 03	@ — —
Refined Bar, good assortment, ₽ lb	— 04	@ — —
Boiler, No. 1 to 4	— 04½	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½

Copper.—Duty: Sheathing, 3½c ₽ lb; Pig and Bar, 2½c ₽ lb.

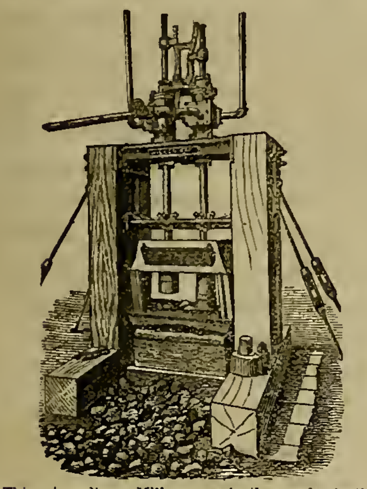
Sheathing, ₽ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22

Tin Plates.—Duty: 25 ₽ cent. ad valorem.

Plates, Charcoal, IX, ₽ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ₽ lb	— 40	@ — 42½
Steel.—English Cast Steel, ₽ lb	— —	@ — 15
Quicksilver.—₽ lb	— 55	@ — 60
Lead.—Pig, ₽ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ₽ lb	— 10½	@ — 11
Borax.—California, ₽ lb	— 38	@ — 40

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficisncy,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

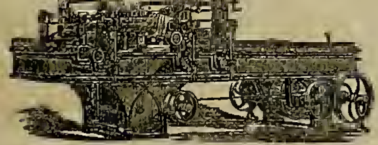
A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

Woodworth Planers,



PLANERS AND MATCHERS,

With patent expansion, feed gear and other improvements made at Worcester, Mass., in the most finished and substantial manner; also every description of Richardson Mertam & Co's, Smith's and Wood's celebrated

Wood Working Machinery.

Embracing Mortising, Sash and Moulding, Smith's Stickers, Stat and Door Tenoning, Boring, Shaping, Scroll Sawing, Planing, Rod and Dowell making and Re-sawing Machines, Wood and Engine Lathes, etc., for sale at Eastern prices, at the Machinery Depot of

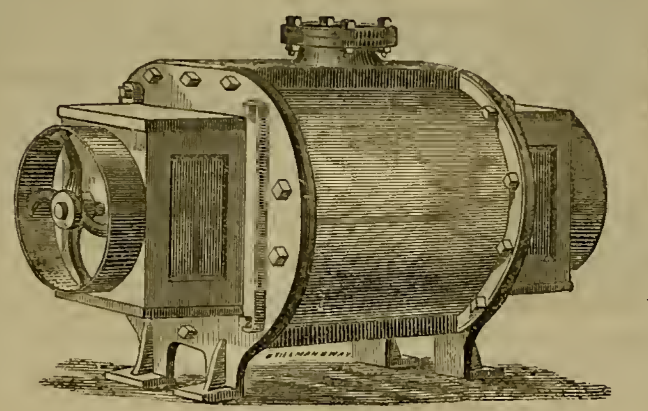
BERRY & PLACE,
112 and 114 California st., San Francisco.

☞Agents for Blake's Patent Steam Pump, (warranted the best in the market); Davis & Furber's Woolen Machinery, etc. Being the selling agents for most first class Eastern builders, millmen and others in want of Machinery can save money by giving us a call. Illustrated Catalogues sent free.

Send former address when you wish your paper directed to a new place.

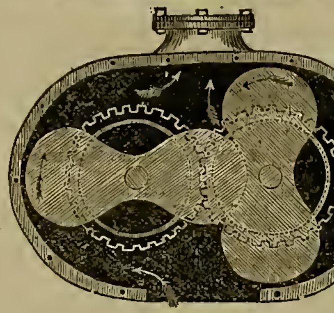
ROOT'S PATENT FORCE BLAST ROTARY BLOWER
MANUFACTURED BY KEEP & BARGION,
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition,



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** LESS POWER Than any Blower Now in use.

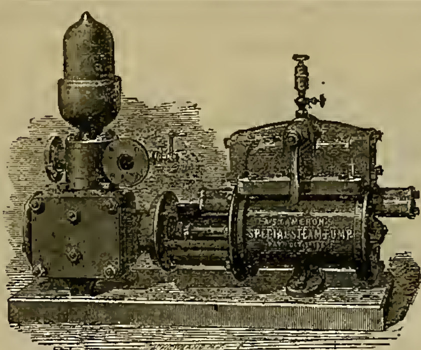
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

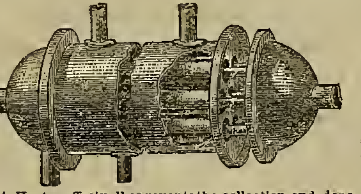
GIFFARD'S
INJECTORS.

MARINE
ENGINES.

SURFACE
CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

CROSS' COMBINED
Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
3v18 ly Stove Store, No. 1 Clay Street, below Davis.

THE GIANT
POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 25v16

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

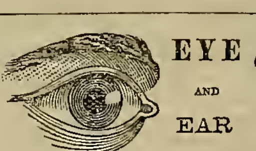
This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,

1v1 San Francisco.



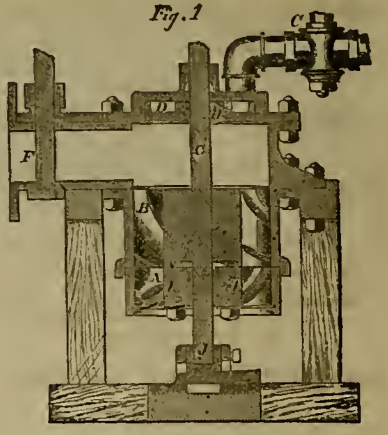
EYE
AND
EAR

DISEASES.

DR. ABORN'S
CONSULTING AND OPERATING APARTMENTS,
NO. 22 KEARNY STREET,

For the most modern and scientific treatment of the diseases of the EYE, EAR, HEAD, THROAT and LUNGS.
18v19-3m

Lind's Improved Water Wheel



Has given the highest satisfaction to parties using it. We are now prepared to sell it at reduced prices. Will also contract for all kinds of Machinery—Flour, Saw and Quartz Mill. All our work guaranteed. We will send competent men to put up our Wheels and Machinery. We contract for or do it ourselves. Our extensive acquaintance with millwrights on this coast enables us to furnish millmen with the best of workmen at short notice. Drawings for contracts furnished gratis. Send for circular.

A. LIND, Millwright,
Pacific Iron Works, San Francisco.
Refer to John Sime and J. J. Haley. 19v19

SPECIAL NOTICE.

TO DEALERS AND CONSUMERS
—OF THE—
H & L
AXLE GREASE.

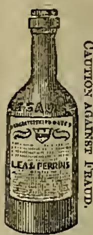
Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possible meet the market of our Chicago friends, we have made a great reduction in prices, and from our long experience we will satisfy you that there is none BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,
144 Natoma Street.

Depot, 320 Jackson Street.

N. B.—We are prepared to furnish Bulk Packages to contractors on equally liberal terms.

LEA & PERRINS'
CELEBRATED
Worcestershire Sauce.



CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good Sauce. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for Lea & Perrins' Sauce, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c.; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

---

IN THE PROBATE COURT OF THE CITY AND County of San Francisco, State of California.

In the matter of the Estate of ABRAHAM CREEMER MESSERVE, deceased.

On reading and filing the petition of Benjamin Shellard, Administrator of the estate of Abraham Creemer Messerve, deceased, setting forth that he has filed an account of his administration upon said Estate in this Court, and that the same has been duly heard, allowed, and confirmed; that more than ten months have elapsed since the publication of notice to creditors, and that no claims against the said deceased have been presented to said Administrator, and the Estate is in a condition to be closed, and that the real property remains to be distributed among the heirs of said deceased; and praying, among other things, for an order of distribution of said real property among the persons entitled,

It is ordered, That all persons interested in the Estate of Abraham Creemor Messerve, deceased, be and appear before the Probate Court of the City and County of San Francisco, at the Court Room of said Court, in the City Hall, in said City and County of San Francisco, on the seventh day of February, A. D. 1870, at eleven o'clock in the forenoon of that day, then and there to show cause why an order of distribution should not be made of the real property of said Estate among the heirs of said deceased according to law.

It is further ordered, That a copy of this order be published at least for four successive weeks before the said seventh day of February, A. D. 1870, in the Scientific Press, a newspaper printed and published in said City and County of San Francisco.

SELDEN S. WRIGHT, Probate Judge.
San Francisco January 5th, A. D. 1870. Jan8-4w

W. T. GARRATT,
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURER OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

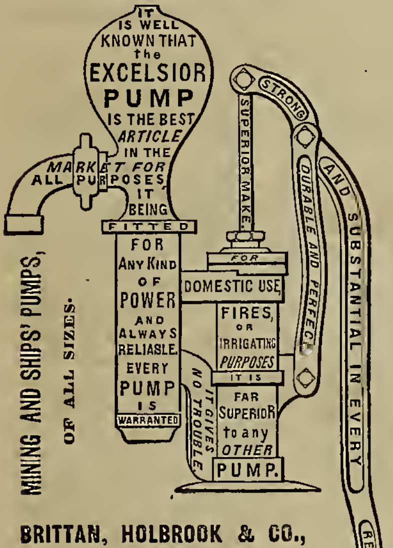
Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

---

N W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.


IT IS WELL KNOWN THAT the
EXCELSIOR PUMP
IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES IT BEING
FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE.
EVERY PUMP IS WARRANTED
SUPERIOR MAKE
STRONG
DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT.
FOR DOMESTIC USE, FIRES, OR IRRIGATING PURPOSES
IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

STEEN & CUSHING,
AGENTS FOR THE
PURCHASE AND SALE
—OF—
Patent Rights, Engines, Boilers,
— AND —
MACHINERY OF ALL KINDS.
NO. 9 FIRST STREET, SAN FRANCISCO.

WE HAVE ON HAND IN GREAT VARIETY,

Engines and Boilers,
Steam and Hand Pumps,
Pipe,
Presses,
Shafting,
Pulleys,
Boxes,
Mill Stones,
Portable Mills,
Malt Rolls,
Injectors,
Lathes and Planers,
Governors,
Steam Gauges,
Quicksilver,
Gas Stocks and Dies,
Belting,
Water-tanks, etc.,

Which we will sel at a discount of 25 to 75 per cent. on cost of new, in this city. Parties having any kind of machinery for sale, may meet with customers by consigning to us. Purchases made on Commission, and prices guaranteed as low or lower than parties can make themselves.

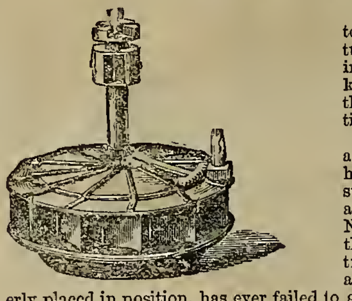
STEEN & CUSHING,
No. 9 First street, San Francisco.

LEFFEL'S DOUBLE TURBINE WATER WHEEL.

MANUFACTURED BY

LEFFEL & MYERS, Portland, Oregon, and San Francisco, Cal.

P. S. SANDERSON, General Agent, Nos. 112 and 114 California Street, San Francisco.



We desire to call your attention to LEFFEL'S DOUBLE TURBINE WATER WHEEL, and in so doing, to state that our Wheel is no longer an experiment, and that it is by far the best Turbine manufactured is demonstrated by the fact that there are nearly 10,000 of our wheels in successful operation in the United States, and also in the fact that in many instances it has displaced the Jonval, Wynkoop, Tyler, Parker, Burns & Welsh, and Stout, Mills & Temple, and many other turbines, with thousands of overshots. Among the many merits of the Leffel Wheel, we desire to call your attention especially to the following:

FIRST.—Power is pledged equal to any overshot in existence. SECOND.—Its great strength and durability. THIRD.—Its great economy in use of water. FOURTH.—The saving, over the heavy gearing necessary for an overshot. FIFTH.—Not liable to get out of order. SIXTH.—Being submerged, is not affected by frost or ice. SEVENTH.—Its steady running, under variable heads, and with variable quantities of water, without perceptible decrease in economical results. EIGHTH. No waste or leakage when the wheel is not in motion. NINTH.—No weight on, or wearing out of the step. TENTH.—We make the manufacture of our wheel a specialty. Other wheel manufacturers carry on a large manufacturing business, making it impossible for them to pay the necessary attention to the construction and finish of a perfect wheel. ELEVENTH.—No Leffel Wheel, properly placed in position, has ever failed to give complete and entire satisfaction. TWELFTH.—In our public tests, we have triumphed over all competitors.

It is our desire that parties contemplating purchasing should always judge of its merits by seeing the wheel in operation, we therefore give the following list of Leffel Wheels in use on this Coast, the names and Post Office address of the parties using them, the size of wheels, head and fall, and the character of work done. We beg of any one in want of a Wheel, to go and see it in operation, and if that is impossible, write to the parties using them and get their opinion.

On application, we will forward to your address our new ILLUSTRATED CATALOGUE of over 100 pages, containing tables of head and fall, horse power, number of revolutions and quantity of water required, a table of wheels from 5¾ to 66 inches in diameter, under 3 to 100 feet fall. Also illustrations and directions of the manner of placing the wheels in position, sectional views of the same; a partial list of the wheels in operation in each State in the Union, and particulars concerning them; together with hundreds of testimonials in its favor by the most prominent Cotton, Paper, Woolen, Saw and Grist Mills in the United States. Also Price List, which has been reduced 30 per cent.

OREGON.

WOOLEN FACTORY, W. W. Manufacturing Co., Salem, 48-inch wheel, 17 feet fall, partial gates; drives all the machinery for 16 set mill. Displaced center discharge wheel.

FLOUR MILL, W. W. Manufacturing Co., Salem, 48-inch wheel, 24 feet head; drives 5 run burrs and machinery; manufactures 500 barrels in 24 hours. Displaced three Shipley and one Upham wheels, 4 feet in diameter.

FLOUR MILL, —— Saxey, McMinnville, 15-inch wheel, 36 feet fall, partial gates; drives 2 pair 40-inch burrs and machinery. Displaced 32-foot overshot.

SAW MILL, Springfield Manufacturing Co., Eugene City, 40-inch wheel, 20 feet head; drives donble circular lathe saw, cut-off, planer, etc. New mill.

FLOUR AND SAW MILL, J. B. Harker & Co., Oradel, Union Co., two 30½-inch wheels; 17 feet head. One drives saw mill outs 10,000 feet in 10 hours; the other drives flour mill, three pair burrs and machinery. Displaced Jonval wheel.

SAW MILL, John West & Co., Westport, Clatsop Co., 23-inch wheel, 24 feet head; drives 54-inch circular saw; half gates; cut 1,000 feet per hour. Displaced Upham wheel.

PLANING MILL, John West & Co., Wesport, Clatsop Co., 17-inch wheel, 16 feet fall; drives Woodworth planer, and 18-inch circulasaw.

SAW MILL, H. Kelly, East Portland, 15-inch wheel, 29 feet head; drives 40-inch circular saw, cuts 500 feet per hour. Displaced overshot.

FLOUR MILL, Imperial Mills, Oregon City, 30½-inch wheel, 13½ feet head; drives two pair 40-inch burrs, manufactures 150 barrels flour in 24 hours. Displaced Harding wheel.

FLOUR MILL, Miller, Marshall & Co., Oregon City, 35-inch wheel, 20 feet head; partial gates; drives three pair burrs and machinery: manufactures 250 barrels in 24 hours. New mill.

FLOUR MILL, Palmer & Brown, Dayton; variable head, from 3 to 21 feet, 35-inch wheel; drives three pair burrs and machinery. With full water makes 300 barrels in 24 hours. New mill.

FLOUR MILL, French & Co., Forest Cove, Union Co., 20-inch wheel, 34 feet head; drives two pair burrs and machinery; with partial gates. New Mill.

FLOUR AND SAW MILL, Chambers & Bowen, Baker City, Grant Co., 20-inch wheel, 30 feet head; drives each mill alternately. New mill.

FURNITURE FACTORY, Luelling & Co., Milwaukie, 20-inch wheel, 11 feet head; drives 40-inch circular saw; 10-inch wheel drives turning lathes, etc. New mill.

WOOLEN MILL, F. Keil & Co., 30½-inch wheel, 7 feet head; drives carding machines and planer. New mill.

SAW MILL, E. Y. Hallock, Dallas, Polk Co., 20-inch wheel, 24 feet head; drives double circular saw, planer, etc. Displaced overshot.

WOOLEN FACTORY, Ashland Woolen Manufacturing Co., Ashland Mills, Jackson Co., 23-inch wheel, 30 feet head, partial gates; our set mill. New mill.

FLOUR MILL, G. T. & J. N. Gilfrey, Pleasant Hill, Lane Co., 15-inch wheel, 24 feet head; drives one pair burrs and machinery. Displaced overshot.

SAW MILL, Robt. H. Scott, Silverton, Marion Co., 26½-inch wheel, 24 feet fall; drives 54-inch circular saw, cnts 6,000 feet in ten hours. New mill.

SAW MILL, A. Myers, Portland, Oregon, 15-inch wheel, 60 feet head; drives double circular saw, etc. New mill.

FLOUR MILL, J. H. Foster & Co., Albany, three 48-inch wheels, variable head, from 3 to 9 feet. Displaced tub wheels—capacity increased five times; drives five run of burrs and machinery.

IRON FURNACE, Oregon Iron Co., W. S. Ladd, Pres. Oswego, Clackamas Co., 30-inch wheel, 21 feet head; drives blast fans, etc.

CALIFORNIA.

FLOUR MILL, Gen. John Bidwell, Chico, 30½-inch wheel, 22 feet head; three pair burrs and machinery. Displaced overshot.

FLOUR MILL, Clear Lake Water Works, Lower Lake, 30½-inch wheel.

FLOUR MILL, J. Chanwett, Sonoma, 13-inch wheel, 28 feet head; drives all machinery. Displaced overshot.

FLOUR MILLS, Rogers & Co., Los Gatos, 13-inch wheel, 64 feet head; drives three pair burrs and machinery. Displaced Stevens' Jonval.

SAW MILL, Lynch & Gragg, Santa Cruz, 15-inch wheel, 75 feet head; drives double circular saw, planers, etc; cuts 2,000 feet per hour. Displaced overshot.

FLOUR MILL, Bennett & Larkin, Santa Cruz, 10-inch wheel, with partial gates and issnes, 110 feet head; drives one pair burrs and machinery. Displaced double overshot.

FLOUR MILL, Robt. Orten, Coraletus, Santa Cruz County, 13-inch wheel, 57 feet head; drives three pair burrs and machinery. Displaced 44-foot overshot; partial gates.

SAW MILL, Otis Ashley, Felton, Santa Cruz County, 13-inch wheel, 34 feet head; drives double circular saw, muley saws, etc.; partial gates. Displaced 32-foot overshot.

SHINGLE MACHINE, Coraletus, Santa Cruz Co., 6⅝-inch wheel, 75 feet head; drives shingle machine and planer, cuts and dresses 12,000 shingles in 12 hours. Displaced overshot.

SAW MILL, J. Y. McMillan, near Lexington, Santa Clara Co., 17-inch wheel; partial gates, 42 feet fall; drives double circular saw, etc, cuts 1,000 feet per hour. Displaced Tyler wheel.

SAW MILL, M. Covall, New Lexington, Santa Clara Co., 20-inch wheel, 21 feet fall; drives 54-inch saw; partial gates.

FLOUR MILL, Folsom, 17-inch wheel, 60 feet head; drives three pair burrs and machinery.

SAW MILL, Visalia, 15-inch wheel, 106 feet head; drives double circular saw, etc.

QUARTZ MILL, Deep Spring Valley Mining Co., office, San Francisco, 20-inch wheel, 24 feet head; drives five stamps and machinery.

FLOUR MILL, Abel Stearns, Los Angeles, 26½-inch wheel, 16 feet head; drives two pair burrs and machinery.

WASHINGTON TERRITORY.

SAW MILL, Lewis Love, Vanconver, 20-inch wheel, 34 feet head; drives double circular, planing, lathe, etc. New mill.

FLOUR MILL, Lonis Love, Vanconver, 13 inch wheel, 34 feet head; drives 54-inch burr and all machinery. New mill.

FLOUR MILL, A. Overholtzer, Walla Walla, 26½-inch wheel, 16 feet head; drives two pair 40-inch burrs and machinery. Displaced Upham wheel.

FLOUR MILL, J. C. Reynolds, Walla Walla, 26½-inch wheel, 16 feet head; drives two pair burrs and machinery. Displaced American turbine.

FLOUR MILL, J. A. Chapman & Co., Walla Walla, 30½-inch wheel, 16 feet head; drives two pair burrs and machinery. New mill.

SAW MILL, J. Hexter, Vancouver, 13-inch wheel, 75 feet fall; partial gates; drives all the machinery of the mill; limited quantity of water.

IDAHO TERRITORY.

SAW MILL, I. P. Lambing, Idaho City, 30-inch wheel 20 feet head; drives donble circnlar saw, planer, cnt-off, etc. Displaced overshot.

FLOUR MILL, Indian Agency, Lapwai, 13-inch wheel, 30 feet head. New mill.

QUARTZ MILL, Monarch Gold and Silver Quartz Mining Co., Atlanta, 13-inch wheel, 30 feet head, 20-stamp mill. New mill.

NEVADA.

QUARTZ MILL, Brunswick mill, Fred F. Coffin, Snpt., Dayton, 48-inch wheel, 19 feet head; crushed 12,000 tons during last nine months, with but one stoppage of 24 hours.

FLOUR AND SAW MILL, Nevada Flat, 26 and 20-inch wheels, 26 feet head.

British Columbia.—SAW MILL, Moore & Co., Burrard Inlet, 26-inch wheel, 34 feet head.

Mexico.—QUARTZ MILL, Colima, 15-inch wheel,

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, January 29, 1870.

VOLUME XX.
Number 5.

The State Geological Survey.

This subject has again come up before our State Legislature, where it has been discussed on occasion of the introduction of a bill providing for the payment of the unpaid expenses of the survey.

We hope and strongly urge that the survey may be continued. We need it in our State, a very large portion of which is absolutely unknown to us. That a well conducted geological survey is of great *practical* use is shown plainly by the fact that all older countries, which have any high rank in the world, have such surveys and *pay liberally* for their maintenance. They would not all do so, had they not found them to be paying institutions. The value of a survey for our State is inestimable. Can there be any doubt that it is better policy to hire well educated men to direct our miners and prospectors in their operations,—a policy which would give a new impulse to the discovery of our hidden treasures,—than it is to leave our pioneers to grope slowly and painfully in the dark, trusting to chance? It is urged that the survey has as yet produced no practical results; that nothing has been accomplished. Now, in the first place, we are unwilling to concede this. We are of the opinion, it is true, that in many respects it would have been better policy had the operations been confined more strictly to mining matters.—Waiving this point, however, it must be remembered that investigations, such as are valuable, require some time, and a liberal allowance. Has the survey been justly attended to in this latter respect? We think not, nor that it has had a fair trial.

We have a golden opportunity which we ought not to let slip through our fingers. Prof. Whitney is a man of undoubted scientific integrity and ability, as shown by his reputation elsewhere. That his investigations will be made ably and in all honesty, we cannot doubt. He can easily summon to his aid a corps of excellent assistants, of whose capabilities he is cognizant. He has gained a very considerable knowledge of our State already. We know of none more competent for the position.

However, let us have a survey with liberal appropriations, and some good head, whosoever he may be. Let us no longer deprive the State of the wealth, which only awaits a proper search. In the mining interest which has contributed, and will still contribute so largely to our prosperity, we call for investigations which will point out to us where our researches will be most profitably directed. In the agricultural interest, that great mainspring of all wealth, we call for more information with regard to the capabilities of our soil and climate. In the name of the people of the whole State, let us know what we have in this rich but undeveloped and unknown country of ours.

Boiler-Tube Cleaner.

On the engineer who has charge of a steam engine much depends. Such a man ought to have a mechanical education, and to be conversant with all the constructive details of the machine entrusted to his care, and, moreover, to be able to make any small repairs. He can regulate to a large degree the amount of fuel used, and in various ways modify the expense of running an engine. Such a man now-a-days is, we fear, getting to be more and more of a rarity. When found, he should be duly prized, and amply remunerated for his superior care and fidelity.

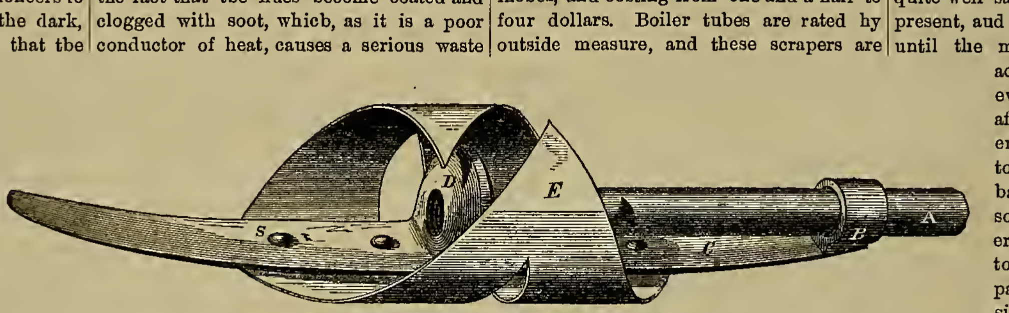
Many engineers are apt (in common with other people) to slight what they consider the smaller details of their duties, and thus to unnecessarily cause waste and expense. One of these details—often too much neglected—is the keeping the inner parts always properly clean. A constantly recurring trouble with regard to boilers is the fact that the flues become coated and clogged with soot, which, as it is a poor conductor of heat, causes a serious waste of fuel. The rapidity with which the tubes become foul depends principally on the fuel used; soft wood and coal is giving off more soot, clog the flues, of course, much sooner than the hard coals. The shape of the tubes and other causes exert also a sensible influence.

Anthracite coal fires, it is said, will foul the tubes sufficiently in one week to cause a waste of from five to ten per cent. of the fuel used; while soft coal or wood will in three days form such a coat as to cause a waste of more than fifteen per cent. Such being the case, it is easy to see how necessary is proper attention to the cleaning of the flues. Some persons, indeed, clear out the flues only when it is no longer possible to get a draft sufficient to make the fires burn; but there are exceptional cases of negligence and waste. Many do the cleaning once a month, or once a fortnight. It would seem that once a week was by no means too often. The saving in fuel will repay the extra labor.

To remove the soot we have a great variety of articles. One of the simplest and most common is a stiff brush; but this hardly does its work effectually, as it removes only the lighter particles of soot and ashes, while the harder scales still remain. Blowing steam through is also apt to be ineffectual. Hence recourse is had to special instruments, of which there is a great variety. The principal points in selecting one of these are, its efficiency, durability and cheapness.

The proprietors of the instrument we illustrate to-day—Morse's patent boiler-tube cleaner—claim general superiority for their patent. It is a very simple tool. S, C, is a bar of iron, of the shape shown in the cut, having a ring, B, at one end, through which the handle, A, made of three-eighths gas-pipe, is inserted, and which is attached firmly to the scraper, by being screwed into the projection, D. The curved blade, E, is made of the best spring steel, and possesses sufficient elasticity to press evenly and firmly against the side of the tube, so as to remove all scale, while it does not injure the iron. The button, D, serves, moreover, to hold the soot and ashes.

The simplicity of the contrivance insures its durability, and renders it possible to furnish it at a small expense. There are eleven sizes, ranging from two to five inches, and costing from one and a half to four dollars. Boiler tubes are rated by outside measure, and these scrapers are rated the same as the tubes they fit.



MOORE'S PATENT BOILER-TUBE CLEANER.

This cleaner is in use at many of the establishments using steam in this city, and is said to give good satisfaction. Messrs. Steen & Cushing, No. 9 First street, San Francisco, are the general agents for the coast, and to this address any inquiries for further information may be sent.

* * *

The Largest Yet.—We have been shown a piece of copper plate, for quartz mills, which has been electro-plated with silver. The piece is four by four and a half feet, and is said to be the largest yet subjected to this process here. Copper plates are thus treated to render them easier and better for amalgamation. Messrs. Haynes & Lawton, Pacific Plate Works, 520 Sansome streets, San Francisco, have prepared these plates, which are said to be a great improvement over the simple copper. At least so says the superintendent of the S. S. Banner mine in a letter ordering more. This firm does, also, a large business in the way of plating all kinds of ware, of which we propose to give a detailed description in a week or two.

* * *

Fossil Wood from Oakland.—The *Alta* received last week some specimens of wood found, at a depth of 360 feet from the surface, while boring an artesian well for the Central Pacific Railroad. It is stated that the auger went through several feet of the wood.

Excessive Legislation.

There is a gentleman who apparently considers that our poor National Constitution needs continually new adornments and improvements to bring it up to the spirit of the times. He may be right, and certainly has the example of many others in his favor. While we in this State are busy discussing the Fifteenth Amendment, which has not yet been attached to the main constitutional body, Mr. Pomeroy, of Kansas, proposes another additional member, in the shape of a sixteenth amendment, which relates to suffrage. By this the franchise is to be extended to almost everybody, without distinction of age, sex, color, condition or anything else.

We hardly expect any immediate serious result from this proposition. The gentleman from Kansas is, we fear, rather in advance of the rest of the country. We may be obliged, at some future time, to come to some such measure, but we ourselves are quite well satisfied with what we have at present, and prefer to defer any such law until the millenium has arrived. The action of Mr. Pomeroy is, however, particularly noteworthy as affording an example of the eagerness of our worthy legislators to get up some new law, or to have their names attached to some new amendment; an eagerness which is getting to be too rabid and common to be particularlyagreeable to us outsiders. This evil of excessive legislation is really becoming a very serious matter. Everybody elected to represent a number of people in a legislative body immediately sets to work to invent some new law. For every particular act or possibility of an act; for every little matter, however small, we must have a corresponding legislation. The amount of laws passed is getting to be fearfully large, and bids fair to soon exceed the powers of any one mind to fully comprehend. The legal machinery is in danger of getting so complicated that we may have difficulty in finding any one who is able to keep it in running trim.

We are in hopes that, before we leave this mortal sphere, we may see a reaction set in; that the time may come when it may be considered by the law-makers more desirable to have a set of simple, practical measures, than to be the father of new and hastily-formed legislative acts.

* * *

The Illustrations of the new State Capitol, at Sacramento, which we announced would be published soon in the Press, are necessarily postponed for some two months, on account of the change to be made in the completion of the outside finish of the building, varying it materially from the first design. When the present architect, Mr. Cummings, has the new perspective drawings made, we shall proceed with the engravings.

* * *

Wheat in Liverpool, January 26, was quoted at 9s 2d@9s 3d.

Communications.

From Liverpool to London.

[From our European Correspondent.]

London.

I think that the uniform testimony of travelers who visit London is this: It is great, immensely great; but not grand or magnificent. There was an indescribable something which told us everywhere we went, that we were not in America; everything was different—streets and buildings, wagons and carriages, hacks and omnibuses, the dress and manners of the people, all were different. And then there was something decidedly American about us, for everywhere we went we were at once recognized as Americans; no one was stupid enough to mistake us; we began to feel that really we were foreigners.

The Crystal Palace.

Our first visit was to the Crystal Palace at Sydenham. It is well known that after the last World's Fair, this building was purchased by a few private individuals and taken to its present position by private parties. This was one of the most public spirited enterprises that has come under my observation in England. In Sydenham it is beautifully located, in the midst of the finest park in England, and everything possible is done to make it attractive. The fare to and from London, by railway, and the admission fee are so small, that almost all classes can visit it as often as they choose. And I may add that on a single afternoon more than 11,000 tickets were sold.

The original form of the building is preserved; and we have a beautiful main building, with its glass dome and two lateral wings. These stand on a beautiful rise of ground, and in front is the park, or better named, the garden, with beautiful flowers and fountains. I will make no envious comparisons, but say that it was almost beyond description. There was in the park a small lake, and on one side a beautiful coal seam, actually taken from a coal mine brought there, and close by a fault, and, grouped all around, were illustrations of geology. There were all the old monsters of the Tertiary system reproduced, and very life-like in their appearance—the Megalosaurus, Pterodactyl, Plesiosaurus, etc.—and then there was an illustration of the action of the water upon the limestone rock, gradually dissolving them and wearing them away, or in another place forming a cave—all was very interesting and instructive, and I could not help thinking that it was a most humane idea to offer so much instruction and in so easy and interesting a way to all who wished. Then, too, there were plants, flowers and trees from almost all parts of the world, and the grouping of trees and flowers was beautiful. The merest sketch of the inside is all that I dare attempt. As you enter and pass from room to room—for one cannot have much time to spend in any one place, if he intends to see the whole building at one time—I say, as you go from room to room, you can still see on exhibition many articles that have taken premiums at the previous Fair, and I have no doubt but this is as good a means of advertising as can be found. You see, as I heard dozens of people exclaim, everything. This exhibition of goods is fine, and would be worth a visit here. In the center building, that is often used for concerts, is a beautiful collection of plants from the tropics, tree ferns and palm trees, and numberless other plants, which here grow and flourish beautifully. And then to the right and left are representations of the architecture of the Greeks and Romans, with their beautiful fresco, that make one recall his classics. And then there are works of art that are of real merit, such as sculptures and casts, that add immensely to the effect. I do not know how it is, but I have seen all that I have seen here grander and more beautiful, and yet not so impressive. There was a simple and unostentatious plan of exhibiting everything, and then, too, the good free sunlight that made the building seem warm and cheerful, so that altogether the effect was very fine. I was particularly pleased with a representation of a Pompeian house which a friend who was with me, and who had spent a long time in Pompeii studying the architecture of that old city, pronounced almost perfect. There was beauty in the fresco colors that could not be described. There was the cave cameo on the doorstep as you entered, and apartments to right and left for servants and parties; and then as you passed through the open court, close by, a door opened into a dining room, where the table was ready spread, and there were the couches for the guests. This must serve as an example. There was the same elaborateness all through the building.

Perhaps the most magnificent display of all was the fountains. The water is pumped up something more than 100 feet, and then at three o'clock every afternoon is allowed to play in the different fountains. Night found us still here, and tired, as one well could be, yet happy in the recollection of such a pleasant day.

◆

Mills and Mines of Colorado—No. IV.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

The Freiberg Mill, situated just below Empire, I have examined with some interest, not because it has proved so profitable, but, on the contrary, because it has proved an expensive failure. The extensiveness on which it was erected, leads me to suppose that at least $100,000 were expended upon the experiment.

The Keith Process

Is that for which it was built. The ore is first reduced by the Dodge crusher, of the same style as that used by Mr. J. D. Hunt, at Booth's Foundry, in your city. From two of these crushers it is conveyed to a stave-barrel pulverizer, where balls reduce it to a powder. From these barrels it is conveyed to bolters, when the ore is ready for the process, which consists mainly in the peculiar construction and operation of the furnace. The hearth is about 8x10 feet, and supported underneath by an arch, which forms, at the same time, a chamber for heating the air which is to be injected into the furnace, as I will hereafter show. In front of this structure is a circular fire-place, about 20 inches in diameter and say 3 feet high, which is fed by small wood. At a point which strikes the body of the flame from the small furnace, center two pipes—one, a feed-pipe for the ore, and the other for the blast.

The Operation.

The blower, which is about 40 inches in diameter, is throwing a heavy blast into both the fire-place and the furnace-hearth, and at the same time a stream of ore falls into the heated blast, both going together into the furnace-hearth, which has now become very hot. Here the ore settles. There is sufficient heat got up to make clinkers to a considerable extent. The heated air is produced by running air-pipes through the arched chamber, which receives the blast from the hearth, and from whence it passes on to a brick stack some thirty to forty feet high. The desulphurizing ore, or ore in whatever state it may be, is drawn off the hearth to the back end of the furnace, where it is carried off in its heated state by blowers to another small pulverizing cylinder, where the coarser particles are more finely reduced, when it flows off into "dolly tubs," or wooden tubs of three feet diameter, with stirrers. Into these tubs a constant stream of ore and water flows in and out. Thence it flows into wooden arastras, thence off over copper plates, and *down the creek*. Some may say there is nothing in this establishment on account of its being a failure, while I think there is a great deal—it is a reef on which others will be sure not to get wrecked.

Ideas on Desulphurization.

To my mind, all this expensive system of desulphurizing, or desulphurizing at all of *gold* ores, is a humbug.

In Colorado, as in California, thousands upon thousands have been expended on desulphurizing furnaces for gold ores, and what has it amounted to? In neither place has there been sufficient extra yield to pay the interest on the money invested for their erection. It is this that has injured, to a great extent, the mining interest.

I note your observations under the heading of friendly criticism. They are well timed, and should be observed for general information. In my observations of Colorado mining and milling I hope to hurt no one's feelings, nor to injure them in the least; yet I have knocked around among these granite peaks and over Nature's wilds too much to fence up my ideas when I desire to express them. By frank expressions we get at facts. If I can show Coloradans their faults, I propose to do it, not to injure, but to benefit them—at all events, give them California ideas.

Dressing of Ores—A Freiberg Process.

[Written for the Scientific Press.]

In the former communication, the special treatment of the separation ore (class A) was spoken of. It now remains to describe the processes which the stamp-mill ore (class B) undergoes, after being coarsely broken by an ore crusher, in common with certain products of class A, which were noted as being sent to the stamps.

The Stamp Mills

Are two in number, and are situated on the hill-side in such a manner that the ore continually descends in the process of treatment, and, moreover, so that the water-power at hand can be used for both mills. There are two water-wheels used to drive the stamps—one in each mill; the upper driving 24, the lower 18 stamps.

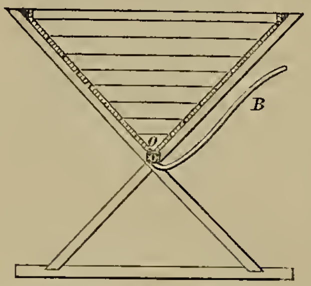


Fig. 1.—Cross Section.

In regard to stamps, the Germans are behind California, or, at least, those which they are using, would never answer for our conditions. It should be remembered, however, that with them great speed in crushing ores is not so important as in our country of high prices. Those used at the Kur-Prinz weigh from 250 to 300 pounds, have a fall of 12 to 16 inches, and strike 50 to 60 blows per minute. They have wooden stems with a square horizontal section. Each stamp crushes in 24 hours about one ton of the ore. The shaft is of wood, 2½ feet in diameter, and is provided with four cams for each stamp. Six stamps form a battery, and about one cubic foot of water is used for each stamp. These figures are better adapted for economy and where only a certain amount of water-power is available, than for the conditions of our country. The slimes from the stamps pass through troughs to an elevating and sifting wheel, which is four feet in diameter and fifteen inches wide. The grains too large to go through the sieve on the outer circumference of the wheel are elevated, and carried back to the stamps. The rest flow through troughs to a series of

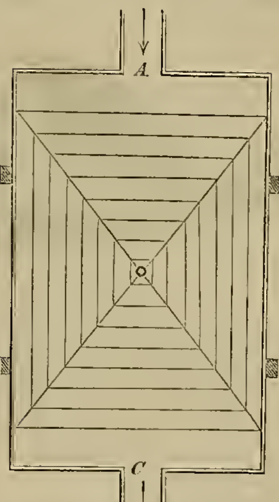


Fig. 2.—View from Above.

Pointed Boxes.

These are used for the purpose of sizing the grains, and answer the purpose excellently; being at the same time inexpensive, and saving much manual labor. They are of the shape of inverted rectangular pyramids, and are of various sizes. Fig. 1 gives a cross section, and Fig. 2, a view from above of one of these boxes. The slimes flow in at A, the heavier grains fall to the bottom at *o*, and are carried off continuously by the water through the pipe, B, and discharged at any required point, saving all handling. The finer particles, which are too light to settle in the limited time occupied by the passage of the current through the box, are carried over the trough, C, into the next box.

By regulating the size of the box, or, in effect, giving the grains more or less time to fall, they can be sorted very nicely—a process on which too much stress can hardly be laid. The first box is the smallest and the current the quickest; therefore the coarsest grains are first collected. Each succeeding box is of larger dimensions than the preceeding, and, therefore, collects a next smaller size of grain, until only the very finest escapes at the end of the set.

The Different Sizes.

At the Kur-Prinz mine there are eleven pointed boxes, which are placed in convenient situations, and which have the following dimensions.

No. 1—3½x4 ft., and 2 ft. 5 in. deep.
No. 2—6½x4 1-6 ft., and 3 ft. 6 in. deep.
No 3—10x6 ft., and 3 ft. 6 in. deep.
No. 4—12x10 ft., and 5 ft. deep.
No. 5—18x10 ft., and 6 ft. 6 in. deep.
No, 6 and 7—10x9⅔ ft., and 7 ft. 6 in. deep.
No. 8 and 9—13 5-24x9 7-12 ft., and 8 ft. 6 in. deep.
No. 10 and 11—15¾x9 ft., and 8 ft. 8 in. deep.

The whole surface presented for the settling of the ore amounts, then, to about 1,132 square feet. The amount of ore stamped daily is about 50 tons. This amount is disposed of as follows: The sifting wheel returns 4.41 per cent.; the first pointed box, 43 per cent.; the second, 17.85; the third, 7.78; the fourth, 6.53; the fifth, 7.72; the sixth, 1.62: the seventh, 3.33, the eighth and ninth, 4.13; the tenth and eleventh, 2 23; while 1.40 per cent. escapes from the last box and passes into sumps.

For America, it would seem that this apparatus might be used with advantage. The number given above might be greatly reduced. Thus Küstel gives a set of four *similar* boxes as used at Schemnitz, Hungary, which work 20 tons in 24 hours. The dimensions and amounts of sand are:

First box—6x2¾ ft., 4 ft. deep, gives 40 per cent. sand.
Second box—9x5 ft., 6 ft. deep, gives 22 per cent. sand.
Third box—12x9 ft., 8 ft. deep, gives 20 per cent. sand.
Fourth box—16x15 ft., 10 ft. deep, gives 12 per cent. san

The Percussion Tables.

The sorted grains make their exit through a tube, as shown in the cut (and the height and size of which are important factors), and are transported through troughs to the percussion tables.

Into the first pointed-box clear water is introduced through two pipes: one, pointing towards the exit tube, B, helps the carrying off of the grains and also hinders that of the slimy particles which are attached to these; the other points upwards, and prevents the settling of all but the coarsest grains. The exit-pipe, B, is 2 inches wide at the bottom of the box, ¾ inches wide at its other end and rises 14 inches—the dimensions corresponding to a transportation of 30 pounds of ore per minute from the box.

The percussion tables are the old well known form so common in Germany. They are about 12 feet long and 4 feet wide, have an inclination of about 4 degrees, and swing 48 to 52 times per minute. They are not continuous in their working, which, moreover, is so varied under different circumstances and takes so much time and manual labor, that they will not be described further here, as hardly applicable to our circumstances.

[TO BE CONTINUED.]

A New Printing Ink.—According to the Frankfort *Zeitung*, Herr Kirscher, of Cannstadt, has made an important discovery of a new printing ink, which is said to excel all other kinds now in use. An important fact is, that by a peculiar process, the ink can be completely removed from the surface of the paper, at a cost of half a dollar for every hundred pounds of printed paper, and the material is then ready for use again.

◆

Pisciculture.—A number of gentlemen in Nashua, N. H., engaged in fish culture, have, as the result of about two years experiment, 100,000 trout in their ponds, covering about one and a half acres, and they have just placed an immense number of trout eggs in the water to increase the stock.

◆

British Coal.—The total exports of coal from Great Britain during the eleven months ending November 30th, 1869, amounted to 8,965,460 tons, or a decrease of 298,838 tons compared with the exports during the same period of 1868.

Mechanical Progress.

An Englishman's Idea of American Workmen.

The following paragraphs, from an interesting letter to *Engineering*, written by an intelligent English workman in the United States, indicate the difference in styles between the workmen of the two countries: "The height of an American workman's ambition is to discard scribing blocks, surface plates, compasses, and squares, by substituting guides that hold the work in its proper position, and guide the cutting tool. The time spent by an English mechanic in learning to line out work, chip, chase threads, and chuck, is employed by an American in learning the simplest form and readiest method of making the aforesaid guides, termed fixtures, to do such work by machinery, which is the quickest, and most exact method of working, and which ensures uniformity. * * Permit me to illustrate one of the advantages of this system. Suppose an English workman to be tapping a hole for a cylinder stud; he keeps putting his square to see if it is being tapped straight, which depends on his skill and carefulness; and even then there are always some holes not tapped true, in which case the cover has to be put on and off, and the holes marked where the studs bind; and then they have to be filed out. Now, by tapping them with a long drill through a guide, the workman *cannot* tap them otherwise than true; it does not depend on his skill, and it does not matter what cover he puts on, it will fit, and a new one can be supplied at any time with the absolute certainty that it will fit without any adjusting. * * In short, the Americans display most extraordinary ingenuity in getting up tools and devices to do the work without requiring skill or exactitude from the workman; which requires a great deal more knowledge and intelligence than learning to be a skillful handler of tools, and accomplishes the desired object more efficiently and systematically. I never saw a scroll or universal chuck in England. I never saw an American shop without them."

A New Traction Engine.—The *American Railway Times* thus describes an engine now building at Worcester: "There are four small cylinders, all cast in one piece, and all common to one steam-chest or valve box. They have three-inch pistons or seven square inches area each, which connect with three-inch cranks in the usual manner. There are two crank-shafts, with two cranks upon one end of each shaft, and at right angles with each other. A pinion gear is fixed to the outer end of each of these shafts, which drives the traction-wheels by means of a large annular gear attached to their spokes. This arrangement gives two cylinders to each crank-shaft and traction-wheel, and the traction-wheels work independent of each other, which will render the passage of curves very easy. The usual 'link' valve gearing is employed, and the steam in the four cylinders is at once reversed by one movement of the reversing lever. The boiler is an upright one, and is surrounded about midway with a strong iron ring, which forms a part of the framing of the engine. The journals upon which the traction-wheels work are fixed to this ring exactly opposite each other, so that the boiler occupies a position central between the traction wheels. The boiler is not confined to the ring, but rests upon two easy springs situated near the hubs of the traction-wheels. The placing of the boiler upon independent springs necessitates, of course, the use of flexible steam and supply pipes."

Iron Progress.—The Ironton (Ohio) *Register* says: More pig iron was produced in this region last year than ever before, and for the coming year we expect an increase of 30 to 50 per cent. In this region, four new furnaces have been erected, and a number that were compelled to stop during free trade times put in blast again. A large number of new furnaces have lately gone into blast in the Mahoning region. Pennsylvania can boast of a wonderful increase. The Carondelet region in Missouri is filling up with furnaces. A number of stacks have been erected in Illinois. Indiana is building furnaces over her beautiful coal fields. The worn-out stacks in Tennessee are being repaired, and new ones erected. The Marquette country is blazing with fresh fires. All over the country, wherever Nature has laid a store of coal and ore, new stacks are going up.

Patching Boilers.

The *Engineer* for December 17th has an article upon this subject, called out by a recent fatal explosion, in the course of which several other similar cases are cited. We quote a paragraph or two from the article:

"There is hardly any operation connected with the repair of a boiler more productive of danger than that by which rivets are brought into a line. The day is gone by, we hope, when in new boilers the longitudinal seams are made to run in a continuous line from end to end, with the transverse seams also continued completely round the boiler, giving at the corner of each plate four thicknesses of iron. Yet unskillful repairs often produce continuous lines of rivets at the very place in a boiler where it is most desirable that there should be the brick wall-like arrangement of the seams, which adds much to the strength, and also often prevents a rent from continuing forward to a dangerous point." * * "I believe," said Mr. E. B. Martio, from whose evidence at the inquest last Friday we have been quoting, "the cause of the explosion was simply that this frequent repair had so reduced the strength of the boiler that it was unable to bear even the usual working pressure. It is often difficult," he adds, "to convince those who have the repair of boilers that the putting of patch upon patch reduces the strength of the boiler, until it is completely untrustworthy, although it may not leak; but several explosions this year, and very many in past years, have proved the fact beyond dispute."

The Allibon Boiler.—This is a vertical high-pressure annular steam boiler, described in the January number of the London *Artizan*. We quote: "The body of the boiler and the fire box are constructed separately as distinct parts, the water and the flue spaces being disposed annularly. The outer part consists of the external skin or shell of the boiler, and a concentric inner cylinder is riveted thereto near the bottom, a wrought iron ring being interposed to keep the proper distance apart. This inner cylinder is also firmly stayed to the shell by screwed stays placed at suitable distances apart. To the top of this inner cylinder a tube plate is riveted which is also connected with a central pendant annular water space, descending to within a short distance of the furnace bars. Thus the fire box proper consists of two rings forming an annular water space round the furnace, the inner ring being made slightly conical to give a better heating surface, and at the same time permit the steam to get away freely. The top of this fire box is connected to the tube plate by a series of short lap, welded tapered tubes, screwed at both ends."

To Color Mica.—Dr. Schwartz suggests this method of coloring mica blue for spectacles, instead of sticking colored gelatin on them, or interposing a layer of it between two of mica, as has been recommended. "What is known by painters on porcelain as 'copper luster' is an organic compound of bismuth with a small amount of gold. When this is put on porcelain and burnt in with a gentle heat, it gives a copper-red lustrous mirror. The same solution, painted very thin and equally on the mica, and dried, may be burnt in by the heat of a spirit lamp, and will show by reflected light the same copper-red color; but by transmitted light, as when the spectacles are worn, the color seen is a bright blue. Platinum and gold glaze, applied in the same way, and burnt in, exhibit a silvery or golden luster by reflected light, but by transmitted show gray or greenish blue color."

Economical Steam Engine.—John Carnes sends the *Scientific American* a description of the engine which runs his saw-mill, and which he claims will answer with the necessary conditions for economical works: "The cylinder is 10-inch bore, and 14-inch stroke; steam chest extends enough beyond the ends of the cylinder so that the steam travels only 2¼ inches, the shortest distance possible, after leaving the valve before it reaches the piston-head, and the space between the piston head and cylinder-head is only one-fourth of an inch, the bolt heads being counter-sunk until even. Other things about this engine are in proportion. With this engine attached to a direct acting circular mill, I can saw 2,000 feet of hard-wood inch boards in one hour."

Scientific Progress.

Correlation of Vital and Physical Forces.

Prof. Barker delivered, on the 31st ult., the third of the series of lectures now in progress before the American Institute. No more interesting subject can be imagined than the one chosen by him;—the one named in our heading. We would gladly give the whole of the lecture were it possible. But we must limit ourselves to a very brief extract:

"The food of the plant is matter whose energy is all expended; it is a fallen weight. But the plant organism receives it, exposes it to the sun's ray, and, in a way yet mysterious to us, converts the actual energy of the sunlight into potential energy within it. The fallen weight is thus raised, and energy is stored up in substances which now are alone competent to become the food of the animal. The food is not such because any new atoms have been added to it; it is food because it contains within it potential energy, which at any time may become as actual as force. This food the animal now appropriates; he brings it in contact with oxygen, and the potential energy becomes actual; he cuts the string, the weight falls, and what was just now only attraction has become actual force; this force he uses for his own purposes, and hands back the oxidized matter, the fallen weight, to the plants again to be de-oxidised, to be again raised. The plant, then, is to be regarded as a machine for converting sunlight into potential energy; the animal a machine for setting potential energy free as actual, and economizing it. The force which the plant stores up is undeniably physical; must not the force which the animal sets free by its conversion be intimately correlated to it? * * The actual energy of the muscle is simply the converted potential energy of the carbon of the food. A muscle, therefore, like a steam engine, is a machine for converting the potential energy of carbon into motion. But, unlike a steam engine, the muscle accomplishes this conversion directly, the energy not passing through the intermediate stage of heat."

Prof. Barker goes on to show that not only is *nerve-force* also a transmuted potential energy, but that even *thought power*, the highest manifestation of animal life, accomplishes the conversion of energy. Emotion, or the reception of a thought, causes motion in the needle of a delicate galvanometer properly arranged, although the subject is absolutely quiescent. The brain heat thus exhibited, represents energy which has escaped conversion into thought, just as the heat of muscle in action represents force which has escaped conversion into motion. It may be mentioned in this connection that a muscle develops less heat when doing work than when it contracts without doing it.

We can only add a portion of the Professor's eloquent peroration:

"Even that mysterious power of thought by which man influences the present and future age, is a part of this ocean of energy. But here the great question rolls upon us. Is it only this? * * Here Science veils her face. We have passed the boundaries by which physical science is inclosed. No crucible, no subtle magnetic needle, can answer now our questions. No word but His who formed us can break the awful silence. In presence of such a revelation Science is dumb, and Faith comes in joyfully to accept that higher truth, which can never be the object of physical demonstration."

The Megatherium in Ohio.—The *State Journal*, Columbus, Ohio, says there are now on exhibition in that city some fossilized remains recently discovered in Union county. They were found in drift three feet below the surface, and are similar to the remains of the Megatherium found in other parts of the State. Arrangements were made by Mr. Klippart, of the Geological Corps, to have the skeleton removed with proper care. Before excavations had proceeded far had weather set in, and work has been abandoned. The section of the femur, upper part, with socket ball, is about twenty inches in length. From the part of the skeleton secured, it is estimated that the height of the animal was twelve and a half feet.

Metallic Chromium Not Yet Prepared.—In an article by Prof. C. A. Joy, published in a late number of the *Scientific American*, he says that "all attempts to prepare metallic chromium in any quantity have failed, and it is probable that no one has ever yet seen the pure metal. He names several of those who have made these attempts. Fremy passed the vapor of sodium over chloride of chromium, and obtained chloride of sodium and a powder which he took to be the metal chromium in a fine state of division. This was found under the microscope to be in octahedra. No acids affected it, and it was exceedingly hard. Deville succeeded only in obtaining a mixture of carbon and chromium, by reducing the oxide with charcoal at a high heat. Loughlin says the sesquioxide can be reduced by a mixture of cyanide of potassium and animal charcoal. Bunsen decomposed the chloride by electroysis. Different experimenters give the specific gravity at different figures,—varying from 5.9 to 7.3. It is plain,—says Prof. Joy,—that we know very little of metallic chromium, although its compounds are among those salts best understood.

Indium.—Fremy lately exhibited to the French Academy two ingots of indium obtained from the Freiberg blendes, which were about a decimeter high and a few centimeters in diameter, and weighed 500 grams. They were valued at 20,000 francs.

Preparation of Carbolic Acid.—It is one of the products of the distillation of coal-tar oil. If a portion of crude coal-tar be placed in a retort furnished with a thermometer, and the portion which distils over between the temperatures of 300° and 400° F., collected and mixed with a strong solution of caustic potash, and allowed to stand for some time, a whitish, pasty mass is obtained, which, when acted upon by water, is resolved into a light oil and a heavier alkaline liquid. If the latter be drawn off and neutralized by hydrochloric acid, carbolic acid will be disengaged, in an impure state, in the form of oil. By distilling from chloride of calcium, to remove any remaining particles of water, and exposing the distillate to a low temperature, carbolic acid congeals in the form of long, colorless prismatic crystals, which melt at 35° C., to an oily liquid boiling at 180° C, and resembling, in many particulars, creosote. It is deliquescent, attracts moisture from the atmosphere, and quickly becomes liquid, and continues so at moderate temperatures. It is known by the names of carbolic acid, phenic acid, phenic, phenic alcohol, and the hydrate of phenyle.—*Dr. Little.*

The Lingering Admirers of Phrenology.—The *Popular Science Review* closes a long article under the above title, with the following: "Possibly an analogy may be drawn between the brain and a galvanic battery, and increase of the gray matter of the one be correctly compared with addition to the cells of the other; but as in an electric instrument the working is dependent on the delicacy and fitness of the arrangements quite as much as on the strength of the current which supplies them, so in the case of the mind the result is dependent on the distribution and balance of the faculties and inclinations, and on other circumstances, none of which are proved to have any connection with the mass of cerebral substance. Certain it is that, although there are probably mental characters peculiar to large and small brain respectively, the size of the skull is, as any observer may easily satisfy himself, no good guide to the mental endowments."

Spectrum of the Fire-fly.—Prof. C. A. Young says this is "perfectly continuous, without trace of either bright or dark lines, and extends from a little above Fraunhofer's line C, in the scarlet, to about F in the blue, gradually fading out at the extremities. It is noticeable that precisely this portion of the spectrum is composed of rays, which, while they more powerfully than any other affect the organs of vision, produce hardly any thermal or actinic effect. In other words, very little of the energy expended in the flash of the fire-fly is wasted. It is quite different with our artificial methods of illumination. In the case of an ordinary gas-light, the best experiments show that not more than one or two per cent. of the radiant energy consists of *visible rays;* the rest is either invisible heat or actinism; that is to say, over ninety-eight per cent. of the gas is wasted in producing rays that do not help in making objects visible."

Mining Summary.

THE following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

MOUNTAIN CO.—*Chronicle*, Jan 15th: The annual report of the Secretary says the amount of tunnel made during the year is 242 feet, at a cost of $32.89 per foot, including supplies on hand. The length of tunnel up to date is 1,765 feet. For the year's run there is a gain of 51 feet the last six months over the first by the use of Giant powder, at a saving of $868.79. The tunnel, according to survey, is 365 feet past the perpendicular of the ledge, and 900 feet below the out-crop. To allow the ledge to dip at an angle of 45 degrees, there is still 185 feet to run.

TARSHISH.—*Miner*, 15th: It is said that the workmen in the upper drift of the Schenectady are in a large and better body of ore than have heretofore been opened. As this is over one hundred feet nearer the surface than any point where ore has been found, it augurs favorably for the continuance in all directions of this deposit.

AMADOR COUNTY.

ONEIDA.—*Ledger*, Jan. 22d: The mill commenced running on Monday, and its 40 stamps can be distinctly heard night and day in this place. It is in perfect order, and works admirably.

AQUEDUCT CITY—Cor. of same: There is a company of miners prospecting the flat, two hundred yards northwest of the old saw mill. They have a small engine running day and night to keep out the water, while they hoist the dirt with an ordinary windlass. Having sunk 30 feet, they are drifting south towards the rim rock. Everything is in good working order, and they feel confident of striking good pay. The whole valley is taken up and recorded, and the claimants are standing aloof, ready to help devour, when the prey is discovered.

CALAVERAS COUNTY.

RAILROAD FLAT—PETTICOAT.—*Chronicle*, 22d: The new mill made its trial run on Tuesday. Everything worked to the satisfaction of the owners. Its crushing capacity is 20 tons in 24 hours, with 10 stamps. It is the intention to add 10 more stamps and a number of pans, to grind the tailings, as soon as the mine turns out ore enough to justify the increase. The power is ample for five times the machinery now in use. The boiler for the hoisting works, was shipped, in Stockton, on Wednesday. They have now, on dump, 500 tons of good pay ore, and enough more in sight, in the 200-foot level, to run their mill two years.

PALOMO.—Work is progressing finely. The present sinking of the shaft for another "back" is nearly completed, and the mine will soon be in a shape to give employment to double the number of stamps now used.

MARIPOSA COUNTY.

BIG LUMP.—*Gazette* 21st: The Oaks & Reese mine, Hunter's Valley, continues to yield rich rock. They took out a week or so ago, one lump, which, when broken up, yielded over $1,700 in gold.

INYO COUNTY.

CERRO GORDO.—Los Angeles telegram, 25th: Sixteen thousand pounds and 200 bars of bullion from Cerro Gordo went forward on the steamer to-day. It contained $500 of silver to the ton; the balance lead.

LOS ANGELES COUNTY.

SOLEDAD.—*News*, 22d: Yesterday, Mr. Harper arrived, bringing some fine specimens of gold bearing rock from a newly discovered ledge, some three miles from the Eureka mill. Some parties worked a mule-arastra 20 days, and took up some $300 in gold as the result. The shaft is down 70 feet.

NEVADA COUNTY.

MINING ITEMS.—Grass Valley *Union*, Jan. 20th: West Eureka ledge is steadily improving. Fair Play has been located on what is supposed to be an extension of the Allison Ranch ledge. J. J. Rogers and others have located a ledge which shows well, supposed to be on the Eureka. The Wm. Penn continues to give forth good rock. Underground, the opened mines are working full-handed.

EUREKA MINE.—Old Ajax Valley mines still keeps up its steady yield. The Eureka pays about $2,000 a day, and does so easily and with little noise. The last nine days run shows $17,000 of gold, not counting the sulphurets.

BRANCH MINT.—*National*, 18th: This mine is on a line between the Pittsburg and McClellan. They have found first-rate quartz, and propose to run a tunnel to cut the ledge 250 feet below the surface. Two extensions were taken up yesterday.

GOOD YIELD.—Same of 19th: A crushing of 24 tons of rock from the Orleans, at Pittsburg mill, was cleaned up on Monday, and yielded $504.

STARTED UP.—*Gazette*, 19th: Nevada Consolidated Co. started up their hydraulic claims at Burrington Hill, on Monday. They use 400 inches of water, and have a head of 250 feet.

LEASE OF A MINE.—Same of 24th: Campbell & Stoddard, of the Norambagua mine, Forest Springs, have leased the same for five years to Richard Fossett & Co. The lessees are clearing out the old tunnel, which is in 1,100 feet, and expect to get to the ledge in a few days.

SCADDEN FLAT.—Ben McCauley's mill is running night and day, money is plenty, men have employment, and "general satisfaction" reigns.

GOOD ROCK.—We were shown on Saturday some beautiful specimens of gold bearing quartz, taken from the 204-foot drift of the Wm. Penn mine. Sixty feet of the mine sold last week for $12.50 a foot. The rock now being raised will yield $60 a ton.

COSMOPOLITAN.—*Transcript*, 21st: This mine has been leased to Rutherford & Co., who are required by the terms to erect a mill which will crush 15 tons in 24 hours, increased to 20 tons. The lease is to extend for three years, or until 25,000 tons of rock are taken from the mine. The parties leasing are allowed $6 per ton, and the owners get all the gold in excess of that amount.

QUARTZ PROSPECTING.—Recently a ledge near the Pittsburg mine, which has not been worked for years, was taken in hand by some practical miners, and a tunnel run. They found near the surface a four-foot ledge, and took out seven tons of rock, the yield of which was $24 per ton.

NEVADA MINE.—Same of 22d: Michael Reese has acquired absolute title to the Nevada quartz mine, the Sheriff's deed to him having been filed yesterday. This is what was formerly known as the Soggs' mine.

IDAHO MINE.—Same of 23d: One hundred and fifty feet, belonging to the estate of John S. Henning, will be sold at Administrators' sale Feb. 25th.

SAN BERNARDINO COUNTY.

A Los Angeles telegram of 24th, says a miners' meeting at Swartout cañon has organized the "Great Western Lime District," the limits of which include the late discoveries in that county.

PLACER COUNTY.

GOOD PROSPECTS.—Auburn *Herald*, Jan. 22d: The late warm rains in the upper portion of the county have been exceedingly advantageous to miners, affording an abundance of water, and they are making the most of it.

A GOOD SPECULATION.—The old Baltimore mill has been purchased by Walton & Co. The engine has been removed and the mill is now run by water-power. We learn that the new owners run through a lot of quartz which was on hand when they bought the mill and ledge, and had about $200 left after paying for all. This mill runs four stamps and is less than one mile from Auburn.

MORMON BAR.—Boles, Crany & Co. are using a No. 2 Graig's globe nozzle on their hard cement with entire satisfaction.

PLUMAS COUNTY.

CARIBOO BAR.—Cor. of Quincy *National*, 15th: The Eagle Co. are prospecting the Upper Cariboo Channel, seven hundred feet above the river, and two hundred above the claims owned by Johns & Lamb. Should the Co. find any thing, there will be lively times, as the channel will afford room for a great number of men. Feng & Co. are preparing for spring water, and have good prospects. Wilson, Thompson & Mather have commenced work adjoining the Eagle Co. Thompson & Mather are at work in their old claim in Wild Cat, and have a large amount of ground prospected that will pay ½ oz. per day to the man. Lamb & Johns have ground prospected that will pay them well to work, but are driving a tunnel. Jo. Buffington has been obliged to suspend work in Wild Cat, on account of scarcity of water. He has a large amount of ground prospected that with 100 inches of water would pay $20 per day to the man. Water can be obtained at a cost of $1,000, and efforts are being made to bring it in. T. P. W. C. Orton continues at work in his old mine in the lower channel. Some say he is making lots of money. Jo. Hickman is at present stripping. H. Chappell is running a tunnel on the north side of Storm's ravine. J. Lineheart, on Jaw Bone bar, continues to work on his old claim. He always has plenty of money to pay his way.

SIERRA COUNTY.

STARTED.—Downieville *Messenger*, 22d: Ksnaka mill has been started on fine looking rock. This mill has not been run for several years, although one of the best in the county.

DROWNED OUT.—Independence quartz mine is at a stand-still, water having driven the workmen above ground. The cause was the breaking of a pump rod. There is now about 150 feet of water in the shaft.

NORTH SIDE.—Cor. of same: The Nip and Tuck have out a larger pile of dirt than there ever was before in one yard about these diggings. They wait the melting of snow to work. The Union Co. are working a good crew of hands, though their claims are not paying as largely as usual, since drawing their pillars on their main lead. Down in Hoboken, Mr. Taber has his cement tunnel in eight hundred feet; and the indications are that he is through the main body, and over a gravel bed. The Bootjack and the Chalcedony claims, which were flooded last summer, are now cleared of water. The last-named is paying, I hear, $10 per day to the hand. The Goahead claims stand still. A corporation was organized last summer, for developing them; but owing to disagreement, no work has yet been done. Gravel was struck in these claims at a depth of 350 feet.

TRINITY COUNTY.

CANON CITY.—*Journal*, 22d: The miners on Cañon creek have had water plenty for a number of days and are hard at work.

THE WEATHER.—The elements are propitious, and we have been favored with a continuous storm through the entire week. Trinity river is higher than at any time last winter.

LEWISTON.—The boys are all at work, and jubilant over their prospects. Kellogg & Cunningham had a cave in their claim on Bolt's Hill, this week, which they challenge the county to match. During the summer they ran a number of drifts 100 feet back, and upon turning the water over the bank the whole of the drifted ground came down at once.

Arizona.

BIG BUG.—Prescott *Miner*, Jan. 8th: We made a visit this week. We found the 10-stamp mill reducing ore from an extension claim on the Eugenie. The mill crushes, every 24 hours, from nine to twelve tons of quartz, and the daily yield of gold averages about $200. Upwards of twenty persons and three or four teams are employed at the mill and mine. We saw the outside plates cleaned up Monday last, after a run of 23 hours, saw the amalgam weighed, and there were 36 ounces, worth, at least, $2.25 per ounce. The gold in the battery was not touched, but allowing that it amounted to three times as much, the little mill pounded out $243,000 in less than 24 hours, out of ore just as it came from the mine.

STERLING.—Mr. Besler has started the furnaces, and is working the tailings by chlorination.

PLACER MINING.—Some ten or twelve men are rocking in the England gulch. About the same number are at work on the Upper Hassayampa, and, at Walnut Grove, some eight or ten are at work. On Lynx creek, there are twenty men engaged in placer mining; at Big Bug, five or six. All are making fair wages. The hydraulic companies are fixing ditches, sluices, etc., and praying for rain.

DEPARTURE OF PROSPECTORS.—Some 25 or 30 able-bodied men started Sunday, to explore northeastern Arizona. All were well supplied with animals, arms, provisions and other necessaries. They intend going to Hardyville, where they expect to get recruits.

Idaho.

ITEMS.—*Tidal Wave*, Jan. 20th: The Golden Chariot shute and ore-house are chock full of No. 1 ore, which has been accumulating faster than it could be taken away on account of the great extent of bare ground. The late storm has, however, obviated the difficulty.

The Ida Elmore mill has been obliged to shut down for a few days, in consequence of the storm having interrupted the regular supply of rock by blocking up the road.

Montana.

PHILIPSBURGH.—Helena *Gazette*, Jan. 13th: The lease of the Stuart mill was delivered to Purvine & Co. on the 2d. Some of the Hope and Comanche rock remaining at the mill since the break down last summer, has just been reduced. Seventy-five tons yielded 253 pounds of silver bars (.830 fine) or $5,060 in currency. Messrs. Purvine & Schnepel, after a few days delay, will start up for the season on rock from Ullery & Merrell's 50 feet Comanche extension; 500 tons of Queen rock will be put through first. The Cole Ssunders is again at work on the Trout, taking out first class ores.

THE CEDAR CREEK MINES.—A. J. Simmons writes from Cedar Junction, Dec. 30th: "I have been here two weeks, and have seen all there is to be seen on the surface, have sent out for my winter's grub, have a cabin about completed, and propose to investigate for myself. This town is at the forks of the gulch. The left-hand fork, on which discovery was made, has plenty of good claims. From sixty below discovery, up, the ground is from four to eight feet deep. Below sixty, no bedrock has been seen, but the deepest shaft—14 feet—has colors all the way. The creek has a big fall, the mountains are abrupt, and the gold is of good quality and coarse in the upper district. I am inclined to believe in the existence of good pay below the forks."

E. Marion writes from Louisville, Jan. 4th: "I have seen $311 panned out in six days by Barrette and Lauthier. In one day they panned out $85, and in this was found a nugget weighing $16. I have the belief that Cedar creek will be the best camp in Montana next summer."

"Stampeder" writes from Cedar Junction, Jan. 3d: "There will not be money taken out in any quantities, before next August or September. Work is scarce, and plenty to do it at $5 per day. The future depends on Oregon gulch, which has nothing but a few prospect holes, and none of them to bedrock. I have prospected four pans out of each of the holes. I got colors in every pan, but not in paying quantities—one-half cent was as big as I could get. Everything in the way of provision is 75 cents per pound."

ITEMS.—Virginia *Times*, 14th: In Ramshorn Gulch, the claims prospect well.... In Bivin's Gulch the miners are getting out dirt, by drifting, in readiness for spring work. Some are thawing out the dirt, and running it through sluices. They make it pay....Work is to be prosecuted in Wisconsin Gulch....Harris Gulch is going to be lively. One man has taken out $300 the past fall and winter, with a rocker. The depth of ground is from two to eight feet. ....On California Gulch, there are four or five companies drifting, and a few rocking. Water has been scarce all the season.

FINE BUTTON.—Hon. G. W. Stapleton, Supt. of the Tootle Co., at Argenta, arrived Wednesday with a silver button smelted from 30 tons of ore from the Blue Wing and Huron lodes. This button is .995 fine, weighs 127 pounds troy, and is of the value of $6,000, coin.

The *Times* says the Cedar Creek mines are a humbug. The promised $25-diggings have vanished. A Helena special says the stampeders are fast returning. Every foot is claimed. Stay where you are, at least until spring.

THE NEW MINES.—Deer Lodge *Independent*, 18th: Mr. J. V. Suprenant has returned from Cedar creek. He thinks that not less than 2,000 men will be employed there next summer. The *Independent* gives the report of several other returned miners, all of whom speak favorably of the prospects.

CEDAR CREEK AGAIN.—The *New North West* of the 7th, says the accounts begin to be conflicting. Prospecting is being done on Cedar, Oregon, Rabbit, Illinois, Wolverine, and Montreal gulches. Simmons & Co. had a shaft down 14 feet at the mouth of Oregon Gulch 10 days ago, and Mr. Tom Condon recorded claim "272 above." At Louisville and Cedar Junction, building is progressing rapidly.

LABORERS WANTED.—The same journal has an editorial headed "25,000 men wanted." We quote: "Five thousand more laborers for wages are wanted, absolutely essential to successful mining, in Deer Lodge county, at not less than $5 or $6, or $7 per day in gold, to go to work on the 1st day of May. In other industrial pursuits, farming, grazing, merchandizing, manufacturing and building, fully as many more could find employment."

New Mexico.

UTE CREEK.—Elizabethtown *Telegraph*, Dec. 25th: The Montezuma mill has shut down, for the reason that the *burro* train could not keep it supplied with quartz. Operations are to be suspended till the arrival of the cable, cars, and other outfit for putting the tramway in order. This machinery, together with the other 15 stamps for the mill, are delayed at the Rattoon mountains by heavy snows.

The agents of the English company have arrived, to tender Mr. Maxwell a payment on the purchase of his grant.

Pease, McCollum & Co. are opening a new lode called the 1XL, recently discovered near Grouse gulch, on Quartz Hill. The vein shows two feet on the surface, and carries free gold in paying quantities.

Nevada.

COPE DISTRICT.

MOUNTAIN CITY.—Elko *Independent*, 19th: Everything is in full blast. The Drew & Atchison mill, which has been idle for 10 days, is again at work. Fuel is not supplied according to contract—hence the delay. The Mill Co. have received 80 tons of rock for crushing, principally from the Great Republic and Mammoth mines.

BRUNO DISTRICT.—The Mountain King has been bonded to Sellers, Tregaskis and Atchison, who intend erecting roasting furnaces. They have run a tunnel 40 feet, and have a large quality of ore out. From an assay made, the rock yields $90 in silver besides the large quantity of lead.

BULL RUN.—Same of 22d: Mr. Crosby expects to have a mill in operation shortly, on Boston capital.

BALD MOUNTAIN DISTRICT.—John Foreman, and Dr. Bailey, came in on Wednesday and brought 100 pounds of handsome ore. The district was organized on the 20th of July. The facilities for milling and smelting are abundant. Five tons of surface ore from the Nevada returned $130 to the ton. This ledge is six feet in width and has been sunk upon 15 feet. The other ledges carry ore in large quantities, which assays from $150 to $4,500 per ton in silver.

ESMERALDA.

PINE GROVE—Gold Hill *News*, 24th. Lieut. Bourne, just in, speaks well of the mines, and says they are looking better than for months.

HUMBOLDT.

RAILROAD DISTRICT.—*Register*, 22d: The storm has stopped work for the present. The Bunker Hill has a fine lot of ore on dump. Wisconsin Chief, on the west side of the range, contains 40 per cent. copper, and $250 to the ton of ore. Chambersburg shows a well defined vein of copper ore of good quality. The Pixley, on the east side, has been prospected to the depth of 10 feet, developing a vein four feet wide, assays from which average $175. But little work has been done on the Bullion.

ORE SHIPPED.—L. C. Pease shipped to the Reno mill for reduction. 800 sacks of ore from the Stars and Stripes mine, Winnemucca district.

DUN GLEN.—Alaska Co. takes out two tons per week, assays $400 per ton. Twenty tons have been hauled to the Essex and Empire mill for reduction. The Tallulah Co. are in 80 feet. They have struck two blind ledges on the way. The Yosemite Co. are going ahead steadily. Gem and Diamond, has been stopped by the weather.

REESE RIVER.

TOIYABE.—*Reveille*, 19th: Yesterday a sample of ore produced by one of the veins cut in the Toiyabe shaft, gave by assay at the rate of $1,516.20 of silver per ton.

BULLION SHIPPED.—Same of 20th: Yesterday and to-day, by the Manhattan Co., nine bars, valued at $15,906.51; by Paxton & Co., 8 bars, $5,000.

BULLION FROM BELMONT.—Talman & Groves brought eight bars, valued at $5,000, mainly from tailings.

YANKEE BLADE.—Same of 21st: The Tuolumne, which is the eastern extension of the Chase, is producing superb ore. From the present condition of the mines in Lander Hill and Yankee Blade the prospects of Austin are brighter than ever.

BULLION.—Manhattan shipped, 21st, overland to New York, six bars, valued at $11,249.56; 24th, five bars, valued at $8,437. For the week, 19,662 ounces.

LATEST.—An Austin telegram, dated 26th, says: The Buel North Star mine, conditionally sold last fall by the Laue and Fuller Company to an English company, has been finally transferred.

The new 20-stamp mill of the Social and Steptoe Company, at Egan Cañon, is in operation.

It is rumored that the Manhattan Co. have bought the Excelsior right to the use of the Stetefeldt chloridizing furnace in this district.

WHITE PINE.

WEEKLY MINING REVIEW.—*Empire*, 23d: Weather has been stormy, and hauling ore unprofitable business, owing to the snow drifts. During the last few days, however, operations in this line have been prosecuted more successfully. Most of the mills have sufficient ore on hand to keep them running to March 1st, and with a few exceptions all the stamps of the district will be kept in active operation during the remainder of the winter.

BULLION.—The product, as shown by the shipments for the week, aggregates $62,412.13. We have no returns of the amount of lead bullion sent forward, though the yield is steadily increasing. The *News* of 22d says: Our shipments of bullion for the week aggregate $51,211.23—of which amount $27,625.65 went West, and $23,585.58 to the East.

MILLS AND FURNACES.—*Empire:* A large number of furnaces are being constructed, some of which will be ready to fire up the present week. An increased number of claims bearing smelting ores are being worked. This character of mining is now considered by many the most lucrative in the district; smelting ores being ready sale on dump from $12 to $30 per ton....*News:* The Alsop smelting works will be, when completed, the largest and most complete in the district....White Pine Works are being enlarged....Walsh's furnaces will be fired in a fortnight....Wieland & Co's shut down on Wednesday, for re-lining. The product of the last run was 18 tons of $200—bullion....Hawthorne also has shut down for re-lining; will start on Tuesday. Van Wyck will start on Monday....The mills of the Eberhardt, the Sheba, Metropolitan and Little Giant, are steadily at work, having been supplied with ore before the storm. The Drake & Applegarth mill, of the Eberhardt, was shut down for a few days, for lack of a supply.

ITEMS.—*News:* Aurora Consolidated improves in appearance daily. Large body of good ore in the face of main tunnel....Alpine shaft 75 feet down....California down 230 feet and taking out ore....Crown Point No. 8 yielding very rich base metal ore....Heavy body of smelting ore in Caroline, some of which assays $135 per ton in silver....Domingo turns out an abundance of low-grade ore worth $40. Wilson & Wadleigh have it on lease, and pay owners $3 per ton....Eberhardt is looking up immensely....Original Hidden Treasure contract not yet awarded....Blue Hill miners generally wait for lower milling prices....*Empire*: Mammoth is to be put in best condition immediately....Worral has 100 tons ore on dump....Alta works five men, who raise 10 tons daily, and are running a tunnel....The poorest ore produced $36 silver per ton....Aurora South employs 35 men in the mine, and has shipped $36,000 bullion in January so far. ....Confidence main shaft is down 50 feet, and work will continue all winter, "rain or shine."

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE
Alleghany, Sierra co., Dec. 30, 50c	Feb. 7	Feb. 28*
California, White Pine, Jan. 18, 50c	Feb 21	March 14
Columbia Cope, Nev., Dec. 21, 50c	Jan. 31	Feb. 19
Cons. Chloride Flat, W. P., Dec 14, $1	Jan. 29	Feb. 24
Crown Point, Storey co., Jan 5, $7.50	Feb. 8	Feb. 28
Cons. Virginia, Storey co., Jan. 7, $2	Feb. 12	March 5
Cosala, Mex., Dec 8, $1 50	Jan 19	Feb. 4
Oaney, Lyon co., Nev, Dec. 7, $1	Jan 9	Jan. 28
Empire M. & M., Storey co., Jan. 7, $10	Feb. 11	March 7
Glenwood, El Dorado co., Dec. 13, 20c	Jan. 10	Feb. 17*
Gold Hill Tunnel, Dec. 17, $1.50	Jan. 19	Feb. 5
Gould & Curry, Jan. 12, $15	Feb. 16	March 9
Hope Gravel, Nevada co., Dec. 10, $1	Jan. 17	Feb. 7
Imperial, White Pine, Jan. 5, 25c	Feb. 10	Feb. 28*
Julia, Storey co., Dec. 23, 50c	Jan. 25	Feb. 12
Kincaid Flat, Tuolumne co., Dec. 9, $2.50	Jan. 12	Jan. 29*
Kearsarge, Inyo co., Dec. 29, $5	Jan. 31	Feb. 19
Latawana, W. P., Nov. 22, 10c	Jan. 29	Feb. 19
Lady Bryan, Storey co, Jan. 12, $2 50	Payable immed'ly	
Mammoth, White Pine, Jan 4, 20c	Feb. 14	March 7
North Bloomfield, Nevada co, Jan. 15, $5	Feb. 12	Feb. 28
Noonday, W. P., Jan. 20, 30c	March 2	March 23
Ophir, Storey co., Jan 8, $2	Feb. 11	March 2
Pilot, W. P., Nov. 23, 10c	Jan. 3	Feb. 21*
Pinto, White Pine, Jan. 3, 15c	Jan. 15	March 7*
Sierra, Douglas co., Nev., Dec. 3, $1.25	Jan. 6	Feb. 4
Silver Vault, W. P., Nov. 22, 5c	Jan. 11	Feb. 7
Taylor, El Oorado co., Jan. 5, 60c	Feb. 7	Feb. 28*
U. S. Grant, Nevada co., Jan. 19, 50c	Feb. 21	March 12*

MEETINGS TO BE HELD.

Amador	Meeting Jan. 17
Belcher	Annual Meeting Jan 25
Cherokee Flat Blue Gravel	Annual Meeting Feb. 5

LATEST DIVIDENDS—(Within Three Months).

Amador Co., div. $12 per share	Payable Jan. 7, 1870
Chollar-Potosi, div., $1	Payable Dec. 6, 1869
Eureka, div. $7 50	Payable Dec. 6, 1869
Ida Elmore, div. $1	Payable Dec. 14, 1869
Kentuck, div., $10 per share	Payable Jan. 5, 1870
San Marcial, div. 50c	Payable Jan. 21, 187

*Advertised in this journal.

San Francisco Prices of Copper Ores.

SAN FRANCISCO, Jan. 28, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 12 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	26 65	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 60
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

◆

THE PHRENOLOGICAL JOURNAL for January, being the first number of a new series, has been received. It of course argues strongly in its peculiar line, but contains, moreover, a great amount of very interesting and valuable information, by which remark we by no means wish to have it inferred that we consider the phrenological arguments either uninteresting or valueless.

San Francisco Mining Stock Market.

The mining share market, as a general thing, is dull at this season of the year, but at the present time this is the case to a greater extent than in former years. However, prices have been well maintained during the period under review, and, in most instances, an advance has taken place. Since our last issue considerable activity has manifested itself in a number of leading stocks, very large sales of Yellow Jacket having been made; Savage and Chollar-Potosi coming in for large transactions. With regard to White Pine, the *News* of the 22d gives the following: "The storm which raged during the first three days of the current week prevented a continuance of active surface operations, hauling, etc., but the usual activity underground and at the mills was maintained. The working force in the leading mines now running, however, is light, and will probably not be materially increased before the end of March. Base metal mines are still attracting a large share of attention, and at present show more activity than the mines of Treasure Hill. Furnaces are accumulating along the Base Metal Range. Those under way are giving satisfaction and proving profitable, and experiments continue on all hands, looking to the discovery of a material which will withstand the action of the heat requisite for smelting ores containing a large per centage of silver. Our shipments of bullion for the week aggregate $51,211 23, of which amount $27,625 65 went West and $23,585 58 to the East."

CHOLLAR-POTOSI—was less active than during the previous week. For the week ending January 1st, 1,047 tons of ore were extracted, against 1,073 the previous week. It is stated that most portions of the mine from which ore is taken have an improved appearance, as compared with last week. At the 450-level the station is nearly completed, and, when finished, will drive the drift as rapidly as circumstances will permit. On the 25th they connected with the mine and the changes are reported as unimportant.

GOULD & CURRY—was dull of sale. During the week ending January 24th they extracted 334 tons of ore. Nothing encouraging in the old ore localities. At the seventh station the drift running north has clay and porphyry, and the north-west drift black quartz, commonly designated as water quartz. The south drift shows block porphyry, and the south-west drift is in hard porphyry, with some clay and a sprinkling of quartz having no metal. The Superintendent reports "that at no time since drifting was commenced on the seventh station has the prospect for ore been more unfavorable than at this writing. Both west drifts are now 145 feet in length, and they have not yet met with the west wall. These drifts will be continued until the syenite is found."

HALE & NORCROSS—was in moderate request, at improved rates. For the week ending January 22d the upper mine yielded 211 tons, and the lower 1,327½; total, 1,538½ tons. The sixth level contributed 1,305¾ tons of this amount. On hand, 6,467¾ tons, of which 2,369 is low grade. On the 23d inst. the ore-breasts throughout the levels of the old mine exhibited some improvement. The east drift on the 535-level is now 259 feet east of the shaft, and at this point they will turn a branch drift south-east, preparatory to working that portion heretofore untouched, so soon as air is obtained in the present drift. They are continuing the air-winzes above the 780-level, and they hope soon to connect with the east drift from the 535-level. The south drift on the third level of the new mine has intercepted all the water which prevented them from working the south body of ore on the level below. This drift is now in that ore, and is said to be of fair quality. On the sixth level the south cross-cut has passed through three separate clay walls, and is now in the ore of the vein.

OVERMAN—increased in sales toward the close, at better figures. During the week closing January 23d, 689 tons of ore were extracted. The breasts of the different levels are reported to be looking well. Bullion in small lots comes to hand more frequently.

AMADOR (Cal.)—has been in marked favor the past year. We condense the following from the Secretary's report for the year 1869:

RECEIPTS.

Cash on hand Dec. 31, 1868	$11,681 59	
Bullion	656,326 79	
Sundries	38,072 28	
		$706,080 66

DISBURSEMENTS.

Mine account	$160,447 78	
Construction account	25,885 74	
Eureka mill	35,161 22	
New mill	32,366 57	
Salary account	11,922 50	
Dividends Nos. 17 to 29, inclusive, paid to stockholders, $104 per share	384,800 00	
Sundry accounts	53,356 27	
Cash on hand	2,140 58	
		$706,080 66

The total assets are stated to be $160,494 72. The ore to produce the above amount of bullion aggregated 32,510 tons, equal to $20 19 per ton. Cost of mining, 32,510 tons, $4 86¼; milling, $1 97½; total, $6 83¾ per ton.—*Commercial Herald.*

MINING STOCK QUOTATIONS, JAN. 27, 1869.

WASHOE.

	Bid.	Asked.		Bid.	Asked.
Alpha Con.	$ 11	$ 12	Gold Hill Q M. Co.	$ 20	$ —
American	—	—	Hale & Norcross	159	160
Belcher	15	15¼	Imperial	—	30
Bullion	—	8	Justice	—	2
Crown Point	10¼	10½	Julia	1	2
Cole, Va.	—	—	Kentuck	108	108½
Confidence	—	26	Lady Bryan	2½	3
Chollar-Potosi	18¼	18¾	Occidental	13	14
Con. Virginia	—	—	Ophir	12½	13
Daney	—	1⅛	Overman	—	68
Empire	20	25	Savage	40	40½
Exchequer	—	8	Sierra Nevada	8	8¼
Flowery	—	—	Seg. Belcher	6½	7
Gould & Curry	45	46	Yellow Jacket	51½	52

WHITE PINE.

	Bid.	Asked.		Bid.	Asked.
Aurora Con.	$ 7½	$ 8	Noonday	—	—
Brodt	—	20c	Orig. Hidden Tr.	7	7¼
Chloride Con.	1	1¼	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	—	Silver Wave	—	—
Mammoth	40c	42c	Virginia	—	—

CALIFORNIA.

	Bid.	Asked.		Bid.	Asked.
Amador	$310	$315	Eureka	$220	$230

IDAHO.

	Bid.	Asked.		Bid.	Asked.
Golden Char't.	$ 10	$ —	Silver Cord	$ —	$ —
Rising Star	—	—			

New Incorporations.

The following have filed articles of incorporation with the County Clerk, S. F.:

COLONIZATION AND COMMERCIAL CO., of Bolivia. Jan. 24. Trustees: A. D. Piper, A. Y. Stout and A. W. Von Schmidt. Capital, $10,000,000, in 100,000 shares of $100 each.

PROTESTANT EPISCOPAL CHURCH HOME ASSOCIATION.—Jan. 24. Trustees: Bishop Kip, E. Birdsall, Wm. Hooper, H. F. Williams and Dr. O. Kelly.

The following have been recorded in the Secretary of State's office, Sacramento:

THE SANTA ANNA WATER CO.—San Buenaventura. Jan. 20. Capital, $45,000. Trustees: Walter S. Chaffee, Thomas R. Bard, and William R. Patterson.

MARCELA MINING COMPANY. Nevada. Jan. 22. Capital stock, $90,000. Trustees: C. R. Worlan, R. B. Quinlan, G. E. Herrick, A. T. E. Pritchard and C. C. Palmer.

CALIFORNIA SOUTHERN RAILROAD CO. Jan. 22. Object: To construct a road from Gilroy to Salinas City, Monterey county. Capital stock, $1,500,000. Directors: C. Mayne, Peter Donohue, Richard P. Hammond, H. M. Newhall and N. S. Sweeny.

Meetings, Elections, Etc.

BELCHER M. CO. Jan. 25. Trustees: J. D. Fry, B. F. Sherwood, A. K. P. Harmon, William H. Forbes and George Schultz; J. D. Fry, President; H. C. Kibbs, Secretary; and P. N. Mackay, Superintendent.

BLACK DIAMOND COAL CO. Jan. 26. Trustees: A. Hayward, President; D. O. Mills, William C. Barron, John Bensley and Charles E. McClane.

BELLINGHAM BAY COAL CO. Same officers.

THE GOLDEN GATE SUGAR REFINERY CO. Jan. 26. President: R. P. DeNoon; Vice President, J. J. McKinnon; Treasurer, M. Ehrman; Directors, Nicholas Larco, J. B. McCune.

THE STATE AGRICULTURAL SOCIETY. Jan. 26. C. F. Reed, President; Hon. E J. Lewis, of Tehama, Wm. Blanding, of San Francisco, and W. H. Coleman, of Sacramento, Directors; Robt. Beck, Secretary; R. T. Brown, Treasurer. The next State Fair will be held September 12th, and continue in session seven days.

American Engineers in Other Lands.

For a long time the engineering talent of our country has been decried by the old world, but of late, especially since the construction of the Central Pacific Railroad, Europeans have gradually begun to think that we have engineers who know their business, and, moreover, know how to build roads best adapted to the wants of our country. The English have found that their particular methods, which apply to the densely populated districts of Great Britain, are too expensive for the thinly-settled colonial regions. It is impossible for them to construct their solid railways everywhere; that is, financially impossible. They, therefore, wisely turn to America for the talent and experience necessary. Various reports, more or less definite, have been circulating lately with regard to their decision. The S. F. *Call* states the following definitely.

The Governor-General of India, Lord Mayo, has sent to the United States for an engineer accustomed to the expeditious manner of constructing railways in this country, and at a cost far below that which an English engineer would consider possible. India is yet in want of thousands of miles of railway, and if, by Lord Mayo's experiment, they can be made cheaply, the benefit will be great to all concerned, including English engineers, who may perhaps learn a useful lesson therefrom, and lay down cheap railways in Australia.

In this connection we find the following in the papers:

Silvester Marsh, the proprietor of the Mount Washington Railway, has received a letter from the Swiss Government, inviting him to go to Switzerland and superintend the construction of the road on top of the Rigi.

◆

THE SUTRO TUNNEL is in 630 feet. It has made 88 feet the past week. The ground still continues to be quite favorable.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

The Santa Cruz Farmers' Club.

The Santa Cruz Farmers' Club appears to be a live institution, and no doubt much good will grow out of the organization. We would suggest the propriety of similar organizations in other farming localities. The occasional meeting and conferring together of farmers as to the best method of cultivating the soil, the interchanging of methods employed and the promulgation of experiments, is of the greatest benefit and importance. Many facts may be thus brought out, and by means of the press made known all over the State for the good and profit of all. There is also a mental as well as financial benefit, which flows from such conferences; the mind is made more active, and a love for the business engendered. Farming is thereby elevated and ennobled, as it should be. The isolated condition of farmers has, in times past, served to render them unsocial, less inclined than those engaged in the various trades, to meet together for mutual conference, encouragement and protection. And yet, of all callings, there is scarcely any which can be named that may be more benefitted by such means.

Farming is really more of a science than any other industrial pursuit—its range is wider, its fields are broader. It is more elevating and ennobling in its nature. It is more of an intellectual pursuit than any other. It ought to rank, in the social scale, as the very topmost of industrial pursuits. Education will place it there—it is fast doing so. Every man, woman and child in the land should know something of the *science* of agriculture; it should occupy an important position in every course of study. No grade of education, from the common school to the highest university, should be considered complete without it. Public opinion, within a few years, has taken wonderful strides in this direction, and soon professors in the various departments of agriculture will be found in every college and university in the land.

Those who have already entered upon the active duties of the farm cannot reap the benefits of our improved schools; but they can greatly improve their condition by the formation of clubs and the reading of agricultural books and papers. We need a peculiar school of agriculture in California. Our system of farming here differs widely in many respects from that of other localities. We must work out and establish this system ourselves, practically, by the collection and dissemination of facts within our own territory. No better means to do this can be devised than by the formation of Farmers' Clubs. Let the farmers in various localities thus meet, compare notes, and the PRESS and other papers throughout the State will publish what they talk about, whenever it is of general interest. In that way we shall soon have a more careful and successful system of farming in California. Necessities for our especial conditions will be devised; remedies for the peculiar diseases or insects which afflict our animals, trees and plants, will be sought out; methods for restoring to their original fertility our deteriorating fields, will be suggested and made known to the public, and wasteful and inexperienced farm management will vanish before carefully applied intelligence.

CURRY YOUR COWS.—The *Agriculturalist* strongly recommends the currying of cows and fattening animals. Animals that are stabled need it more than those in the yard, but it is beneficial to both. They like it, and will generally stop eating to enjoy it. It is a practice which should become general and constant.

Have a Care for Little Things.

The great mistake of both farmers and business men in California is the lack of care for *little things*. We are all striving for a big thing—a fortune. Nothing short of that will answer; and to reach it, risks must be assumed. Whatever we attempt, must be on a large scale. We have no time to look after small matters. Little leaks are left here and there; little items of expense that might be cut off are suffered to run on, simply because they are small, with no thought of the fact that a continual outflow of a small stream will soon empty a big pond. Few think of making change closer than ten cents—it would be small to mention it. The carpenter takes but little care of his tools—it is a little thing, and when it is gone he can buy another.

The farmer goes on in the same way. His tools are suffered to lay out, exposed to the weather, without shelter. Barns are but little used; but little needed, they think. Plowing and planting must be done on a large scale, little care being taken as to *how* it is done. Big gangs of plows are used with little teams to haul them; the ground is scratched—not plowed. The struggling rootlets can't get down to the moisture they need, consequently they spread out near the surface, and when the drouth and hot sun comes, the plant shrivles and lacks the power to perfect its seed. In its sickly state it is also open to the attacks of disease—and smut, rust, etc., destroy the farmer's hopes.

Insufficient care is taken in securing and selecting seed—it is a little thing, and hardly worth minding. Too busy to look over the fields and notice where the best growth is producing the grain most suitable for seed. It is too much trouble to separate the few small and shriveled seeds from the bulk of the seed wheat—so ʋ it all and let it grow together; the most of it will produce good grain anyhow; can't expect everyone will raise No. 1 wheat.

Burn the straw? Of course; it is too much in the way; it will make but little manure, after all, and it requires a great deal of work to rot it and haul it out upon the field. Don't have time to do it after the rains come; and then you know we must have a little rest between harvest time and rain fall. We want three or four months to watch the markets, sell our crops, and make our calculations for the next season; because, you see, we are going to put in a big crop next year.

Of course it costs more to plant and harvest 7,000 bushels from 500 acres than it does to obtain the same amount from 300 acres; which we might do by more careful cultivation; but then you know I've got the 500 acres, and I *must* use it.

Not at all, my friend. Suppose you set off a portion of your acres every year for fallowing, until you have in turn rested and improved every acre of your farm. If you will try that plan you will get more wheat in the aggregate, and keep your farm in better condition and with less labor. That is an experiment which never yet failed with land that had commenced to deteriorate.

When we see a farmer omitting all improvements because of a little cost, or subscribing for half a dozen political newspapers, and not a single one devoted to agriculture and useful information; when we see him buying guano and wasting his barn-yard and other ordinary fertilizers within reach, and cheaper, we are always reminded of the story of "A Crack in the Hog Trough." Don't remember it? Well, a farmer somewhere out West, who was notorious for shiftlessness, complained day after day to his neighbors that his hogs ate twice as much buttermilk as his neighbors, but did not grow half as fast. Some good friend finally went to the pen, and on close examination found that about half the swill ran away through a crack in the trough. We fear that there are a great many farmers and business men in California who don't look close enough to the cracks through which their substance is constantly leaking. That's what's the matter in most cases of failure everywhere.

There is a grievous lack of economy everywhere in California. Our farmers, in particular, are too negligent in the care of their lands, and in many other things which go to make up a thrifty husbandman. One of the greatest lacks is in making and spreading manure upon our lands to stop the general complaint about their deteriorating. We recommend to every tiller of the soil, whether he cultivates one acre or one thousand, a careful consideration of this question: How can I best and most economically get a proper stock of manure for my next year's crops? In no way can you do more to increase the yield of your land and the consequent profits of your farm.

The Angora or Cashmere Goat.

The recent importations of a large number of Cashmere goats into this port has caused considerable inquiry with regard to this interesting animal, which we will endeavor to satisfy at an early day. There seems to be considerable speculation in regard to this breed of goats, just at this time, in all parts of the country, and it is thought by many that there is danger of an undue excitement in this direction. We do not entertain any fear on that account; but at the same time would counsel sober careful action.

Experiments on this coast have already fully proven two things—that the climate of California is well fitted for the raising of this goat, as it does as well or better here than on its own native hills, near the Black Sea, and that it is most admirably adopted for improving our common breeds, in regard to both fleece and flesh. The animal is beautiful to look upon, and although quite as mischievous, is almost entirely free from the strong odor so peculiarly offensive in the common goat. Its flesh is also said to be very superior for the table. Their fleeces are long, exceedingly fine, soft and silky. They take color very easily and perfectly. The demand for them in this country, is now chiefly for fancy work, fringes, tassels, etc. They sell in New York, according to quality, which varies greatly, at from $1 to $3 per pound. The cashmere wool may be seen almost any day in the streets of San Francisco, worn by our ladies as fringes to their outer garments.

A HINT FOR CALIFORNIANS.—A western farmer has secured his young apple trees from the depredations of rabbits and mice during the past four years by leaving shocks of corn in the orchard through the winter. He finds that these mischievous creatures will not gnaw the trees when such shelter and feed are at hand. California vineyard and fruit cultivators, who are troubled in this way, as many are, may profit by the above. Better feed such pests to some extent than suffer infinitely more in vain attemps to starve or kill them. A few cats and dogs will always keep them moderately scarce.

SHEARING GEESE AND DUCKS.—A writer in the *Farmers' Advertiser* says: "The usual mode of plucking live geese, is laborious in the extreme, and cruel, as the frequent shrieks of the tortured creatures testify. Shearing them would secure the finer and more choice part of the feathers, and I have no doubt but the geese or ducks would thrive better and yield a coat oftener—and if not with better grace at least with better feelings."

A NEW USE FOR SHEEP.—It is stated that a Vermont farmer hauls wood to market with a team of eight sheep.

Arthur Young on Pyrenean Sheep.

[Written for the Scientific Press.]

Mountain Lands.

MESSRS. EDITORS:—Having been unable to complete this article in time for the last week's publication of the PRESS, the circumstance has afforded me the opportunity to make some remarks on the paragraph which has appeared in the daily papers, to the effect that a suggestion has been thrown out that the mountain lands should be sold at twenty cents per acre. On this proposition I can only remark that, unaccompanied by a change in the mode of segregating lots on the lines of railroad, so far as those portions of the public domain and railroad appropriations are concerned, considerable eventual inconvenience would be found to result from the segregated sections possessing so small an area as 640 acres. On this, however, and some other points relating to the utilization of our mountain, swamp and other lands, immigration, irrigation, etc., it would be well for the Legislature not to move hastily, commence legislation, or take prominent action thereon, until all these subjects have been carefully examined into, and their bearings on the public weal, both for the present and future, been deliberately and comprehensively considered.

Pyrenean Sheep.

The delay just noticed has also afforded me an opportunity of reperusing a series of able articles by Mr. James Wilson, which appeared in the first and second volumes of the *Journal of Agriculture*, under the caption of the "Origin of Domestic Animals." In the course of Mr. Wilson's essays, a quotation is given from the writings of the celebrated Arthur Young, which contains a description of the sheep which occupies the Catalonian or eastern end of the Pyrenees, in which it is stated:

"They (the sheep) are always in the open air, never housed or under cover, and never taste of any food but what they can find on the hills. * * * I examined the sheep attentively. They are in general polled, but some have horns. * * * The legs are white or reddish; speckled faces, some white, some reddish; I reckon they would weigh when fat from fifteen to eighteen pounds a quarter; some with a very little tuft on their foreheads. On the whole, they resemble those on the South Downs; their legs are as short as those of that breed—a point which merits observation, as they travel so much and so well. Their shape is very good; round ribs, and flat, straight backs; and would be with us reckoned handsome sheep. In order to be better acquainted with them, I desired one of the shepherds to catch a ram for me to feel. * * * I supposed he would do it with his crook, or probably not be able to do it at all; but he walked into the flock, and, singling out a ram and a goat, bid them follow him, which they did immediately; and he talked to them while they were obeying him, holding out his hand as if to give them something. * * * The weight of the fleece I guessed would weigh eight pounds; but it was said that the average of the flock would be from four to five pounds."

Financial Observations.

In the financial calculations which I gave last week, I feel that, as a whole, they will stand the test of the closest examination, so far as the net balance is concerned; but as regards the feeding capacity of the area under consideration, I believe it is underrated 400 per cent. This circumstance would, however, leave ample room and to spare for simultaneously introducing over the same area the Cashmere goat and Kerry cattle, and still leave the better class of valleys open for the culture of oleaginous and textile plants, like flax, and even the beet-root—the refuse from the dressing and eventual manufacture of which two crops would form admirable winter aids to the pasturage when gathered at that season into the more sheltered positions. These desiderata would at the same time be accompanied by inexpensive water-power, by which the raw materials may be cheaply converted into articles of commercial produce and manufacture—paper amongst the number. These facts I strongly recommend to the serious consideration of the Central Pacific Railroad Company.

THOMAS ROWLANDSON.

The Earth Worm.

This worm, wherever found in abundance and of large size, is an indication of superior soil. The presence of moisture is, however, essential to its existence. No inconsiderable share of the luxuriant, grassy meadows and pastures of the British isles is in consequence of the continuous top-dressing given to these lands by worm-casts. The study of these apparently insignificant creatures is well worthy of attention. An able writer on their habits has observed: "It is not easy to express the pleasure which is excited in the mind of the observer of nature while contemplating the habits and manners of the *Annelida*. Every movement exemplifies the curve of beauty; every tentacle winds ceaselessly and rapidly through a thousand forms of matchless grace. Whether coiling round a visible object, or picking up a microscopic molecule for the construction of the cell, it exhibits a delicacy and precision of aim which the erudite finger of the most skillful artisan never equalled. The refined perfection of its muscular performance is matched only by its exquisite sensibility. Like the human hand, of which the manifold endowments have exhausted the admiring eloquence of philosophers and theologians, it unites in its little self the most varied capacities. It is at once an eye, an ear, a nose and a finger—it sees, it hears, it smells, it touches!"

Shelter Your Animals.—All animals, especially cows in milk, require warm shelter from rains as well as snow. A great amount of loss is incurred, even in the warmer valleys of this State, for lack of shelter for stock during the winter months. Such loss is not confined to the accident of death alone; but animals so exposed suffer great detriment, and often permanent constitutional injury. It may be said that lumber is too scarce and high in most places to allow such shelter; but a contriving or humane man, if he finds the cost of lumber too great to make such improvements pecuniarily profitable, will seek other material for the purpose. There is scarce a ranch in the State where either tules or coarse grass may not be obtained in sufficient quantities to furnish an abundant and sufficient protection to stock from the cold and pelting rain. We will endeavor, at an early day, to give some illustrated hint in this direction which may prove both interesting and profitable to our farmers and ranch men, and also further the humane objects of the "Society for Prevention of Cruelty to Animals."

Shipping Wheat in Bulk.—The Solano *Democrat* says that it costs $6.37½ more to ship a ton of wheat from San Francisco in sacks than from Vallejo in bulk. How does the *Democrat* know that such is the fact, seeing that no grain has yet been shipped "in bulk" from either locality? When ships can be found prepared to *receive* grain in bulk, elevators will be found in San Francisco as well as in Vallejo to load them. Shipments in bulk will prove of great advantage to California, as a State, whenever it can be made practical.

Improved Stock.—The Los Angeles *News* notes approvingly the fact that the breeders of horses and mules in that section of the State, or some of them, at least, are turning their attention to improving their breed of animals. It costs little, if any more, to rear a band of good horses than one of mustangs, and when reared, the breeder has something to repay him for his trouble. The day for slab sided hogs, long-horned cattle and mustang horses has gone by.

Singular Wool.—William H. Murray, of Pittsfield, Mass., a wool dealer, recently received a fleece of wool from Ohio, the staple of which is about one inch and a half in length, and of two distinct colors. The outer half inch is white, the second or middle black, and the third or innermost white again; and just at this point, where the wool was sheared from the sheep, another section of black was beginning to appear. The divisions of color are as distinct as if art instead of nature had done the coloring.

Oakland and its Surroundings.

[Written for the Scientific Press.]

Oakland, the city of schools and fine residences; of trees, gardens and homesteads, is steadily growing in wealth and business importance. Although real estate reached its present valuation eighteen months since, it is still constantly finding purchasers who are making homes. Within the circles of business, lots are high, but in active demand. Several new blocks are occupied by elegant stores, and others are about to be erected. In one, the foundation of which has just been laid, every room is already rented. Capitalists here insist that Oakland is to be the great metropolis of the Pacific coast; that it presents a dozen miles of wharfage, while its natural position and advantages are unequaled. Engineers have already determined its levels and grades, and proposed a system of sewerage that will be efficient. Oaklanders look upon San Francisco as a confusion of badly-graded streets, filthy sinks, and blocks of abortive designs. In its present stage of rusty growth, it would cost more to convert it into a well constructed city than it would to build a magnificent emporium at Oakland, where every natural advantage lays open to the enterprise.

Lumber Yards and Mills.

In the present season of hard times, the material interests here are not far different from most other places in the State. Money is scarce, business dull, and a heavy drag. The five lumber yards along the city front are well supplied, and are all doing more or less business. The Oakland Point Planing Mills have recently added another story to their building. It now employs 12 men, and is well supplied with machinery for all sorts of planing or ornamental finishing. More machinery has been ordered—enough to double the capacity of the mill.

The Pioneer Planing Mills, usually employing 25 to 30 men, are working but 12 at present. The upper story, occupied by stair building, employs six men. The Oakland Planing Mill—one of the finest in the State, with a working capacity of 30 men, has been idle over a month.

The Three Flouring Mills

Are all idle, with a liberal supply of flour on hand for immediate sales. A change in the market rates of wheat and flour is looked for. The principal sales of flour at these mills are to the local trade. Some low-grade flour is shipped to China, but the profits are small.

A Hint to Wheat Growers.

In looking through these mills I noticed much difference in the construction of the cleaning apparatus. The great difficulty of cleaning all sorts of dirty wheat is admitted, and many imperfections appear to exist in the machinery now in use. The thorough cleansing of wheat at the mill is expensive, and the farmer is a great loser by sending so much dirty wheat to market. He should use more care in selecting seed free from barley, oats, etc. He should also clear out some of the weeds from his field, and clean his wheat at home, saving extra freight. He will thereby be sure to utilize the refuse for his stock, and get the advantage of a good price.

The Use of Lime in Cleansing Smutty Wheat,

Mentioned in the Scientific Press, has been in use 30 years, and was patented in 1855, by a man named Campbell. One of the millers informed me that he had mixed wheat flour with smutty wheat, and that it absorbed the smut, leaving the wheat, after fanning, perfectly clean.

The Oakland Cotton Factory.

Stepping into the Oakland Cotton Factory, I found about 60 hands employed manufacturing grain sacks from jute. No cotton goods are manufactured here—the cotton having been replaced by the best flax machinery, obtained from England and Scotland. Not being able to procure flax at a moderate cost, the proprietors now use jute—a long, but perishable fiber, obtained from the East Indies, at a net cost of about five cents per pound. Flax would make better sacks, but the company could not afford to pay more for it than for the jute, as the sacks sell for the same price.

Flax and its Cultivation.

But it is claimed that at four cents per pound it will pay to cultivate flax. The seed is a paying crop, yet some 250 tons of seed was imported by the Oil Company at San Francisco, the past season! About one-third of the weight of flax straw is fiber. With an efficient economical machine for breaking—one that can be attached to and worked by a common horse-power—why would it not be profitable to produce flax for market?

It does not require the best quality of flax for sacks. The straw, after producing a crop of seed, would furnish a good fiber for such use. The break machine used in the Oakland mill cost $350. It has a capacity of about one ton a day, and could be run by a common horse-power.

With a capacity of 2,000 yards per day, this mill now turns out but 1,500, each yard making a sack. The sewing is all done by hand. Ten girls are employed spinning and weaving; 37 Chinamen are also employed. The foreman informed me that "the preference for China labor consists in the fact that Chinamen are steady, tractable, and constant hands." If white men and women had no individuality, no wants nor rights, and no higher ambition than to serve labor till they could get money to leave the country with, many capitalists might find comfort.

The San Antonio Pottery.

I also visited the San Antonio Pottery, where the curious clay is molded into many forms. This establishment has been in active operation since 1856. Here was manufactured the first stone ware, fire brick, and terra cotta ever made on this coast.

A great number of flower pots, and all sorts of brown earthenware, are here manufactured. The proprietor has improved machinery—some of his own invention—for working the material, and he employs experienced workmen from Sweden. The clay, which is of a very superior quality, is obtained at Michigan Bar, in Amador county, at a net cost of $10 per ton. He is very sanguine that he is making fire brick superior in quality to any imported article, and he says that his capacity for producing such brick is unlimited. As a substantial fire brick is largely demanded on this coast, it is to be hoped that this enterprise may prove a success.

The San Antonio Tannery.

This business was started in 1865, and the proprietor informed me that until recently he has tanned and dressed all kinds of leather; but at the present time, only sole-leather is manufactured here. There are thirty vats in use, which, with three men, turn out about 400 sides per month. Twice that number were employed, when different kinds of leather were manufactured. The principal market for this leather is found East. Why do we send our leather East and import boots and shoes?

The bark here employed for tanning, which is of very superior quality, is obtained from the *chestnut oak*, found along the coast. Its cost is $16 per cord. A steam engine furnishes power for grinding the bark, rolling the leather, etc. The hides are obtained near at hand, and only fresh ones are purchased, which, tanned with oak bark, make very superior leather. The prices obtained equal that of the best Eastern leather.

Formerly, hides imported from the Sandwich Islands were tanned here; but such hides are so rotten and inferior that none are now used. It has been found to be the most profitable to cure only the beef.

The W. P. Railroad.

One cannot but notice the progress and thoroughness of the work now being done along the W. P. Railroad at the Point and beyond Oakland. Five pile-drivers are now employed, and two others are being built. This looks like business ahead. The railroad company have but to build a system of wharves along the water front now owned by them, to insure the building up of a large city at Oakland, which would also comprise Alameda and Brooklyn. A hundred projecting wharves, well dredged between, will only be what nature has made practicable.

The steamer Oakland, lying at San Antonio, has a rail track firmly laid through its entire length, and is apparently in readiness to convey the first overland freight train that will land in San Francisco.

Miscellaneous.

While "sloshing round" through the rain and mud of the past few days, I saw many things interesting, the mention of which would make this letter too long.

At the Averill Chemical Paint Works I admired the many beautiful colors, and the strength and finish of their work. The genius of invention is rife in Oakland, and more than one mind is asserting the power of principles over matter in utilizing material things.

I have been highly entertained by Mr. A. F. Potter, who has for the past eight years devoted much attention to the art and science of gunnery. He has already patented an improvement in projectiles for smooth-bore guns, which I think must eventually do away with the rifle. He is now finishing his model of a new method for raising and depressing light and heavy artillery, whereby the "gage" is obtained much quicker than by the old method, and with mathematical precision. H.

Converting Dwarfs into Standards.

Dwarf pear trees may be converted into standards, at will, after they come to bearing, by cutting notches in the pear wood above the quince stock. These notches should be cut at equal distances all about the tree, in order that the pear stock may send out roots in all directions. After the notches are cut, haul the earth about the tree so as to completely cover them. The juncture of the quince and pear should always be below the surface of the ground; but if it is desirable to make standards of them at once, the juncture should be five or six inches below the surface. The trees should be allowed to come to bearing and produce fruit before the change is made.

The advantages claimed from the conversions of dwarfs into standards is early bearing and long life. It is also said that fruit of some varieties is thus produced of better size and quality. This is said to be the case especially with the Duchesse d' Angouleme. One writer claims that this variety of the pear, grown on trees in his nursery, started as standards, had never equalled that of the same variety grown on trees converted from dwarfs to standards.

Agricultural Products of Salinas Valley.—The shipment of farm produce from Castroville Landing, Monterey county, during the past year, show the richness of Salinas valley. Moss & Beadle's books show nearly seven million pounds of wheat, nearly six million pounds of barley, nearly half a million pounds of peas, beans, oats and mustard seed; more than half a million pounds of potatoes; besides thirty to forty thousand pounds of lentils and flax seed. Then there were over 135,000 pounds of butter, over 44,000 pounds of cheese, and 26 boxes of eggs. Such is the record of one company's warehouse.

Milk Pans.—There has been much discussion with regard to the use of zinc for milk pans, instead of tin. The general impression is, that it should not be employed for such purpose. Probably the best material obtainable would be glass.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, January 27, 1870.

Flour, Extra, ℔ bbl	$5 00	@	$5 50
Do. Superfine	4 50	@	4 75
Corn Meal, ℔ 100 lbs	2 00	@	2 25
Wheat, ℔ 100 lbs	1 15	@	1 65
Oats, ℔ 100 lbs	1 15	@	1 50
Barley, ℔ 100 lbs	1 15	@	1 30
Beans, ℔ 100 lbs	2 50	@	3 50
Potatoes, ℔ 100 lbs	75	@	1 10
Hay, ℔ ton	11 00	@	17 00
Live Oak Wood, ℔ cord	9 00	@	14 00
Beef, extra, dressed, ℔ lb	7	@	10
Sheep, on foot	2 50	@	3
Hogs, on foot, ℔ lb	5	@	
Hogs, dressed, ℔ lb	8	@	

GROCERIES, ETC.

Sugar, crushed, ℔ lb	14	@	—
Do. Hawaiian	8	@	11
Coffee, Costa Rica, ℔ lb	18½	@	19
Do. Rio	18½	@	19
Tea, Japan, ℔ lb	75	@	90
Do. Green	60	@	1 25
Hawaiian Rice, ℔ lb	9½	@	10
China Rice, ℔ lb	5½	@	6
Coal Oil, ℔ gallon	42½	@	45
Candles, ℔ lb	16	@	18
Overland Butter	30	@	40
Ranch Butter, ℔ lb	35	@	40
Isthmus Butter, ℔ lb	25	@	40
Cheese, California, ℔ lb	16	@	20
Eggs, ℔ dozen	40	@	45
Lard, ℔ lb	12½	@	14
Ham and Bacon, ℔ lb	16	@	18
Shoulders, ℔ lb	10	@	12

Retail Prices.

Butter, California, fresh, ℔ lb	50	@	55
do. pickled, ℔ lb	40	@	50
do. Oregon, ℔ lb	25	@	30
do. New York, ℔ lb	40	@	50
Cheese, ℔ lb	20	@	25
Honey, ℔ lb	25	@	30
Eggs, ℔ dozen	60	@	—
Lard, ℔ lb	20	@	22½
Hams and Bacon, ℔ lb	22	@	25
Cranberries, ℔ gallon	1 00	@	1 25
Potatoes, ℔ lb	2	@	3
Potatoes, Sweet, ℔ lb	—	@	2
Tomatoes, ℔ lb	2	@	3
Onions, ℔ lb	3	@	5
Apples, No. 1, ℔ lb	4	@	5
Pears, Table, ℔ lb	5	@	
Plums, dried, ℔ lb	10	@	12
Peaches, dried, ℔ lb	10	@	15
Oranges, ℔ dozen	50	@	75
Lemons, ℔ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ℔ lb	—	@	25
Soap, Pale and C. O.		@	12
Soap, Castile, ℔ lb		@	[illegible]

Scientific Press.

W. B. EWER..........SENIOR EDITOR.

A. T. DEWEY. W. B. EWER.

DEWEY & CO., Publishers.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance	$4 00
One copy, six months, in advance	2 50
Delivered by city carriers, per month	50

Rates of Advertising.

One square (ten lines agate), one week	$ 1 00
One square, one month	3 00
One column, one month	40 00
One column, one year	400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, Jan. 29, 1870.

Table of Contents.

Boiler Tube Cleaner—Ill 65
Excessive Legislation... 72
Tea Culture—Ill........ 73
Neat Joint for Pipes —Ill 72
Silk Manufacture....... 72
Legislative.............. 65
New Books............. 73
Out of Employ.........73
To Correspondents...... 72
New Incorporations. ... 69
Full List of Patents.... 73
From Liverpool to London.......... 66
Dressing of Ores........ 66
MECHANICAL PROGRESS —American Workmen; A New Traction Engine; Iron Progress; Patching Boilers; To Color Mica; Economical Steam Engine, etc....... 67
SCIENTIFIC PROGRESS.—Correlation of Vital and Physical Forces; The Megatherium in Ohio; Metallic Chromium; Iridium; Carbolic Acid; Spectrum of the Fire-fly, etc........ 67
FARMING AND GARDENING.—The Santa Cruz Farmers' Club; Have a Care for Little Things; The Angora or Cashmere Goat; Pyrenean Sheep; The Earth Worm; Oakland and its Surroundings; Converting Dwarfs into Standards; S. F. Market Rates, etc........ 71
READING FOR THE HOUR.—Ignorance of California; How Corks are Made; French Tobacco Manufacture, etc........ 76
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Idaho, Montana; New Mexico and Nev. 68
S. F. Shareholders' Directory........ 69

Notices to Correspondents.

URBAN, Sacramento.—Sea-sickness, it has been stated, may be avoided by acting as follows: "Let a person on a ship that is rolling, take a tumbler of water nearly full, at the same time endeavoring to prevent the liquid from being spilled by maintaining its surface horizontal, or nearly so. In accomplishing this, it will be found that the hand and arm will be drawn into various positions. In making the necessary efforts, the party must allow the hand, arm and body to assist the motions required, as is seen with persons in the act of sawing, planing, pumping, throwing a quoit, etc. It is said that by so doing the giddiness and nausea occasioned by the rolling of sea-going vessels is prevented, which is apt to produce on some persons. By so acting after nausea has commenced, relief, it is said, will be obtained.

"NATOMA."—We were not aware that the days did lengthen at night with no change in the morning. The times given in the common almanacs are mostly approximations merely. The variable length of twilight at the same place in different seasons is owing to the varying declination of the sun, and the consequent difference of time required to sink the distance below the horizon where the reflection is lost, as his course is more or less vertical.

H. S.—The Colfax strawberry, about which you inquire, and which was illustrated in the last issue of the PRESS, may be obtained at the "Palmyra Fruit Nurseries," Purdy & Johnston, proprietors, Palmyra, Wayne county, N. Y. Price, $2 per dozen, or $10 per 100 (currency). The plants will be sent postpaid, if so desired. Fifty plants, or any number over, will be sent at the 100 rates; six plants will be sent for $1. We think it has never been introduced into this State.

K. O., Nev.—The PRESS will be sent to you. The specimens sent contain apparently molybdate of lead (Wulfenite) and gray copper ore. They have been carefully assayed by Messrs. Hanka & Falksnau, of the Pacific Chemical Works, who give the following result: Gold, a trace; silver, 163.33 oz. troy, or $211.17 to the ton of 2,000 lbs.

"J. O. S.," Georgetown, Col.—We know of no other books in the English language than the one you mention. Several German and French works, as Kerl's or Rivot's metallurgy, contain articles on the subject.

"E. N. S.," Placerville.—Your communication will be noticed next week.

"J. G."—Your communication will be noticed next week.

Legislative.

Among the bills introduced or acted upon in the State Legislature of late, the following are of general interest to our readers:

In the Assembly, a resolution has been offered, constituting the Committee on Public Lands and the Committee on Agriculture a Committee on Immigration, to report a bill to the House to secure immigration; also a bill was offered to prevent forage and field conflagration; one to encourage the destruction of gophers and squirrels in Alameda and Contra Costa counties, and to provide for a bounty for the same; and one to encourage the production and manufacture of beet sugar.

In the Senate, Mr. Perkins introduced a bill amending the law regulating the sale of swamp and overflowed lands, for the avowed purpose of making actual settlers upon such lands preferred purchasers. Many men who have settled upon such in good faith, supposing them to be ordinary government lands, are surprised to find efforts made to secure titles to their farms, under purchases from the State, by parties who claim them as swamp and overflowed lands.

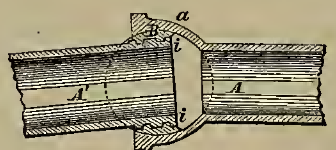
Senator Betge introduced a bill to create the office of Inspector of Beeves, Swine and other Animals for the San Francisco Market. It is founded on the necessity of reform in the matter of feeding, keeping and killing cattle, etc. We hear that a petition for the appointment of a Meat Inspector has been extensively signed by leading physicians in this city. But according to the Senator's bill, the Inspector and appendages will cost the State at least $7,360 yearly,—a larger sum, we think, than is at all necessary. Again, the cattle must be brought hither and kept, according to the bill, at least six weeks before being slaughtered, which would cause a very heavy expense for the cattle merchants.

Mr. Farley introduced a bill in relation to the inspection of steam boilers: The Governor to appoint within 30 days a Chio Inspector, with power to appoint a deputy for each Congressional District. We are in favor of having such an Inspector, if the proper man can be found. We think, however, that some of the points of Mr. Farley's bill ought to be revised. In the first place, no one who has an active interest in boiler-making should be allowed to be appointed. No man can fairly test his own work, and the State should in no way favor one person to the detriment of others, as would certainly be the result in this case. We are inclined to think, moreover, that the Inspector should be paid a certain sum for each inspection, and that by the State. This would make his pay depend on the amount of work done. In the country districts, perhaps, a small annual salary might be paid in addition, where the distances to be traveled over are large, and the number of inspections to be made are small. The income should be large enough to secure competent men, who should be made independent of the boiler-makers on the one hand, while on the other the opportunities of extortion should be made as limited as possible. The manner of making the tests might also be left to the Inspector, whose term of office should be during good behavior.

SANBORN'S STEAM FIRE-PROOF SAFE.—By the peculiar construction of this safe, which causes the generation of steam between the double walls when exposed to fire, it is claimed that the desideratum of a really *fire-proof* safe has been attained. As far as we have heard, the experiments seem to have resulted with the best of success. One of the trunk safes was submitted to a fire test, at a private trial for sixteen hours, and its capacity for endurance was still not exhausted. The report of a public trial may be found in the SCIENTIFIC PRESS under date of Nov. 6th, 1869.

A Neat Joint for Pipes.

Mr. J. F. Ward, of New York, has recently been laying iron pipe under the Harlem river from Manhattan Island to Ward's Island, a distance of about 850 feet, under a contract with the Croton Aqueduct Department. The pipes are united by means of a very simple and neat ball and socket joint, which we find described in the *Scientific American*.



One end of the pipe, A, is provided with a concave flange, *a*, which receives the corresponding end of the pipe, A′. This end is furnished with annular ribs, *i*. The space between the end and the flange is packed with lead, B, and the joint is thus rendered perfectly secure, while at the same time it is also flexible. As no screw bolts are required, it is an economical piece of work, and appears to us to be a very neat contrivance.

The eight-inch pipe used in this work is cast in lengths of eight feet. The method of laying it is novel and simple. A large open boat was used, in which was carried a supply of pipes and melted lead. At the stern of the boat was placed a small frame for supporting the pipes. These were jointed together in the boat, and, as fast as completed, were pushed out over the stern into the water. Thus was formed a flexible string of pipes, which sank and rested upon the river bottom as the boat progressed. In this way the work was easily and speedily accomplished. The depth of the water in the river where the pipe lies is about forty feet.

A NEW AND CHEAP PROCESS FOR PRESERVING WOOD.—A correspondent of the *American Artisan* writes from Galveston, Texas, in reference to Foreman's Process: "Both the Kyanizing and Burnetizing Processes require machinery to inject the solution into the pores of timber; and, besides, they are greatly more expensive than Foreman's process. The latter consists of inserting into the wood a powder, filled with auger-holes, bored at intervals of three or four feet. This powder has the capacity to attract sufficient moisture to dissolve it and penetrate all the pores of the wood, where it takes the crystalline form, so mineralizing the wood as to act as a preservative against rot, worms, and, measurably, against fire. The writer has specimens of wood, the most ready to decay—such as cottonwood, elm, poplar, linden, and others—that have been several years in the ground as posts, and in the most exposed situations, that are sound and fresh, the bark itself still adhering to the wood, the sap solid, and, like the heart and bark, showing the mineral crystals throughout. The active minerals used are chloride of mercury and arsenic, well known antiseptics, and the auxiliaries are such as command confidence whenever named to men of science."

THE OVERLAND MONTHLY for February has been received. The articles which give us the most food for thought and reflection are: "Our Ishmaelites," a rather one-sided, but still very strong article on the Red Man, which critices with cutting force the present Indian policy or want of policy; "Australia;" "A Flock of Wool," which concerns our wool-growing interests; "Western Agricultural Improvements," a most readable article; and "Concerning Popular Assassinations," which handles in a sarcastic manner the murders of the stamp of the Richardson-McFarland affair. Justice is done to the memory of our pioneer naturalist—how many have heard of him?—A. J. Grayson, who deserves a place among our greatest, in the "Story of an Ornithologist." The other articles are of the average quality.

Silk Manufacture in Los Angeles.

We were much gratified yesterday at witnessing the progress which has been made by the Messrs. Neumann, at their factory on Commercial street in this city, in manufacturing silk. These gentlemen, after years of struggle, have their factory well under way, employing some sixteen or eighteen hands. All the various processes of ruling, doubling, twisting, weaving and dyeing are here carried on. They have now, as the first article of their manufacture, a magnificent American silk flag, 36 by 20 feet in size, nearly completed—the stars have already been placed in position upon their ground of blue, and the stripes have nearly all been added. Every part of the flag, including the cords, tassels and binding, is of California production, and has been made at this factory. Its companion is also nearly ready for being put together. As has already been announced, one of these flags is to be raised over our State Capitol, while the other goes to Washington. The proprietors are also engaged upon several specimens of dress goods, which, when completed, will have an appropriate natural bestowment. This establishment, it is claimed, now includes everything necessary for the production of a quality of silk, which will be equal to any which can be manufactured at Lyons or elsewhere; and where the visitor can witness every stage of the process, from the unwinding of the cocoons to the weaving and coloring of the goods. The Pioneer Silk Factory of California may now be said to be fairly and practically under way.

Electricity in Surgery.

Among the new ideas which have been lately broached is that of an ingenious Frenchman, a M. Trouvé, of Paris, who has within the past month brought to the notice of the French Institute a novel instrument for probing gunshot-wounds. His bullet-probe consists of a needle with two points, each of which is connected by means of a wire with a small electric battery and with a bell. The idea is, that in probing a wound to discover the position of a ball, as soon as the two points of the needle are both brought in contact with a piece of metal, this will be denoted by the electrical current which immediately is set in motion, and which will then ring the bell. The idea is certainly very ingenious, and, if practical, will be a valuable help to the surgeon.

Another idea which has been brought forward by another Frenchman, a M. Melsen, likewise noticed at a meeting of the same Institute, is to extract fragments of iron or steel from wounds by means of a powerful magnet. This seems, however, not nearly as plausible as the preceding. It is often very difficult to ascertain the position of a ball, or even to find out whether it is still in a body. M. Trouvé makes the ball itself take, as it were, an active part in discovering itself.

NORTHERN LIGHTS.—There was a brilliant display of the aurora in the heavens above Portland on the 3d inst. Over forty degrees of the horizon were covered, and rays of light went up in converging lines, so that the whole northern hemisphere was splendidly illuminated with red, yellow, orange and purple tints. The light continued from 1½ to 3 o'clock in the morning.

LEATHER MANUFACTURE.—The Pacific Tannery at Stockton is said to have manufactured 200,000 sides of leather last year, employing continually thirty men and consuming over 800 cords of tan bark. At Los Angeles, Hyman & Co. have a tannery of 100 vats, according to the San Bernardino *Guardian*, and employ a large number of men to cut and gather the bark and supply the hides.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending January 18th.

Enclosed Folding Spring Bed.—Louis Derome, San Francisco, Cal.

Oar.—Wm. J. Hough, Martinez, Cal.

Strike for Locks.—Wm. Weisner, Elizabeth, New Mexico Territory, assignor to himself and Claudius Keifer.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than any other agency.

* * *

Out of Employ.

We see crowds of men on our streets loafing about seeking for work. There is a loud complaint of nothing to do. The city is requested to make work that these men may find employment and be able to support themselves. And because the great majority find nothing, there is raised the cry of dull times.

In strange contrast with this, we find the papers of various places on the coast calling for men to do the work which is required to be done there. It is said that 25,000 are still needed in Montana. The *Inland Empire* says that Nevada can offer employment to a still greater number, and can give them higher wages. Other reports in other places tend to the same purpose.

Horace Greeley some time ago "came out" upon the class, which clings about New York City in the same way, as degrading and dishonoring labor. We can do no better than to quote him:

"Why, you wouldn't have city-bred mechanics dig ditches and make road-beds, would you?" Yes; we would have every one do the most acceptable work he (or she) can find. We would have any man shovel earth for a dollar per day, where such work is wanted, rather than earn five dollars per day by the lightest and most elegant employment which was given him to keep him out of the Alms House. We complain of these men who stay where they are not wanted and whine for employment, that they degrade and dishonor labor. They make employment a charity, when it should be a fair exchange of equivalents to the advantage of both parties. They have no moral right thus to shine and shame those who are trying to walk erect, and, though poor, meet their richer neighbors on a footing of manly self-respect. Labor is noble and ennobling. No man should be ashamed of honest work, however coarse and rugged; any man should be ashamed to confess himself an idler. But when an employer gives out work, not because he wants it done, but because his *employee* must have it or famish, the former becomes a benefactor, the latter a cringing dependent, and equality between them is impossible.

* * *

A Subscription and Query.

New San Diego, Cal., Jan. 20.

Messrs. Dewey & Co.:—Having at last decided upon this as my place of residence, I wish to renew my subscription for the monthly Scientific Press; for who would be without it? as I often meet with *one article* in its columns well worth the subscription price. And what is $4 to a mechanic? Only one day's wages. Inclosed find your money, and send it on (beginning with January number).

Please inform me, by letter, whether there are any American family knitting machines in your city, or other knitting machine; and you will much oblige your constant patron, Jacob Gregg.

[We publish the above that any agencies for knitting machines may make a note of it, and answer Mr. Gregg's query.—Eds. Press.]

* * *

Not Gone.—The report copied into this paper from one of the city dailies, that David E. Buel had gone to Europe with the view of interesting foreign capitalists into another Reese River mining enterprise, is contradicted. The Reese River *Reveille* says he is still at Eureka, "working like a major."

New Books.

Agricultural Qualitative and Quantitative Chemical Analysis; After E. Wolfe, Fresenius, Krocker and others. Edited by G. C. Caldwell, Professor of Agricultural Chemistry in the Cornell University. Published by Orange Judd & Co., New York.

The purpose of this work is to supply a complete manual of chemical analysis for the use, especially, of agricultural students. The processes of analysis that are described refer only to such substances as are found in soils, plants, animals, fertilizers, or other materials or products of agriculture. In order to reduce the size and, at the same time, the price of the book as much as possible, the editor has confined himself to those methods of analysis which are most commonly used by chemists, and such as have been tried and found reliable, with such improvements as have been introduced into more recent practice.

The chapters on special analysis have been compiled from the very best authorities extant—mostly German. The scheme of qualitative analysis is one which the editor has employed with the University classes under his especial charge. The first chapter contains a list of all the reagents employed in pursuing the various courses of analysis described in the work, full directions being given for the preparation of many of them—especially such as cannot be speedily procured of druggists. The proper chemical tests are also given, whereby analists may determine the purity and the strength of the solutions to be made, when necessary.

The various manipulations to be employed are given in a full and distinct manner, so that any person acquainted with the leading principles of chemistry may readily follow them out in his own laboratory. The book, though designed more particularly as a text-book for the laboratory, will also be found of value both to the proficient and to the amateur in agricultural chemistry. A series of valuable tables have been appended, including one of eight pages, giving the composition of a large number of agricultural materials and products, in 100 parts of the substance. The book comprises over 300 pages, and is furnished by A. Roman & Co. for $1.75—a price very low for a work of this kind.

Specimens of Fancy Turning executed on the Hand and Foot Lathe; with Geometric, Oval, and Eccentric Chucks, and Elliptical Cutting Frame. Illustrated by thirty exquisite photographs. Philadelphia: Henry Carey Baird. For sale by A. Roman & Co., San Francisco. Price, $3.

The object of this exceedingly handsome publication is to show the powers of the lathe, and to stimulate others to carry on more completely and systematically similar illustrations. The photographs are excellent, and show most varied and beautiful designs. Their effect is really wonderful in several instances. The figures were cut on a lathe by a delicately-pointed tool, kept in position by guides, and pressed at the back by a fine spiral spring, which tool can be drawn back at any moment by the turner. The process is exceedingly simple. A highly-enamelled card is covered with India ink by a flat camel's hair brush; the card is then fastened to the face of a chuck, and the spring tool allowed to cut through the blackened surface of the card, exposing to view the white paper which was originally employed in making the card. The specimens are photographic copies of the originals, executed on a scale one-third larger than the originals. We heartily recommend the book to amateurs; and would state, moreover, that it makes a handsome ornament for any parlor table.

The Golden Dawn and Other Stories. By May Wentworth. Illustrated. 12mo. pp. 220. New York: Published by A. Roman & Co. 1870. Price $1.

Children have a literature of their own in these latter days, and many are the gems which sparkle for the benefit and pleasure of the little ones. A very pretty little gem with a very pretty facing, is this book, which will bring light and dimpling smiles to the faces of little readers.

* * *

Wines in and for California—The *Bulletin* says that four wine cellars in San Francisco now contain 675,000 gallons of California wine, and a fifth has 80,000 bottles of sparkling wines. Six months ago 40,000 cases of foreign champagne arrived in San Francisco within seventy days, and the wine merchants compute that $2,000,000 have been expended on the Pacific coast in the purchase of foreign wines within the year.

Our Home Industries.

Tea Culture in California.

The *Morning Call* published an article some time ago with regard to the Japanese colony in El Dorado county, where Japanese are engaged in the tea culture. We sent the article to Herr Schnell, the manager of the experimental farm, for corrections and additions, and have received it back with a few alterations, which we incorporate into the following article:

The Japanese Colony.

At Gold Hill, El Dorado county, is the settlement generally known as the Japanese colony. The enterprise is a private speculation of Herr Schnell's, who owns the land, and for its cultivation hires the Japanese, paying them monthly wages, under contracts made in Japan. He has now seven women and twenty-one men in his employ. Buildings are now being erected for their better accommodation. There are to be twelve of these built in regular Japanese fashion, with low, pitched roofs, the eaves extending far over the sills and forming a balcony or awning around the entire house. The outer walls and partitions are all of sliding panels, which can be shut together at the corners and folded into boxes, leaving nothing but the roof and its supports during the hot summer days. The partition walls are of paper, the outer walls of wood. Not a nail is used—all the joints and timbers being dove-tailed together by many ingenious devices; and the whole work, even to the rafters, is as smooth as if it had been polished down with sandpaper. The carpenters are Japanese.

The Tea Plant.

The Manager

And proprietor is Mr. J. Henry Schnell, commonly called Herr Schnell. This gentleman, formerly in the Prussian marine service, resided some twelve years in Japan, and may be supposed to be thoroughly conversant with his business. From the experiments which he has made, he is convinced that the problem of tea culture in California is solved, and that there is no longer any doubt but that as good teas can be raised here as are produced in Japan.

The Tea Plant.

Only one species of tea plant is known, and this is the one designated by Dr. von Siebold as the *Sinensis Linn.* All of the varieties described by botanists are but variations of this, produced by different modes of cultivation and geographical distribution. The plant is indigenous in China and Japan. It is an evergreen, from four to six feet high, with numerous irregular branches; growing wild, however, it reaches the height of fifteen or twenty feet. The stem is straight, of a bright gray color, the branches chestnut, and the wood hard, and with a peculiar odor. The leaves are elliptical or lanceolate, obtusely serrated, alternate, and placed on short foot-stalks. The color is a bright green, of different shades, deepening as the season advances. Between the leaves sprout the blossoms, which are at first of a rose color; but in the course of their development assume lighter shades, and, finally, when full blown, are of the color of the ordinary tea-rose. They are without odor and very tender, but are put to no use. Often two or three grow together on separate peduncles, and placed at the axilla of the leaves. The calix is small, smooth, persistent, and divided into five segments. The filaments are numerous, short, and inserted at the base of the corolla. The anthers are large and yellow. The style bi—or trifid; the capsule, two or (generally) three-celled, with two or three oblong brown seeds. Owing to the great quantity of oil in these seeds, they are difficult to preserve, and easily decay.

Planting.

All of the new plants at Mr. Schnell's plantation are raised from seeds, which are planted in rows, in furrows from four to six inches deep; a large number, however, decay on account of the excessive amount of oil which they contain. The shrub is easily cultivated, and will flourish nearly everywhere between 35° to 40° north latitude, with plenty of air and sun, but shady places are not profitable to its growth. It is generally thought that it thrives best on the sides of mountains and in light, stony ground. Mr. Schnell has about 120 acres of good agricultural land ready for planting, and about 400 acres of rough land, which he proposes to clear as soon as he can bring it into requisition. This plant will require no irrigation.

The proper time for tea planting is in November or December, and the shrub sprouts through the ground in about thirty days. By the ensuing May, the plant reaches the height of about fourteen inches, when the perfect and tender leaves are stripped off and placed under immediate manipulation. Every year the shrubs are trimmed down to a height of about three feet, after having reached that height, and when properly cared for, will produce good crops for upwards of seven years, when they are cut down to the ground to let the new sprouts come up.

Preparing the Leaf.

The leaves are first put in a large iron pan and roasted; then put in baskets and shaken and swung in the wind until the moisture, which has been exuded by the heat, has been thoroughly dried; they are then roasted again, rolled in the palms of the hand, to separate the leaves and prevent their crumbling into powder; then dried again in the baskets by shaking and swinging, and then put into jars, when they are ready for the market. The black teas are roasted three times, the green teas but once or twice. The Chinese do not use their tea until it is about a year old, considering that it is too actively narcotic when new.

It is said that the quality of the tea depends to a considerable extent on the time of plucking the leaves. Thus the Chinese never gather the leaves on a rainy day unless obliged to; for certain varieties, the leaves must be collected in the morning of a sunny day, etc., etc. Mr. Schnell says that it is necessary that the plants should have the morning sun and be planted on the south side of a hill, or the leaves will become yellow, and the tea be of an inferior quality.

Cultivation in the United States.

Some ten or a dozen years ago, the Agricultural Department of the U. S. Patent office distributed a large number of plants throughout the country. No result seems to have followed, however, further, perhaps, than a few experiments, which seemed to show that its cultivation was possible. A Mr. Campbell, residing near Knoxville, Tenn., is said to have raised enough for his family for several years, and considers the tea fully equal to some of the best qualities of the imported kinds. If he was fully satisfied, however, it might be expected that he would undertake the cultivation on a large scale. The prices of labor may have deterred him. To Mr. Schnell we must give the credit of first really introducing the tea culture as a business in our country. His success will affect us all greatly; and if he proves, as he thinks he can, that we can raise our own tea, he will be a real benefactor to the country. In regard to the labor in preparing the leaf, it is said that this may be done to a great extent by machinery.

The Diet of Students.

Dr. George M. Beard, in the course of some papers upon Hygiene for Students, gives one upon diet. We give a few paragraphs from the Yale *Courant*, which has it entire: "I cannot expect any to understand what I am to say, who does not comprehend the fact that for every mental act however slight, there is a corresponding waste of tissue in the brain. This waste must be supplied by food.

The diet of students should be generous and palatable. It has been recently estimated that a few hours of mental labor causes more important waste of tissue than a whole day of muscular labor. We certainly know by experience that a few hours of mental labor is more exhausting than a whole day of muscular labor to those who are accustomed to such toil. No literary man can spend as many hours at his work as the day laborer. * * I know that it is possible to study hard, for a limited season, on a spare diet. There are students in our colleges, who, from necessity, or, more likely, from mistaken notions of hygiene, restrict themselves to a meager and unsatisfying allowance. With all such the evil result is a question of time. * * I write in memory of the time when the teachings of the late Dr. Alcott, one of the most deluded and deluding writers that ever enlisted in the service of Hygiene—whose amazing absurdities were only matched by the ignorant sincerity and misguided industry with which they were advocated—exerted a strong influence in many of our seats of learning. I write in memory of the time when the celebrated work of President Hitchcock—'*Dyspepsia Forestalled and Resisted*,' one of the most unfortunate books on Hygiene that ever proceeded from the pen of man—was the law and the gospel on the subject of diet to a large number of inquiring minds in our academies, colleges and theological seminaries. * * It is a sad fact that those who were most led astray by these pernicious heresies were men of the purest ambition and ripest culture—men who in other departments of thought were sensible and well-informed. If they had been even moderately well taught in the true philosophy of diet, they would readily have seen the theoretical folly and practical absurdity of the views for which they so stoutly contended, and in defense of which some of them laid down their lives."

◆

Scabby Sheep.—A bill is pending in the Legislature to impose severe penalties upon the owners of sheep affected with scab who may carelessly or wilfully allow them to stray on the highways or ranges of other sheep owners, and thus expose sound sheep to the contagion of the disease.

◆

The oldest piano in the United States is owned by M. C. Loomis, of New Haven. The case is four and a quarter feet long, by one and a quarter wide, and on it is this inscription: "Gabriel Bumcbari et Zuimpe, Londoni, 1786. Prince street, Hanover Square,"

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City and Idaho Ter.—Sam. Heidelberger.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
London—George Street, 30 Cornhill, E. C.
Henson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $6. Delivered in the city, per month, 60 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

The large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of Dewey & Co., publishers of the Scientific Press. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

HIBBERD, SANBORN. & CO.,

STAIR BUILDERS.

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Advertise Rightly and You will Surely Profit by it.

The Scientific Press is the best and cheapest advertising medium in the Pacific States

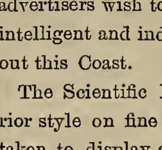
For advertising Mining and Farming Inventions, Machinery and Implements, Tools for Workshops, and all Industrial Pursuits on the Coast, and in fact, all matters which advertisers wish to have known to the most intelligent and industrial classes throughout this Coast.

The Scientific Press is printed in superior style on fine paper, and great care is taken to display advertisements conspicuously and in good taste.

A large edition of the Press is bound in Monthly Parts (pamphlet form) and also a large edition in Quarterly Series (stiff binding); which are furnished to hotels, libraries, reading rooms, ferry boats, bay, river and ocean steamers, R. R. depots, etc., throughout the Pacific Coast. Our advertising columns are the best patronized of any weekly paper west of the Rocky Mountains. Our advertisements are longer continued than those of any other paper. As to the value of the Scientific Press as an advertising medium, we refer to our list of patrons. No paper in the world has a better class of intelligent, reliable customers.

DEWEY & CO.,
Publishers and Patent Agents, 414 Clay street.

Blake's Patent.



The best PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's

Patent Steam PUMP

It is simple, compact and powerful, needs no expert to run it, and will start at any point. Is warranted positive under all circumstances. Send for a circular.

BERRY & PLACE, 112 and 114 California st., San Francisco.

To all who may wish to obtain a thorough knowledge of the industrial resources of the Pacific Coast, the Press will be found a valuable paper.—*Oakland Transcript.*

Valuable Books on Mining, Mineralogy, Geology, Metallurgy, Etc.

ANTISELL.—The Manufacture of Photogenic or Hydro-Carbon Oils, from Coal and other Bituminous Substances, capable of supplying Burning Fluids. By Thomas Antisell, M. D. 1 vol. 8vo..	3 00
AARON (CHAS. H.)—Treatment of Rebellious Silver Ores. 8 pp.; pamphlet. S. F., 1869. Postage free	25
BROWN (H. T.)—507 Mechanical Movements. Dewey & Co's Scientific Press Edition, S. F., 1869. The most complete publication of illustrated mechanical powers with replete descriptions. 134 pp. Cloth bound; postage free	1 00
BARSTOW—Sulphurets; What they are, How Concentrated, How Assayed, and How Worked; With a Chapter on the Blow-pipe Assay of Minerals: 1 vol. 12mo. cloth	1 00
BLAKE, W. P.—Annotated Catalogue of California Minerals. 8vo	50
BLAKE, (W. P.)—Report on the Precious Metals at the Paris Ex., 1869. (To be had through Members of Congress.)	
BROWNE, ROSS—Mineral Resources of the Pacific States. San Francisco, 1868.	4 00
BOURNE (John)—Handbook of the Steam Engine, illustrated. 2 vol. 12mo, cloth	2 25
CONGDON.—Mining Laws and Forms of California and Nevada, and the Mining Ordinances of Mexico. 184 pp. 8vo; flexible cloth; 1864	2 50
CRONISE (W. H. V.)—Natural Wealth of California	6 00
DANA'S Manual of Geology. Numerous Illustrations. 8vo. half morocco. Philadelphia, 1867.	6 75
DANA'S Text-Book of Geology. Illustrated. 12mo, cloth. Philadelphia, (School Edition) 1864	2 25
DANA'S System of Mineralogy. New Edition. 8vo. cloth	10 00
DANA'S Manual of Mineralogy. Revised edition, 1868	10 00
ELDERHORST'S Blowpipe.—Analysis and Determinative Mineralogy. Third edition, revised. 8vo. cloth. Philadelphia, 1866	2 50
FEUCHTWANGER — Treatise on Gems.	6 00
GOODYEAR'S Translation. A Treatise on the Assaying of Copper, Silver, Lead, Gold and Mercury, from the German of Th. Bodeman and Bruno Kerl. 1 vol. 12mo. cloth	3 00
HITTEL'S (JOHN S.)—Resources of California; comprising Agriculture, Mining, Geography, Climate, Commerce, etc., etc; the Past and Future Development of the State. 12m., cloth.	1 50
HOSKOLD'S Practical Treatise on Mining Land and Railway Surveying, Engineering, Etc. 1 vol. 8vo. cloth	16 00
KUSTEL.—Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada; also, a description of the General Metallurgy of Silver Ores. By Guido Kustel, Mining Engineer. Illustrated by accurate engraving. 1 vol. 8vo. cloth	5 00
KUSTEL.—A Treatise on Concentration of all Kinds of Ores: Including the Chlorination Process for Gold bearing Sulphurets, Arseniurets, and Gold and Silver Ores Generally. By Guido Kustel, Mining Engineer and Metallurgist. Illustrated with 120 diagrams on 7 plates. 1 vol. 8vo. cloth	7 50
LAYRES (A.)—Elements of Composition (for schools or self instruction). 166 pp, Cloth	1 00
LAMBORN.—Rudimental Treatise on the Metallurgy of Copper. 1 vol. 12mo. limp cloth. Illustrated	1 00
MITCHELL'S Manual of Practical Assaying. 1 vol. 8vo. cloth	10 50
MAKINS.—A Manual of Metallurgy, more particularly of the Precious Metals, including the Methods of Assaying them. By G. H. Makins, 1 vol. 12mo. cloth. Illustrated by upwards of 50 engravings	3 50
OVERMAN (Fred.)—A Treatise on Metallurgy; comprising Mining, and General and Particular Metallurgical Operations. 1 vol. 8vo. cloth.	7 50
PHILLIPS (J. ARTHUR) — Mining and Metallurgy of Gold and Silver. New edition.) 8vo. Cloth	15 00
PERCY (John). — Metallurgy; the Art of Extracting Metals from their Ores, and adapting them to various Purposes of Manufacture. Iron and Steel. 1 vol. 8vo. cloth.	13 50
ROWLANDSON (THOS.)—Treatise on Earthquake Dangers, Causes and Palliatives. 96 pp.; pamphlet. S. F., 1869. Postage free	50
SCOFFERN'S Useful Metals and their Alloys. 1 vol. cloth	5 50
SIMONIN, L.—Underground Life; or, Mines and Miners. Edited by H. W. Barstow, F. R. S. 160 wood engravings, 20 maps (colored), and 10 plates of metals and minerals in chromo-lithography	18 00
URE'S Dictionary of Arts, Manufactures, and Mines. 2,300 Engravings. From last London edition. 3 vols. 8vo. cloth. New York	16 50
WHEELER & RANDALL'S Quartz Operator's Handbook. Flexible cloth, 12mo. San Francisco 1865	1 00
WHITNEY.—A Geological Survey of California. Report of Field Work from 1860 to 1864. By J. D. Whitney. Per. vol quarto	6 00
YALE'S Mining Claims and Water Rights. 8vo	7 50

Any of the above Books will be furnished by return mail or express, on receipt of price, in coin, postage added. Any other books desired will also be furnished at the lowest San Francisco retail prices. Address,

DEWEY & Co.,
Scientific Press Office, San Francisco.

International Hotel,

JACKSON STREET,
BETWEEN MONTGOMERY AND KEARNY STS.,
SAN FRANCISCO, CAL.

This old established house is in perfect order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.

Prices varying from $1 50 to $2 per day for Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

☞ Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House free of charge, and to any part of the city for 50 cents

21v18 F. E. WEYGANT, Proprietor.

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.
DIVIDED INTO 1,200,000 SHARES OF
TEN DOLLARS EACH,
FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President	SAMUEL MERRITT.
Vice-President	MICHAEL REESE.
Treasurer	J. SELIGMAN & CO.
Secretary and General Agent	W. K. VAN ALEN.

Board of Trustees—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm. H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, seven miles in length by four thousand feet in width, embracing five thousand and twenty acres.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of all mines discovered by the Tunnel.

4th—A royalty forever of two dollars on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of this great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast,

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
Secretary and General Agent,
625 Montgomery street,
Opp. Montgomery Block.

8v20-3m

Business Cards.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS
113 and 114 Beale St., San Francisco
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent. and upwards. 23v17qr

---

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM
PRINTING ESTABLISHMENT.
Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf

California Steam Navigation COMPANY,

Steamer CAPITAL................CAPT. E. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE................ —— ——
" CORNELIA................CAPT. W. BROMLEY
" JULIA....................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.
B. M. HARTSHORNE, President
13v12

RICE'S PATENT
SELF-ADJUSTING
UNIFORM STAMP LIFT.

A Model of this valuable invention can be seen at the MINERS' FOUNDRY CO-OPERATIVE, 235 to 245 First street, San Francisco. 4v20-1m

Professional Cards.

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street........................San Francisco

(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing, Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
510 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.
2v15-1qy

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. R. R. ROBERTS,
The Great Magnetizer,
Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all CURABLE Chronic Diseases by ANIMAL MAGNETISM and the SWEDISH MOVEMENT CURE. 2v20-1y

---

Advertising and Subscription

Rates for the Scientific Press.

SUBSCRIPTIONS IN ADVANCE :—One year, $4; six months, $2.50; single copies, 10 cents; Monthly Series, $4.50 per annum; Quarterly Series (stiff paper binding) $5.

Lowest Rates for Advertising:

We shall adhere to the following rates (payable in gold coin) for advertising in the SCIENTIFIC PRESS from this date:

	1 *week.*	1 *month.*	3 *months.*	1 *year.*
One sq. (10 lines agate).	$1 50	$ 3 00	$ 8 00	$ 32 00
Two squares.........	3 00	6 00	15 00	60 00
Three squares........	4 50	9 00	20 00	76 00
One-fourth column...	6 00	12 00	28 00	100 00
Half column..........	12 00	20 00	54 00	200 00
One column..........	20 00	40 00	100 00	400 00

RATES BY THE LINE.

Per line.—One week, 25 cents; one month, 80 cents; three months, $2; one year, $5.

Per line, ten lines or more.—One week, 20 cents; one month, 30 cents; three months, 80 cents; one year, $3.20.

MINING AND LEGAL ADVERTISEMENTS will be inserted at special rates—less than one-half the cost of daily publication.

Particular attention will be given to preparing engravings, inserting advertisements in conspicuous, novel and attractive form. We will otherwise assist advertisers in getting up their notices, when desired.

☞ All advertisements in the PRESS appear in both the
☞the MONTHLY AND QUARTERLY SERIES of the SCIEN-
☞TIFIC PRESS, which (by special arrangement) are
☞placed for FREE READING in the principal hotels,
☞steamboat and steamship saloons, depots, and pub-
☞lic reading rooms and libraries in San Francisco and
☞Pacific States. Many volumes are also bound, thus
☞affording permanent advertising.

The PRESS now receives the largest and best advertising patronage of ANY WEEKLY PAPER west of the Rocky Mountains.

In regard to the value of advertising in our journal, we refer with pleasure to those who can speak from experience—*our advertisers*. Better referees, or more reliable names, cannot be found in the advertising columns of any newspaper in the world.

DEWEY & CO.,
Publishers and Patent Agents.
No. 414 Clay street, San Francisco. Jan. 1, 1870.

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED

WEED

Machines work easier, simpler, faster, and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO $500

OCCIDENTAL
Insurance Company,
OF SAN FRANCISCO.
Cash Capital, - - - - - - - $300,000
GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.
CHR. CHRISTIANSEN, President
B. ROTHSCHILD, Secretary 20v17-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers,
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.
24v18 1m

J. J. JONES,
CARPENTER and BUILDER.
No. 324 Jackson street, between Sansome and Battery,
Stores and Offices fitted up with neatness and dispatch.
7v18tf

W. C. CAMPBELL,
PATTERN AND MODEL MAKER,
No. 20 Fremont street, over Phœnix Iron Works, San Francisco.
Particular attention given to MODELS for the Patent Office Brands and Pattern Letters Cut. 4v18mtf

---

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

---

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

---

EVENING DRAWING SCHOOL
— BY —
N. P. LANGLAND,
(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 536 MARKET STREET, over Occidental Market. ☞ School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3v20-3m

---

For Miners, Millmen and Metallurgists.

KUSTEL'S NEW WORK,
CONCENTRATION
Of all kinds of Ores, and the
CHLORINATION PROCESS,
For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price, - - - - $7.50

A liberal discount to the Trade. For sale by the Booksellers
Sent to any part of the United States, postage paid,
on receipt of the price. Address,
DEWEY & CO., Publishers,
Office of the Scientific Press, 414 Clay street,
1v16tf AN FRANCISCO. 1868.

The Aerial Steam Navigation Company.

At a meeting of the stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cazneau, Henry F. Williams and Simon L. Jones were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars. said shares to be *unassessable*. The funds thus raised are to be devoted exclusively to the construction of the first aerial steam carriage, and to be deposited in the Bank of British Columbia, to be disbursed upon requisition of Mr George K. Gluyas, Engineer of Construction. The working, drawings, etc, can be seen at the office of Gen Thomas N. Cazneau, No. 321 California street. where subscriptions will be received. No invention for navigating the air has before received such positive indorsements from engineers of reputation, or so liberal encouragement from prominent capitalists' as Marriott's Avitor, which now seems sure of being thoroughly tested on a large scale. 2v20-my

Metallurgy.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at

No. 36 FREMONT STREET,
And WORKS at H. J. BOOTH & CO'S FOUNDRY, northeast corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.

Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.

By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public.
☞ Mines Examined and Reports made.

REFERENCES.—William Bosworth, Thomas Varney, Egbert Judson, E. T. Steen, Wm. Bellshaw, P Reichling, W. O. Sleeper, J. L. N. Shepard, Norbert Landry.

CHAS. PLETZ & CO.
CHAS. PLETZ, Analytical Chemist.
FRED. MORRIS, Amalgamator and Millman. 25v19-3m

G. W. STRONG,
ASSAYER AND WORKER OF ORES,
No. 10 Stevenson street, near First, San Francisco.
Highest price paid for choice lots of Ores, Sulphurets, Assay Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14v15qr.

H. W. GRAY. J. ROSENBERRY. D. S. LOOMIS.
Ores of all Kinds Crushed and Sampled.
H. W. GRAY & CO.,
YOLO MILLS.
Corner Market and Beale Sts., San Francisco.
24v19-3m

$1. Postage Paid. $1.

A CHEAP AND HANDY BOOK
— FOR —
Mechanics, Inventors and Students.

SCIENTIFIC PRESS
NEW EDITION
— OF —
507 MECHANICAL MOVEMENTS.
PUBLISHED BY
DEWEY & CO.

LIST OF CONTENTS.

Æolipile.
Balance, Compensation; Barometer; Blower, Fan; Brake, Friction.
Cams; Capstans; Centrolinead; Clutches; Chasers; Clamps, bench and screw; Cock, four-way; Column, oscillating; Compasses, proportion; Counters of revolutions; Coupling, union; Crank—substitute for the, variable; Cranks, bell and compound; Cyclograph.
Differential Movements; Drag-link; Drill—Fiddle and Persian; Drills, Cramp; Drop; Drum and Rope; Driver, Pile; Dynamometers.
Eccentrics; Ejectors, Bilge; Ellipsograph. Engine, Disk; Engines—Rotary, Steam, Valve Gear for; Epicyclic Trains; Escapements.
Fountain, Hiero's: Fusees.
Gasometers; Gauge, Bisecting; Gauges, Pressure; Gear, Steering; Gearing—Bevel, Brush, Capstan, Conical, Crown, Eccentric, Elliptical, Face, Friction, Internal, Irregular, Multiple, Mutilated, Scroll, Sector, Spur, Step, Stud, Sun and Planet; Gearing—Variable, Worm; Governors; Guides; Gyroscope.
Hammers—Atmospheric, Bell, Compressed Air, Trip, Steam; Helicograph; Hook—Boat-detaching, Releasing; Hooks, Centrifugal Check; Hyperbolas, Instrument for Drawing.
Intermittent Movements.
Jack—Hydrostatic, Lifting; Joint—Ball and Socket, Bayonet, Universal.
Ladder—Folding, Self-Adjusting; Lazy-tongs; Level, Self-recording; Lever—Bell-crank or Elbow, Knee; Lewis; Link. Detachable Chain.
Machine—Bohnenberger's, Drilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; Meter—Gas (wet and dry), Water; Mill—Barker's, Crushing, Tread, Wind; Miscellaneous Movements; Motion—Alternating Traverse, Rocking, Self-reversing, Shuttle; Motions—Feed, Link, Parallel, Pump, Traverse, Variable Traverse.
Pantograph; Parabolas, Instrument for Drawing; Paradox, Mechanical; Pendulum, Conical; Pendulums, Compensation; Pinion—Lantern, Mutilated, Slotted, Two-toothed; Power, Horse; Presses, Hydrostatic; Propeller, Screw; Pulley—Expanding, Friction; Pulleys—Anti-friction Bearing for, Chain; Pump—Air, Balance, Bellows, Chain, Diaphragm, Steam-siphon; Pumps—Double-acting, Force, Lift, Rotary; Punching Machine.
Rack—Mangle, Mutilated; Racks and Pinions; Ram, Montgolfier's Water; Ratchets and Pawls; Regulator—Gas, Watch, Reversing Motion, Self; Revolver; Rollers, Oblique; Rolls—Anti-friction, Drawing, Feed; Rulers, Parallel.
Saw—Endless Band, Gig, Pendulum; Screw, Archimedes, Differential, Double Reversed, Micrometer; Screws—Endless, Right-and-left Hand; Sectors; See-saw; Shears; Stamps; Stand, Mirror; Stop—for Hoisting Apparatus, for Lantern Wheels, for Ratchet Wheels, for Spur Gear; Stops for Winding Watches.
Test, Friction; Throttle, Spinning; Toggle-joint; Tongs, Lifting; Trap, Steam; Treadles.
Water, Machines for Raising: Weir, Self-acting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Paddle, Water; Windlass—Chinese, Friction; Windmills; Wipers.

This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.

A liberal discount made to the trade. Single copies, $1—sent postage free. Address orders,

DEWEY & CO.,
Patent Agents, San Francisco.

Reading for the Hour.

Ignorance About California.

A couple of photographers in New Orleans have written to us a very solicitous letter, the same as the one published in the S. F. *Bulletin*, requesting information about California in general, and concerning the photographic business in particular. They want to know if we are far enough along in the path of civilization to have any photographers here, and, suspecting, perhaps, that we may have a few rude attempts in this business, send us a couple of "tintotypes," one marked "$1 each," the other, "3 for $1," such as are worth here not over twenty-five cents apiece. We had thought that the productions, of some of our artists were known everywhere in the United States; it would seem, however, that they have not reached New Orleans. At any rate, we advise our young friends to stay where they are, if they can sell their pictures at their prices. Being still young, if they are willing to work at what they may find to do, perhaps even to learn something from our community, and to lay aside all expectations of growing suddenly rich at the expense of us simple Californians, they may succeed here. But with their present prices and apparent expectations, they will hardly answer for our State or city.

Lost—A Mining Company.—We have received one or two letters from Eastern stockholders, earnestly requesting information with regard to the People's G. and S. M. Co., of Sierra county. We have made various inquiries in the city, but have been unable to obtain any information. Those persons who may possess any knowledge on the subject are respectfully requested to write us, giving any facts as to whether any such concern exists or has existed, and, if deceased, to add the particulars, that we may prepare a fitting obituary. We ask for a speedy reply, in order that we may not commit ourselves by any too hasty remarks. The desired information may also be sent to S. H. Cheeseman, Becket, Berkshire county, Mass.

A Princely Reprobate.—It is said that the Grand Duke of Mecklenburg-Schwerin has been leading such a wild life, that the King of Prussia has addressed a letter to him, urging him to put an end to this scandalous domestic life, and, above all things, no longer to maltreat his wife, whom the Duke is said to whip brutally at times. This advice is good, and, coming from the source it does, the Duke may find it best to heed it. It is rather rich, however, to see such a rake as the Prussian King is, addressing moral advice to a younger reprobate.

An Ice Mountain in Virginia.—It is said that there exists in Hampshire county, West Virginia, a mountain about 500 feet high, the west side of which, from base to summit, is covered with small loose stones. By removing these stones to the depth of a few feet, solid ice is found in the warmest days of summer. This phenomena is similar to that connected with the "frozen well" in Brandon, Vt., and the reported locality on the plains, where it is said ice may be found at all times during the summer, just below the roots of the green gaass.

Singular Phenomenon.—A curious phenomenon, according to the Boston *Advertiser*, is frequently seen in the harbor of Machiasport, Me., which consists of an upheaval, by some unknown power, of vast quantities of water, mud and stones, to the distance of many feet, and with a furious rushing noise. This phenomenon has occured quite a number of times during the past summer.

Pumping Money.

The air pump has been used for many purposes, but few are aware that it is employed in the process of making money. Such, however, is the fact with regard to the mint of Great Britain, and since the year 1810 all coins which have come from this mint have been pumped into existence, the finishing touches which give them their impressions and their milled edges being always administered through the medium of the air-pump. London *Engineering* gives some very interesting details of the process.

The prime mover is a steam engine of twenty horse-power, on the combined high and low-pressure principle. The air-pump consists of a cast iron cylinder, externally similar to that of an ordinary steam engine, but internally very different. The piston is solid, but surrounded by rings of cast iron, pressed outward, so as to fit the cylinder, by the action of steel rings. The pump is 42 inches in diameter, and the piston has a stroke of 36 inches. The base and the cover of the cylinder are iron boxes, each containing 64 small valves, which are narrow strips of saw plate, each covering an aperture and screwed at one end to the seat. In each box 32 of these valves open to the atmosphere, and 32 to the exhaust tubes. By this arrangement, the pump, which is worked directly from the main beam of the engine, is made double-acting.

A pipe, running over the roof of the building, connects the air-pump with a vacuum chamber in the coining room. This chamber is a cylinder of cast iron, 50 feet long and 30 inches in diameter, which rests on the floor in a line parallel to the eight coining presses. Along its top, each supported by a pipe opening into it, are ranged eight small cylinders without covers. These are placed vertically, and are furnished with pistons packed with leather. Rods, cranks and levers, of light construction, connect the piston with the central screws of the stamping presses.

Now, when the great air-pump is in action and the valves below the piston are made to open the vacuum chamber, the air within these cylinders rushes down to the exhausted pipe, and is discharged into the atmosphere, while, consequently, the pistons descend and drag after them the main screws or strikers of the presses. The instant that the dies—one of which is attached to each screw—advance towards those resting below them, disks of gold are interposed by self-acting machinery, and inclosed by milled collars of hardened steel. By the force of impact, resulting from the pistons falling in vacuum, as described, the blanks sustain heavy blows from the upper dies, and thus the impressions are made. The steel collars form molds, which indent the edges of the coins and preserve their circularity while being struck. The press screws then rebound, carrying up their respective pistons. The pneumatic valves again open and the dies descend upon fresh blanks. Another batch of sovereigns is pumped into existence, and so long as the air-pump is exhausting the chamber and fresh blanks are forthcoming, streams of coins, glittering like beetles' wings in the sunshine, will flow down from the presses into reservoirs arranged to intercept and make them prisoners. Thus it is that from day to day, during a gold coinage, the operation of creating sovereigns is carried on at the mint, and thus the air-pump has caused a hundred million of them, weighing in the aggregate more than a thousand tons, to be added to the currency of the world. "Pumping sovereigns by wholesale" would, therefore, be by no means an inappropriate title for the present article.

Motion Necessary to Life.—The celebrated Dr. Gregory, in the course of one of his medical lectures at Edinburg, stated: "One cannot stand perfectly motionless for half an hour; that he had once tried to do so, and had fainted at the end of twenty minutes, the blood requiring the aid of motion from the body in order to retain its full circulating power."

French Tobacco Manufacture.

Government Monopoly.

It was in the year 1811, under the reign of Napoleon, that the French government took the monopoly of tobacco. Previous to that date, the French smokers, possessing but moderate means, had fared as ill as those of England and the United States do this day. But one night, at a ball at the Tuilleries, the Emperor noticed a lady who was covered with diamonds. He asked his chamberlain who she was. On being told that her husband was a tobacco merchant who had made a colossal fortune in a few years, he at once suspected that a fortune built up so rapidly could have no very honest foundation. Ten months afterwards he signed, in his usual arbitrary way, a decree, which secured to the State the exclusive right of fabricating and selling tobacco. The monopoly has been renewed since, every ten years, by legislative bodies.

Number of Factories, Officials, Etc.

The number of the imperial manufactories is seventeen. Five hundred and twenty-four officers are entrusted with the management of the plantations, and the charge of the manufactories. There are thirty-one store-houses, three hundred and fifty-seven wholesale warehouses, and 38,831 retail establishments.

A director-general, responsible to the Minister of Finance, is placed at the head of the administration, and all the inferior posts of superintendence are filled by officers selected from the *Ecole Polytechnique;* which means, that they are men of honor and unquestionable capacity. The tobacconist, too, is an official. The post is in the direct gift of the government, and is tenable only during good behavior. He or she (for many of the holders are women) generally owes the appointment to the recommendation of the Receiver-General of the district: the applicant is obliged to petition the Minister of Finance.

Kinds of Tobacco Made.

Three kinds of tobacco are sold to pipe-smokers. The best goes by the name of "Maryland." It is retailed in yellow packets, at $1.25 a pound. The second quality has been baptised "Caporal." It is that most used, and costs a dollar a pound. The third quality is much cheaper, but is prepared for the use of the soldiers solely.

Six or seven kinds of cigars are manufactured. The best cost from 10 to 20 cents apiece. The large majority of Frenchmen know but five kinds of cigars. They are none of them bad, and all are far superior to anything that can be had elsewhere for the money.

The Two Principal Factories

Are in Paris; at the Gros-Caillon, where snuff and pipe-tobacco are made; and at Reuilly, where the higher class of cigars are manufactured. The task is entrusted, in the latter establishment, entirely to women, of whom there are as many as 250 employed. Not the least curious circumstance which strikes a visitor at the manufactory at Reuilly is the total silence observed by the two hundred and fifty workers. A whisper is punished by a fine, and work is paid for by the piece.

Quality of the Tobacco, Etc.

The government has every interest to see that what it sells should be of good quality, that the demand may be general, and that no suspicion of trickery or adulteration may arise in the public mind. Hence a very strict supervision is exercised over the manufacture. Every year introduces some improvement into the system of preparation. Some scores of scientific men are continually employed—they are paid to do it, and to do nothing else—in studying new methods of ameliorating the culture of tobacco, improving the flavor of the leaves, and so blending the different varieties as to form finer and more wholesome cigars. But it is in the making of snuff that the French have attained rare perfection. The time required to turn a leaf of tobacco into snuff, according to the government method, is four years and two months—a fact which speaks volumes for the care and pains bestowed upon the fabrication.

From July 1st, 1811, to Dec. 31st, 1867, the gross receipts of the government tobacco establishment were nearly 1,280 millions of dollars; the expenses were about 400 millions, the net profits about 900 millions.—*All the Year Round.*

Can't Telescope.—The Carson *Appeal* says passengers on the railroad between that place and Virginia City have no fears of the cars "telescoping" in case of colission. The road is too crooked.

Hints and Recipes.

Cure for In-growing Nails.—A correspondent of a medical journal gives the following account of treatment, by which he cured a case of in-growing nails:

"I put a very small piece of tallow in a spoon, and heated it over a lamp until it became very hot, and dropped two or three drops between the nail and granulations. The effect was almost magical. Pain and tenderness were at once relieved, and in a few days the granulations were all gone, the diseased parts dry and destitute of feeling, and the edge of the nail exposed so as to admit of being pared away without inconvenience. The cure was complete, and the trouble never returned. I have tried this plan repeatedly since, and with the most satisfactory results. The operation causes but little if any pain, if the tallow is properly heated. A repetition might in some cause be necessary, although I never met with a case that did not yield to one application."

Wind in the Stomach.—A physician, in a very sensible article upon bathing, says: "For the 'wind in the stomach' children are thought to have for their tiresome crying, and for the restlessness and worrying at night with which they are afflicted, if the warm bath were resorted to oftener, and the dosings of soothing syrups and worse nostrums less, it would be far better for the children."

To Avoid the Ague.—The first suggestion, of course, is to leave those districts where this troublesome complaint prevails. Sometimes, however, one's residence cannot well be changed. To persons so circumstanced, there are preventions by the use of which the majority might generally escape it, which are referred in the *Journal of Health* as follows:

1. Avoid exposing themselves to the malarial air after sunset and before sunrise. 2. Occupy rooms at night on the sunny side of the house and up stairs. 3. Build a fire in the house as soon as the dew begins to fall. The heat of the fire will do much to kill the malaria. 4. Keep the skin healthy and active by a thorough bath every day on rising, in a warm room, with sufficient friction to produce a healthy reaction. 5. Keep the bowels open by a proper diet. In nine cases out of ten the cause of ague would be easily overcome if the depurating organs were not overtaxed and morbid matters allowed to accumulate in the system to oppress it.

How Corks are Made.

Cork, which is the bark of a tree, is received at the factory in the form of slabs, a few feet in length, some of which are over two inches thick and a foot or more wide. The slabs are sliced up into square pieces by a circular knife hung exactly like a circular saw. This circular blade is ground to a thin, sharp edge, which will cut up slabs of cork, without removing a kerf, faster than a saw will cut plank into pieces of equal size. The square pieces are then held by the hands of boys in a kind of lathe, in such a position that the sharp and thin end of a hollow mandrel will cut out a perfectly round cork in an instant. Mandrels of various sizes are employed to cut cork of the desired size. Each cork is then placed by little fingers, in corresponding recesses, in a feed-wheel of an automatic machine, where the corks are tapered by the removal of a thin shaving from the periphery of one end. The shaving is removed by the sharp edge of a circular cutter over two feet in diameter, which revolves horizontally. The edge of every instrument that cuts cork is brought in contact with the material to be cut with a very *drawing* stroke, as such spongy material could not be cut satisfactorily by a *crushing* stroke. Thick slabs of cork are cut into large corks, while the thin ones are worked into corks of a corresponding size.

History of Opera.—The opera originated in Italy. Thence it found its way all over Europe, being at first exclusively performed for the amusement of royal courts. Cardinal Mazarin was its patron, and introduced it into France, and Handel first put it on the English stage. Christopher Gluck, a Bohemian, born in 1714, is to be credited with having brought opera to perfection. In 1762 he produced *Orpheus* at Vienna, and *Alceste* in 1766, both his own creations. He established French opera in Paris, while Handel did the same in England. Picini was Gluck's great opponent and stoutly upheld Italian opera against Gluck's French productions. The works of Picini are forgotten, but those of Gluck still live.—*Prof. Ritter.*

TREATMENT OF REBELLIOUS SILVER ORES, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful Institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block San Francisco. 24v18-4w

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. HOWLAND.

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

RETURNED.—Dr. J. H. Paine, Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

SPECTACLES, Opera Glasses, Telescopes, Marine Glasses, Magnifying Glasses, etc., are to be found at C. Muller's, 205 Montgomery street. *

New Mining Notices.

Latawana Mining Company.---Location:

Hamilton City, White Pine, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-second day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
D M Hosmer	1	100	$10 00
D M Hosmer	2	100	10 00
D M Hosmer	3	50	5 00
D M Hosmer	4	50	5 00
D M Hosmer	5	50	5 00
D M Hosmer	6	20	2 00
D M Hosmer	7	20	2 00
D M Hosmer	8	20	2 00
D M Hosmer	9	20	2 00
D M Hosmer	10	20	2 00
D M Hosmer	11	10	1 00
D M Hosmer	12	10	1 00
D M Hosmer	14	10	1 00
D M Hosmer	15	10	1 00
Richard Savage	16	100	10 00
Richard Savage	17	100	10 00
Richard Savage	19	50	5 00
Richard Savage	20	60	5 00
Richard Savage	21	20	2 00
Richard Savage	22	20	2 00
Richard Savage	23	20	2 00
Richard Savage	24	20	2 00
Richard Savage	25	20	2 00
Richard Savage	25	10	1 00
Richard Savage	27	10	1 00
Richard Savage	28	10	1 00
Richard Savage	29	10	1 00
Richard Savage	30	10	1 00
Richard Savage	38	20	2 00
Richard Savage	39	20	2 00
Richard Savage	40	20	2 00
Richard Savage	41	20	2 00
Richard Savage	42	20	2 00
Richard Savage	45	5	50
Richard Savage	46	5	50
Richard Savage	47	5	50
Richard Savage	48	20	2 00
Richard Savage	49	20	2 00
Richard Savage	50	20	2 00
Richard Savage	52	20	2 00
Richard Savage	90	1000	100 00
Richard Savage	91	500	50 00
Richard Savage	92	100	10 00
Richard Savage	93	100	10 00
Richard Savage	94	100	10 00
Richard Savage	95	100	10 00
Richard Savage	95	20	2 00
Richard Savage	97	20	2 00
Richard Savage	98	20	2 00
Richard Savage	99	10	1 00
S A Post	33	10	1 00
S A Post	34	10	1 00
S A Post	35	10	1 00
S A Post	35	10	1 00
S A Post	37	10	1 00
[$1 raceived on account. Balance due, $4.]			
L A Brown, Trustee	70	100	10 00
L A Brown, Trustee	71	100	10 00
L A Brown, Trustee	72	100	10 00
L A Brown, Trustee	73	100	10 00
L A Brown, Trustee	74	100	10 00
L A Brown, Trustee	75	100	10 00
L A Brown, Trusteo	75	100	10 00
L A Brown, Trusteo	77	100	10 00
O T Ames	78	100	10 00
O T Ames	79	100	10 00
O T Ames	80	100	10 00
O T Ames	81	100	10 00
O T Ames	82	100	10 00
O T Ames	83	100	10 00
O T Ames	84	100	10 00
O T Ames	85	100	10 00
O T Ames	85	100	10 00
O T Ames	87	188	18 80
S E Holcomb	112	768	76 80
Richard H Savage	115	10	1 00
S Hilton	119	20	2 00
Wm M Grant	120	354	35 40
Francia S Bowen	123	10	1 00
Wm Carrison	124	4248	424 80
P Conklin	59	2	20
P Conklin	60	3	30
P Conklin	51	5	50
P Conklin	62	5	50
P Conklin	63	5	50
P Conklin	54	5	50
P Conklin	55	6	50
P Conklin	65	5	50
P Conklin	67	5	50
P Conklin	58	5	50
P Conklin	59	6	50
P Conklin	104	400	40 00
P Conklin	105	5	60
P Conklin	106	3	30

[The sum of $25 has been paid on account of these 458 shares. Balance due on them, $19.80.]

And in accordance with law and an order of the Board of Trustees, made on the twenty-second day of December, 1869, so many shares of each parcel of said stock as may be necessary will he sold at public auction, at No. 525 California street, between Montgomery and Kearny streets, San Francisco, on Saturday, the nineteenth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. jan29

U. S. Grant Mining Company.—Location

of Works: Carlisle, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of January, 1870, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 226 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the twelfth day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ENOS TAYLOR, Secretary.

Office, 226 Clay street, San Francisco. ja29

Mining Notices--Continued.

Alleghany Consolidated Gold Mining Company, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirtieth day of December, 1869, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the seventh day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, 37 New Merchants' Exchange, California street, San Francisco. jan8

Arctic Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

NOTICE.—Thera are delinquent upon the following described stock, on account of assessment levied on the seventeenth day of December, 1869, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B W Hathaway	unissued	75	$225 00
Louis Dioune	unissued	5	15 00
A H Emanuel	unissued	2	6 00
I E Brockow	unissued	3	9 00
A D Meacham	unissued	25	75 00
Robt Hawxhurst	unissued	25	75 00
J P Moore	unissued	50	150 00
Emma E Snyder	unissued	5	15 00
J D Wilson	unissued	10	30 00

An in accordance with law, and an order of the Board of Trustees, made on the 17th day of December, 1869, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the eighth day of February, 1870, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. N. VAN BRUNT, Secretary.

Office, 426 Montgomery street, San Francisco. ja22

Cassell Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

NOTICE.—There are delinquent upon the followed described stock, on account of assessment levied on the seventeenth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B W Hathaway	unissued	75	$225 00
Robt Hawxhurst	unissued	10	30 00
A D Meacham	unissued	45	135 00
R Yaeger	unissued	6	18 00
Emma E Snyder	unissued	5	15 00
S L Goulding	unissued	5	15 00

And in accordance with law, and an order of the Board of Trustees, made on the seventeenth day of December, 1869, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dors & Co., No. 327 Montgomery street, San Francisco, on the eighth day of February, 1870, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessments thereon, together with costs of advertising and expenses of sale.

R. N. VAN BRUNT, Secretary.

Office 426 Montgomery street, San Francisco. ja22

Glenwood Mill and Mining Company.—

Location of Works: Greenwood, El Dorado County, California.

NOTICE.—There ara delinquent on the following described stock, on account of assessment levied on the seventh day of December, 1869, the several amounts set opposits the namea of the respective shareholders, as follows;

Names.	No. Certificate.	No. Shares.	Amount.
Lucy Jancson	24	70	$14 00
Michael McCarthy	15	70	14 00
J H Sayre	35	140	28 00
J H Wood	31	57	13 40
J H Wood	not issued	105	21 00
J J Miller	balance due 34	220	30 75

And in accordance with law and an order of the Board of Trustees, made on the seventh day of December, 1869, so many shares of each parcel of said stock as may he necessary will be sold at public auction, at the office of the Company, No. 318 California street, San Francisco, Cal., on Tuesday, the first day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment theraon, together with costs of advertising and expenses of sals.

O. D. SQUIRE, Secretary.

Office, 418 California street, San Francisco. jan15

Idaho Silver Mining Company.—Location

of Works: Cortez, Lander County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the seventeenth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A D Meacham	unissued	50	$150 00
J Spruance	unissued	75	225 00

And in accordance with law and an order of the Board of Trustees, made on the seventeenth day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the salesroom of Maurice Dore & Co., 327 Montgomery street, San Francisco, on the eighth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expensea of sale.

R. N. VAN BRUNT. Sec etary.

Office, 426 Montgomery street, San Francisco, a22

Imperial Mining Company.—Location of

Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifth day of January, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable within thirty days, in United States gold and silver coin, to the Secretary, No. 319 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the tenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eight day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. E. MOODY, Secretary.

Office, 319 California street, San Francisco. jan15

Pinto Mining Company.—Location of

Works: Silverado, Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of January, 1870, an assessment of fifteen (15) cents per share was levied upon the capital stock of said Company, payable on the fifth day of January, 1870, in United States gold coin, to the Secretary, No. 426 Montgomery street, San Francisco, Cal., or to HOMER S. KING, ESQ., Agent of Wells, Fargo & Co., Hamilton, Nevada.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made befora, will be sold on Monday, the seventh day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

Offics, 426 Montgomery street, San Francisco. jan8

Pilot Mining Company.—Location of

Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of November, 1869, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room No. 7, 428 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Monday, the third day of January, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-first day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. M. HARRON, Secretary.

Office, Room No. 7, 428 California street, San Francisco, California. jan8

Taylor Mill and Mining Company.—Location of Works: Georgetown District, El Dorado Co., State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifth day of January, 1870, an assessment of sixty cents per share was levied upon each and every share of the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the offics of the Company, No. 520 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventh day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made bsfore, will be sold on Monday, the twenty-eighth day of February, 1870, to pay the delinquent assessment, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

SAM'L S. MURFEY, Secretary.

Office, No. 520 Montgomery street, over Sather's Bank, San Francisco, Cal. jan8

Expense of Applying for Patent.

The Government fee, on filing an application for a patent in the United States, is fifteen dollars; and if the patent is allowed, twenty dollars additional is required. If rejected, the first fee of fifteen dollars is all that is demanded.

To the foregoing official fees must be added fees for preparing the various documents and expense of drawings. Our charge for preparing the documents for a case, presenting it to the Government, and attending to all business connected with it, is $25 and upward. For cases demanding extra work and attention, only a reasonable fee in accordance with the services required, to do full justice to the case, will be charged.

Following is the list of Government fees, payable in currency:

On every caveat	$10
On every application for a patent, for seventeen years	15
On every application for a design, for 3 y'rs and 6 mos	10
On every application for a design, for seven years	15
On every application for a design, for fourteen years	30
On issuing each original patent	20
On filing a disclaimer	10
On every application for a re-issue	30
On every additional patent granted on a re-issue	30
On every application for an extension	50
On the grant of every extension	50
On appeal to the Examiners-in-Chief	10
On appeal to the Commissioner from Examiners-in-chief	20
On every appeal to the Judges of Circuit Court, D. C.	25

Inventors on the Pacific Coast, located at great distance from the Patent Office, of all others, should be careful to avoid inexperienced, dishonest, or otherwise unreliable and irresponsible agents.

Inventors having models in our possession must send written orders when they desire any particular friend to see them.

Dangers of Delay.

Situated so remote from the seat of Government, delays are even more dangerous to the inventors of the Pacific coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor, or by reason of return for amendment when addressed directly by the inventor to the Government.

Our Office.

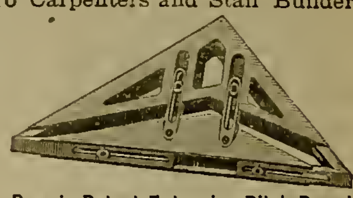
The office of the MINING AND SCIENTIFIC PRESS is located in the second story at No. 414 *Clay* street, north side, just below Sansome. Here we have spacious accommodations, with our patent rooms, editorial room counting room, and news paper printing office — all conveniently arranged and connected, and our facilities for dispatching business correctly and economically, better than ever before. Don't forget the number —414 Clay street, below Sansome.

DEWEY & CO.

New Advertisements.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

To Carpenters and Stair Builders.



Drew's Patent Extension Pitch-Board

Saves TIME, LABOR, and LUMBER, and secures exactness and perfect work. This is a very simple instrument, which is quickly and easily adjusted (as may be seen by the engraving), so as to give any desired pitch and tread for stair building. It is adjusted by a system of slides and screws. Full information may be obtained of the inventor, JOHN R. DREW,
5v20 Cor. Natoma and Fifth streets, S. F.

STEAM
FIRE-PROOF
SAFES
SANBORN'S PATENT.

Perfectly Dry in Use.
ACTUALLY FIRE-PROOF.

GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

☞ Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by ROSS, DEMPSTER & CO.,
105, 107 and 109 California street,
5v20-3m San Francisco.

☞☞☞☞☞☞☞ ☜☜☜☜☜☜☜

TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. C. ALLEN & CO., Augusta, Maine. 5v20-3m

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

The Scientific Press,

Devoted to SCIENTIFIC AND MECHANICAL PROGRESS, MINING, FARMING AND MECHANIC ARTS, contains more VALUABLE READING MATTER than any other weekly journal west of the Rocky Mountains. It is the best printed and only finely-illustrated paper on the Coast. Its articles are able, timely and reliable, and written in a more interesting and easily comprehensive style than scientific papers in general. Now in its twentieth volume, it is printed on superior paper, containing sixteen pages, equal in size to the first-class journals of the Atlantic States and Europe. All our best citizens are interested in the new discoveries in the development and progress of the three great industrial pursuits named above, which are closely allied on this coast, and are jointly represented in the PRESS, rendering it a popular and influential journal with all industrial readers. Subscriptions reduced to $4 a year, Jan. 1, 1870.

To Inventors on the Pacific Coast.

OUR U. S. AND FOREIGN PATENT AGENCY presents many and important advantages as a Home Agency over all others by reasons of long establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or a description in the SCIENTIFIC PRESS. We transact every branch of Patent business, and obtain Patents in *all civilized countries*. The large majority of U. S. and Foreign Patents granted to inventors on the Pacific Coast have been obtained through our Agency. We can give the best and most *reliable* advice as to the patentability of new inventions. ADVICE AND CIRCULARS FREE. Our prices are as low as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior.

ENGRAVING ON WOOD, of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also, engraving on metals.

DEWEY & CO.

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.

2v17-3m **T. G. DURNING & CO**

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

J. P. GALLAGHER. J. H. WEED V. KINGWELL.
9v13-1y

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS.
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of Housesmith work, Bridge, Prison

FORGING AND MACHINE WORK,

IMPROVED FIRE-PROOF SAFES,

FIRE AND BURGLAR-PROOF SAFES

Of a superior make. Sole manufacturer of the celebrated

MONITOR SAFE.

BANK VAULTS AND SAFES,

Of every description, made to order at short notice. A large stock of SAFES of all kinds constantly on hand. Agency for the ISHAM KEY REGISTER BANK AND SAFE LOCK, the only first class Lock in the United States

1v17tf

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco.
10v14qr

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally,

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

THE RISDON
Iron and Locomotive Works.

INCORPORATED..............APRIL 30, 1868.
CAPITAL..............$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	James Pollock,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON..............President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..............Secretary.
24v17-qy

SAN FRANCISCO
Pioneer Screen Works.

JOHN W. QUICK,

203 Fremont street, near Howard, San Francisco.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at greatly reduced rates.

ORDERS SOLICITED AND PROMPTLY ATTENDED TO.

I would call special attention to my slot cut and slot punched Screens which are attracting much attention and giving universal satisfaction, both as regards their efficiency and durability. This is the only establishment on the coast devoted entirely to the manufacture of Screens. It has furnished screens for the principal mills and firms on the coast for many years. 10v19tf

---

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

NEW FILES OF EVERY DESCRIPTION
ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended to. 9v19-qy

---

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

SAN FRANCISCO
Gold and Silver Plating Works.

ATTENTION.

Quartz Mill Men,

MINERS,

HOTEL KEEPERS,

— AND —

OTHERS.

ATTENTION.

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

FOUNDRY FACINGS.

BENJAMIN ELLIOT,

No. 483 Brannan street..............San Francisco,

Manufactures Foundry Facings constantly, from choice coals. Bituminous, packed in tight sacks. Anthracite and Charcoal ground together or separate, packed in barrels. Black Lead, Coke and Soapstone ground to order.

☞ Foundrymen located far from choice material, can rely on having superior Facings forwarded to order.
10v18qr

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf **414 Front street,** San Francisco.

The Perfection of Prepared Cocoa.

MARAVILLA COCOA.

Sole Proprietors—TAYLOR BROTHERS, London.

The Cocoa (or Cacao) of Maravilla is the true Theobroma of Linnæus. Cocoa is indigenous to South America, of which Maravilla is a favored portion. TAYLOR BROTHERS having secured the exclusive supply of this unrivalled Cocoa have, by the skillful application of their soluble principle and elaborate machinery, produced what is so undeniably the perfection of Prepared Cocoa, that it has not only secured the preference of homœopaths and cocoa-drinkers generally, but many who had hitherto not found any preparation to suit them, have, after one trial, adopted the Maravilla Cocoa as their constant beverage for breakfast, luncheon, etc.

"A SUCCESS UNPRECEDENTED."

[See following extract from the Globe of May 14, 1868.]

"Various importers and manufacturers have attempted to attain a perfection for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage."

Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills, Brick Lane, London.
8v19-6m

WONDERFUL

Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,

California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

---

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods cheaply, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent. off to the trade. Address,

HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

SPAULDING & BARTO,

BOOK AND JOB PRINTERS,

Scientific Press Office,

NO. 414 CLAY STREET,

SAN FRANCISCO.

CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,

AND

PRINTING OF ALL KINDS FOR BUSINESS MEN

BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,

Neatly, Correctly and Promptly Printed.

Ayer's
Hair Vigor,

For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a

HAIR DRESSING,

nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.

Prepared by Dr. J. C. Ayer & Co.,

Practical and Analytical Chemists,

LOWELL, MASS.

PRICE $1.00.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 25v18eow4m

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Friday, January 27, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ₰ 100 lbs.; Bar, 1@1¼c ₰ lb; Sheet, polished, 3c ₰ lb; common, 1½@1¾c ₰ lb; Plate, 1½c ₰ lb; Pipe, 1½c ₰ lb; Galvanized, 2½c ₰ lb.

Scotch and Eng. Pig Iron, ₰ ton	$32 50	@ $35 00
White Pig, ₰ ton	30 00	@ 31 00
Refined Bar, bad assortment, ₰ lb.	— 03	@ — —
Refined Bar, good assortment, ₰ lb.	— 04	@ — —
Boiler, No. 1 to 4	— 04¼	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½

Copper.—Duty: Sheathing, 3½c ₰ lb; Pig and Bar, 2½c ₰ lb.

Sheathing, ₰ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22

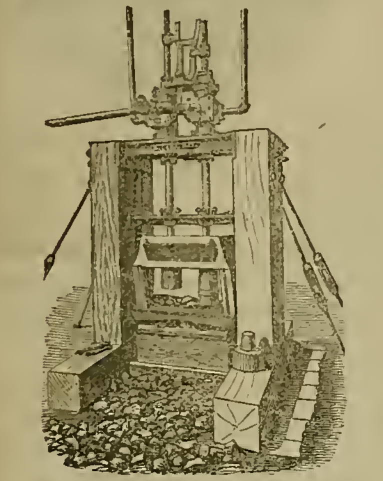
Tin Plates.—Duty: 25 ₰ cent. ad valorem.

Plates, Charcoal, IX, ₰ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ₰ lb.	— 40	@ — 42½
Steel.—English Cast Steel, ₰ lb.	— —	@ — 15
Quicksilver.—₰ lb.	— 55	@ — 60
Lead.—Pig, ₰ lb.	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ₰ lb.	— 10½	@ — 11
Borax.—California, ₰ lb.	— —	@ — 45

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

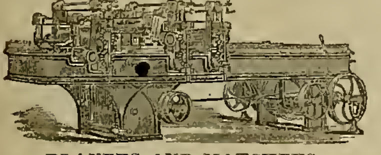
A. BICKNELE, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

Woodworth Planers,



PLANERS AND MATCHERS,

With patent expansion, feed gear and other improvements made at Worcester, Mass., in the most finished and substantial manner; also every description of Richardson Meriam & Co's, Smith's and Wood's celebrated

Wood Working Machinery.

Embracing Mortising, Sash and Moulding, Smith's Stickers, Slat and Door Tenoning, Boring, Shaping, Scroll Sawing, Planing, Rod and Dowell making and Re-sawing Machines, Wood and Engine Lathes, etc., for sale at Eastern prices, at the Machinery Depot of

BERRY & PLACE,
112 and 114 California st., San Francisco.

☞Agents for Blake's Patent Steam Pump, (warranted the best in the market); Davis & Furber's Woolen Machinery, etc. Being the selling agents for most first class Eastern builders, millmen and others in want of Machinery can save money by giving us a call. Illustrated Catalogues sent free.

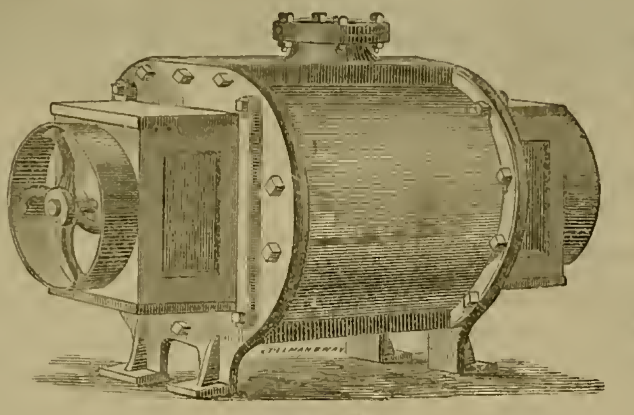
Send former address when you wish your paper directed to a new place.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER

MANUFACTURED BY KEEP & BARGION,

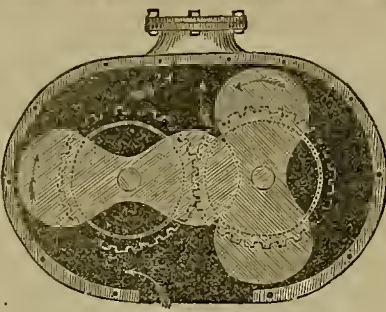
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** LESS POWER **Than any Blower** Now in use.

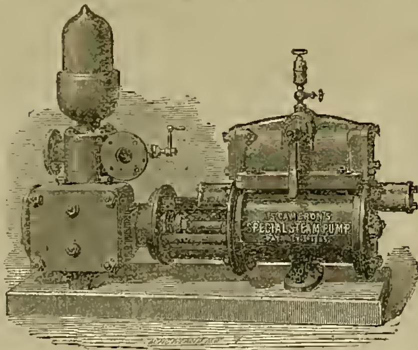
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

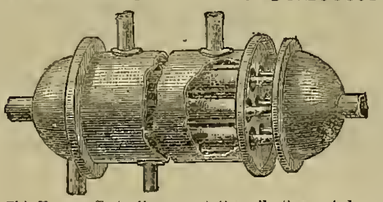
KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
MARINE
ENGINES.
SURFACE
CONDENSERS.

DAVID STODDART,
114 BE LE STREET.

CROSS' COMBINED Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

Notice to Miners, Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business. I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
3v18 ly Stove Store, No. 1 Clay Street, below Davis.

THE GIANT

POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 25v16

VARNEY'S PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,

1v1 San Francisco.

EYE AND EAR

DISEASES.

DR. ABORN'S

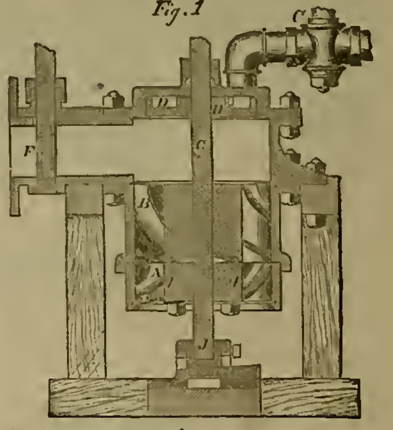
CONSULTING AND OPERATING APARTMENTS,

NO. 22 KEARNY STREET,

For the most modern and scientific treatment of the diseases of the EYE, EAR, HEAD, THROAT and LUNGS.
18v19-3m

Lind's Improved Water Wheel

Fig. 1



Has given the highest satisfaction to parties using it. We are now prepared to sell it at reduced prices. Will also contract for all kinds of Machinery—Flour, Saw and Quartz Mill. All our work guaranteed. We will send competent men to put up our Wheels and Machinery. We contract for or do it ourselves. Our extensive acquaintance with millwrights on this coast enables us to furnish millmen with the best of workmen at short notice. Drawings for contracts furnished gratis. Send for circular.

A. LIND, Millwright,
Pacific Iron Works, San Francisco.
Refer to John Sime and J. J. Haley. 19v19

SPECIAL NOTICE.

TO DEALERS AND CONSUMERS

—OF THE—

H & L AXLE GREASE.

Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possible meet the market of our Chicago friends, we have made a great reduction in prices, and from our long experience we will satisfy you that there is none BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,

144 Natoma Street,

Depot, 320 Jackson Street.

N. B.—We are prepared to furnish Bulk Packages to contractors on equally liberal terms.

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good Sauce The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for Lea & Perrins' Sauce, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may he infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c,; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

IN THE PROBATE COURT OF THE CITY AND County of San Francisco, State of California.

In the matter of the Estate of ABRAHAM CREEMER MESSERVE, deceased.

On reading and filing the petition of Benjamin Shellard, Administrator of the estate of Abraham Creemer Messervo, deceased, setting forth that he has filed an account of his administration upon said Estate in this Court, and that the same has been duly heard, allowed, and confirmed; that more than ten months have elapsed since the publication of notice to creditors, and that no claims against the said deceased have been presented to said Administrator, and the Estate is in a condition to be closed, and that the real property remains to be distributed among the heirs of said deceased; and praying, among other things, for an order of distribution of said real property among the persons entitled,

It is ordered, That all persons interested in the Estate of Abraham Creemer Messerve, deceased, be and appear before the Probate Court of the City and County of San Francisco, at the Court Room of said Court, in the City Hall, in said City and County of San Francisco, on the seventh day of February, A. D. 1870, at eleven o'clock in the forenoon of that day, then and there to show cause why an order of distribution should not be made of the real property of said Estate among the heirs of said deceased according to law.

It is further ordered, That a copy of this order he published at least for four successive weeks before the said seventh day of February, A. D. 1870, in the Scientific Press, a newspaper printed and published in said City and County of San Francisco.

SELDEN S. WRIGHT, Probate Judge.
San Francisco January 5th, A. D. 1870. jan8-4w

Creditable Opinions.

The following editorial notices come from very creditable sources:

THE MINING AND SCIENTIFIC PRESS.—The name of this able and excellent journal has been abbreviated. Henceforth it will be known as the Scientific Press, leaving off for convenience the word Mining. In changing the name, the publishers wish it distinctly understood that their advocacy of mining shall not be abated, and that no change will be made in other leading departments of the paper, which will continue as usual to represent the leading interests of the Pacific coast -Mining, Farming and the Mechanic Arts. The terms of the Press have been reduced to $4 per annum, and every miner should subscribe for it.—*Humboldt Register, Jan.* 8.

WE have received a call from Mr. S. H. Herring, traveling agent for the Scientific Press, who is now canvassing for that journal in Oakland and vicinity. The Press is a finely illustrated weekly paper of sixteen pages, devoted to scientific and mechanical progress on this coast—embracing mining, farming and mechanic arts; subjects of living interest to all industrial readers. It meets the wants and deserves the patronage of working and thinking men. It is issued every Saturday by Dewey & Co., publishers and patent agents, 414 Clay street, San Francisco. Subscription price, $4 per annum.—*Oakland News.*

THE old favorite mining paper, the Mining and Scientific Press, of San Francisco, comes to us this week with a new head, and with some new features introduced. It is now called the Scientific Press, and while the proprietors still intend to devote as much space as formerly to mining, mechanic arts, etc., they will add a department devoted to agriculture. The Press has just entered on its twentieth volume, and is one of the oldest as well as the best and most reliable mining papers published in the United States, and perhaps in the world.—*Colorado (Central City) Register, Jan.* 13.

SCIENTIFIC PRESS.—The Mining and Scientific Press, which has been a faithful exponent of the scientific, mechanical and industrial interests of our western coast, entered upon its twentieth volume on the first of January, and at the same time adopted the shorter and equally comprehensive title of Scientific Press. This journal has, for some time past, maintained a department specially devoted to agricultural matters, and has filled it with useful and interesting information.—*Contra Costa Gazette, Jan.*, 1870.

SCIENTIFIC PRESS.—This paper, indispensable to every mine and mining man on the Pacific coast, closes volume nineteen with the number now before us. The proprietors have reduced the price to four dollars per year, and say: "Profited by the experience of the past, and encouraged with liberal patronage, we shall add improvements which will render the next volume of the Press much superior to its former issues.—*Alpine Miner.*

SCIENTIFIC PRESS.—The S. F. Mining Press has entered upon its twentieth volume with a change of name—Scientific Press. This is a journal devoted mainly to the interests of the miner, farmer and mechanic, and has well sustained its position in all respects. The price has been reduced to $4 per year, and we cannot too highly recommend it to all classes.—*Alpine Chronicle.*

LOOK OUT FOR HIM.—Sam. Heidelberger, sole agent in Idaho for Mark Twain's Innocents Abroad and the Scientific Press of San Francisco, left yesterday for Ada and Boise counties, where he will make a thorough canvass of Boise City and valley, as well as the Basin, for these popular publications. He will also act as agent for the *Tidal Wave.—Wave, Jan.* 13.

SCIENTIFIC PRESS.—This valuable paper commenced the new year with volume twenty. The title is changed to Scientific Press. The paper is devoted to mining, farming and mechanic arts—the three great leading interests of the Pacific coast. The Press is ably conducted by Dewey & Co., and we recommend it as almost invaluable to persons engaged in the above pursuits.—*Placer Herald, Jan.* 13.

SCIENTIFIC PRESS.—This paper, devoted to the interests of the miners, farmers and mechanics, has just entered its twentieth volume and donned a new head, and also a slight alteration in name. It is a good substantial sheet of sixteen pages, beautifully printed and illustrated. As a journal of scientific and industrial progress, we would recommend it to all. Dewey & Co., San Francisco. Subscription, $4 per year.—*Yolo Mail.*

SCIENTIFIC PRESS.—The title of the Mining and Scientific Press, published by Dewey & Co., has been changed to the Scientific Press. This is one of the most valuable of our exchanges, and we are pleased to notice the great improvements made in it the past year. On the 1st of January it began a new volume, entering upon its tenth year.—*San Bernardino Guardian.*

THE Mining and Scientific Press, published at San Francisco, California, by Dewey & Co., is a handsome illustrated sixteen-page weekly, and one of the most valuable and interesting exchanges that comes to our table. Subscription price, $4 per year.—*Inventors' and Mechanics' Journal.*

NEW VOLUME.—The Scientific Press has commenced a new volume. It has been greatly improved in many ways. It is now a fine journal for the farming community as well as the miner.—*Pajaronian.*

SCIENTIFIC PRESS.—Dewey & Co. are the publishers of this sterling paper It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican.*

◆

THE BEST SAFE.—One of the most important inventions in this age of discoveries to the business community is, undoubtedly, Sanborn's Steam Fire-Proof Safe. Repeated severe tests have established its superiority over all the safes with which it has been brought in contact. The elegant designs and beautiful ornamentation of these safes render them an acquisition to any well-furnished apartment, while their perfect fire-proof quality make them a necessity to every business man. The recent severe tests in this city are still remembered. We clip the following from the Philadelphia *Transcript:*

A REAL SALAMANDER AT LAST.—Not the least interesting feature of the great Inter-safe Fair at Norristown was the trial of patent safes, which came off under the superintendency of the committee. An immense wood-fire was lighted, and a large number of safes of different makes were placed in it. The fire was kept burning nine hours and a half; and at the end of that time every safe in the flames had its contents totally destroyed, except one, with Sanborn's patent steam improvement. This was taken out, and, to the extreme surprise of the uninitiated, its contents were uninjured. The committee were so much pleased with this demonstration of the fact that there is at last a really fire-proof safe, that a gold medal was awarded the owners.

Ross, Dempster & Co., Nos. 105, 107 and 109 California street, are the sole agents for the Pacific coast. *

SUISUN CITY, Cal., June 26, 1869.

MESSRS. DEWEY & CO:—This is the third time you have presented me with Letters Patent within twelve months. Gentlemen, you have done all I have asked of you—you have been honest; you are men that an inventor can rely upon for doing business for him, and he need not fear of being swindled or wronged in any way. I would give you business to do in your various departments in preference to any one else. Many thanks to you for your success. You have obtained valuable patents for me, and I appreciate your kindness, your honesty, ability and success. Yours, RICHARD KNOTT.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.

August 2, 1869. 6v19-1m

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

Illustrate your Inventions

IN THE SCIENTIFIC PRESS,

An illustrated journal of Mining, Farming, Mechanic Arts and Industries on the Pacific Coast. It costs no more for a superior engraving by our experienced artists than is usually charged for a less perfect picture. If you wish to introduce a new invention properly before the public, the first steps in so doing are important ones. A full description and correct representation in the PRESS will go further and prove more quickly effective than any other means.

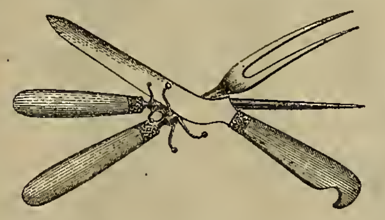
The fact that an illustration is admitted into our columns, guarantees the invention important consideration in the minds of thousands of the most intelligent readers—at home and abroad—who would not notice it so favorably or so thoroughly, if at all, when presented through an unreliable medium or indifferent source.

The model of an invention sent to us is sufficient for making a good engraving, Sometimes a photographic view is sufficient; but it is always best accompanied with drawings or a copy of the patent. A first-class illustration has proved to be one of the best and cheapest means of obtaining purchasers for a good machine or a valuable patent.

Cuts ordered for illustration are the property of the inventor who pays for them, and can generally be used for circulars, pamphlets, books, or other newspapers. The engravings to be seen in each issue of the SCIENTIFIC PRESS are a fair sample of the work of the artists who can always be found in our office.

DEWEY & CO.,

Publishers Scientific Press, American and Foreign Patent Agents, San Francisco.



M. PRICE, Maker,

No. 415 KEARNY STREET,

BETWEEN PINE AND CALIFORNIA, SAN FRANCISCO.

20v19-3m

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

STEEN & CUSHING,

AGENTS FOR THE

PURCHASE AND SALE

—OF—

Patent Rights, Engines, Boilers,

—AND—

MACHINERY OF ALL KINDS.

NO. 9 FIRST STREET, SAN FRANCISCO.

WE HAVE ON HAND IN GREAT VARIETY,

Engines and Boilers,
Steam and Hand Pumps,
Pipe,
Presses,
Shafting,
Pulleys,
Boxes,
Mill Stones,
Portable Mills,
Malt Rolls,
Injectors,
Lathes and Planers,
Governors,
Steam Gauges,
Quicksilver,
Gas Stocks and Dies,
Belting,
Water-tanks, etc.,

Which we will sel at a discount of 25 to 75 per cent. on cost of new, in this city. Parties having any kind of machinery for sale, may meet with customers by consigning to us. Purchases made on Commission, and prices guaranteed as low or lower than parties can make themselves.

STEEN & CUSHING,
No. 9 First street, San Francisco.

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
ILLUSTRATED CIRCULARS FREE.

DEWEY & CO.,

Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of

Melting Pots, Portable Furnaces,

CRUCIBLES, and other fire-standing Goods,

Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

MAGAZINES.	P.An.
Harper's..............	$4 00
Atlantic..............	
Godey..............	
New York Ledger...	
Blackwood..........	
Hours at Home.....	
Good Words........	
Peterson's.........	3 00
Arthur..............	
Lady's Friend.......	
Harper's Weekly....	5 00
Chimney Corner	
Literary Album......	
London Society.....	6 00
All the Year Round..	
London Ill. News...	15 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number.

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, Instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY, and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apperatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School." New Haven. Conn. 13v6-1v16p

---

GEO. E. ROGERS,

(Successor to G. W. Bell.)

ASSAYER,

512 California st., San Francisco.

J. A. MARS, Assayer.

Ores carefully Assayed. Gold and Silver Ores worked.
23v16-qr10pnr

W. T. GARRATT,

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURER OF

Brass, Zinc and Anti-Friction or Babbet Metal

CASTINGS,

Church and Steamboat Bells,

TAVERN AND HAND BELLS, GONGS,

FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work, Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

---

N W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws.

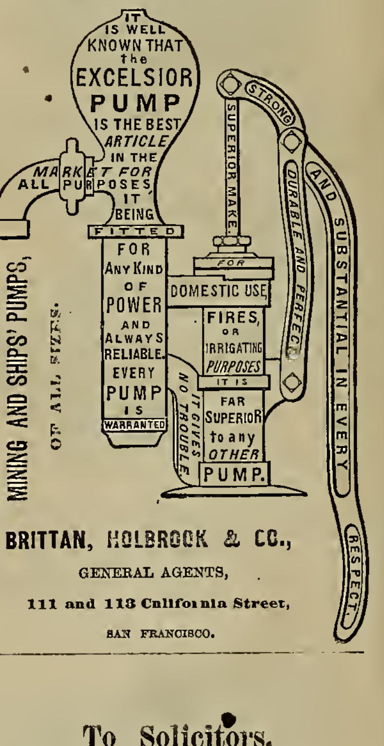
They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.


IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE FIRES, OR IRRIGATING PURPOSES IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE
SUPERIOR MAKE.
STRONG DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,

GENERAL AGENTS,

111 and 113 California Street,

SAN FRANCISCO.

To Solicitors.

AGENTS WANTED.

One or two active and reliable Agents can obtain per permanent and profitable employment by addressing or calling at this office.

MANUFACTURING

Room to Let.

We have a large room, about 18 by 36 feet, in second story at 414 Clay street, near Sansome, which we will rent very low, suitable for printing or manufacturing purposes

DEWEY & CO.,
Publishers Scientific Press, 414 Clay st

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, February 5, 1870.

VOLUME XX.
Number 6.

Independent Order of Odd Fellows.

As many of our readers are members of the fraternity of Odd Fellows—an organization which is spread widely among all classes and conditions of life—we think it a matter of sufficient general interest to give some few facts relating to the brotherhood, and, in this connection, give also an illustration of the handsome building owned by the Odd Fellows' Hall Association of San Francisco.

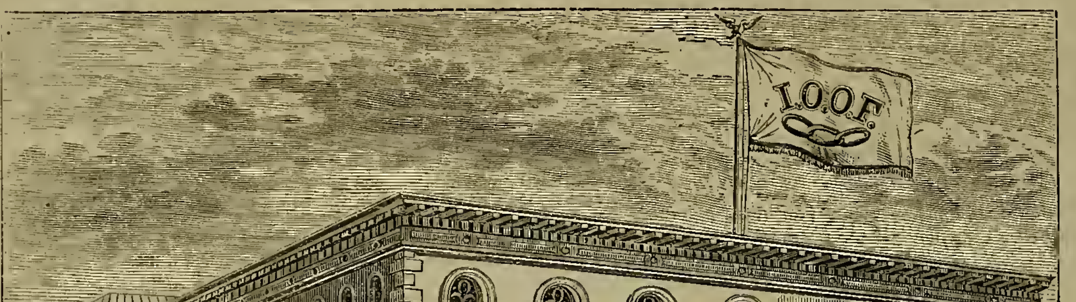
The first regular working Lodge in California was founded in the town of Yerba Buena—*i. e.*, San Francisco—in 1847, and held its meetings in the Portsmouth House, at the northeast corner of Clay and Kearny streets. The gold fever in 1848, however, broke up the Lodge, the members scattering to the mines. The first regularly instituted Lodge was the California, No. 1, founded Sept. 9, 1849; the second was the Sacramento, No. 2, founded in 1851. From this time on the fraternity has rapidly grown and the Lodges have multiplied and spread into the surrounding States and Territories. In 1852, the Chemeketa Lodge was instituted at Salem, Oregon; in 1855, Washington Territory founded its first—the Olympia, No. 1—at Olympia, and the first in Nevada was instituted about 1862. The Grand Encampment—a higher branch of Odd Fellowship—was founded in Sacramento, January 8, 1855.

At the present time there are in California 158 working Lodges, with a membership of about 12,000 persons. In San Francisco alone there are 15 Lodges and 3,793 members. The fraternity is in a most healthy and flourishing condition. Its annual revenue in this State amounts to some $300,000; it has invested in property about $450,000, and it pays annually for the relief of members some $12,000. It is estimated that in all, in 1869, $200,000 were expended in giving relief, Sacramento alone spending $36,000 for maintaining the Odd Fellows' Hospital. In the United States it has about 300,000 members, and a surplus capital of $20,000,000; in England, about 450,000 members, and a surplus capital of over $13,000,000. This capital in both countries, then, amounts to the large sum of $33,000,000. All the different branches throughout the world contain over a million of members.

The Odd Fellows' Hall, situated on the corner of Montgomery and Summer streets, was dedicated by the R. W. G. Lodge of California on the sixth day of May, 1863. The rapid increase of the Order and of the subordinate Lodges and Encampments made necessary further accommodations; and in 1866 the lot adjoining, in the rear, fronting on Summer street, was purchased, and an additional building erected. The lot at present is 65x134½ feet, and the total cost, including furniture, etc., was $150,000. The property is held by the Odd Fellows' Hall Association of San Francisco, and at the present time is valued at $250,000.

The basement is rented for storage, and the first or ground floor for stores. On the second floor are ten rooms. Two are occupied by the Odd Fellows' Savings Bank; the others on Montgomery street by the Grand Secretary of the R. W. G. Lodge of California. On Summer street are the office and editorial rooms of the *New Age*, the official paper of the fraternity. Back of these are the chess-room, for the use of members; the reading-room, which is supplied with a large number of daily and weekly newspapers, periodicals and magazines, also a valuable cabinet of curiosities, and which contains the portraits of all the ex-Grand Masters of the State and other portraits and pictures; and the Library, a very tastily-furnished room, containing 19,180 volumes, which, with the cabinet, are valued at $43,500. The remaining rooms on this floor are for committee and other purposes. There are three halls on the third floor and another in the new addition. All of these are very handsomely furnished, the walls are decorated with paintings, portraits and statues, and the ceilings with frescoes. The furniture is very tastily upholstered, rich carpets cover the floors, while Covenant and Wildey Halls contain fine-toned organs. Suitable and convenient ante-rooms are connected with each for the use of the Lodges and Encampments which rent them.

For the illustration and for most of the facts we have given, we are indebted to the *New Age*, which is worthy of the hearty endorsement of the great brotherhood whose interests it supports.


I.O.O.F.
I.O.O.F.
NEW AGE.
ODD FELLOWS
SAVINGS BANK.
T. RODGERS JOHNSON
SUMMER STREET
MONTG STR.
C.H.HAIN & CO.
WARDS SHIRTS
I.O.O.F.
MAURICE DORE & CO.
O.R.R.CO.

THE ODD FELLOWS' HALL, SAN FRANCISCO.

Experiments with a Novel Propeller.

We had the pleasure, a few days ago, of witnessing one of a series of experiments being made with a propeller constructed on a new principle, the chief points of which are the following: The wheel is provided with curved buckets and placed in an iron case. On each side of this case towards the front part of the boat is an aperture for the entrance of water, and at the rear, in the periphery, another for its exit. The wheels are placed amidships, and dip in part only under water. As they revolve, the water is drawn in through the side holes and immediately discharged at the rear (without being carried around). It is claimed that by the use of such a wheel the buckets press against a solid column of water without spraying it, thus utilizing the motive power to a much higher degree than is done by the wheels now in use.

In this experiment, a small 15-horse power engine was placed in a small hull, forty feet long and ten feet wide, which, however, was evidently much too small to carry the whole weight, and, consequently, sank very deep in the water. The tests are made for the purpose of trying the effect of different constructions; and this one was made particularly to find out the best size of the discharging aperture. Enough, however, in general, was shown to convince us that there is considerable power obtained by the new principle, and we hope to give our readers full accounts of the experiments as they are made, whether they prove successful or not. Even under the unfavorable circumstances of a boat too small for the weight carried, and an engine of insufficient power, the distance between the foot of Second street and the Dry-Dock was made in thirty-seven minutes. At several other trials a mile has been run in six minutes by the same boat. The wheel is that patented by Mr. J. C. T. Finlayson, of Oregon, and the experiments are made by Mr. A. C. Loud, an enterprising merchant of this city, who is well known for his contest before the Courts with Senator Cole in regard to another propeller (in which contest the Senator has been already defeated three times), but which is entirely different from the one experimented with. Several other novel and useful devices have been patented by Mr. Loud, who is one of our most active inventors.

Communications.

Sale of Mineral Lands.

[Written for the Scientific Press.]

EDITORS PRESS:—Surveyor-General Bost recommends in his report that the Legislature memorialize Congress to have the mineral, as well as the other public lands of the State, surveyed and opened to preëmption and sale. While many of his suggestions are good, this one, regarding the sale of the mineral lands, is looked upon by the miners as ill-timed. There is in El Dorado county a belt of mineral land some twenty miles in width, from east to west, and running through the county from north to south, which should never be disposed of, so as to exclude *prospecting* and mining for gold, by any one who is willing to embark in that enterprise. Having resided nearly twenty years in this county, and having had practical experience in both mining and agriculture, my opinion is—and I think a majority of the legal voters of the county agree with me—that no further restrictions should be placed on mining than are now imposed by laws and by the decisions of our Courts. When a patent or fee simple is obtained by the agriculturist, he becomes the owner, not only of the soil, but of what is in or under it; hence the miner is excluded from prospecting, or, if he does, and makes valuable discoveries, it must be for the benefit of the owners of the land. One case of the many in this county I will mention. One man has some 1,000 acres fenced with a substantial board fence, and has for the last fifteen years been anxious to obtain a title to it; has wished to exclude prospectors and miners from operating within his inclosure. But miners prospected, found pay, located claims, brought water on the ground, and within the last three years have mined up some ten acres, from which they took $35,000 to $40,000; and this is probably only a part of the good mining ground within his inclosure.

If this individual, with thousands of others, could have obtained a title to this land twelve years ago, millions that have been sent from this country in that time would now be hid in the soil, with no prospect of its being put in circulation. From the best information I can obtain, the amount of gold mined out and put in circulation from this county from 1849 to 1859, was more than $4,000,000 per annum, and from 1859 to 1868, more than $1,700,000 per annum. At the present time it cannot be less than $100,000 per month, and this without being a hindrance, but really a great benefit to the agriculturist, for it gives him cash for his hay, beef, pork, mutton, milk and butter, fruit and vegetables.

Another important question is, if the mineral lands are disposed of, and fall into the hands of agriculturists, which they are quite sure to, what means will be resorted to to keep up the canals and ditches for irrigation? The agriculturists could not do it, it would be too extensive; capitalists would not invest where their money would bring them no returns; miners could not, because they would nót exist to any extent. About eight months of the year the ditches and canals pay owners something above expenses for water used in mining, but the other four months, while most of the water is used for irrigation, according to my experience, they are not remunerative.

Investments in canal property in this county have not been profitable, as your correspondent knows to his sorrow. The abandonment of the canals for mining purposes would give the mining counties to the wandering stock-raiser in the spring, to Digger Indians, grasshoppers and fires in the dry season. Fruit and vegetables must have irrigation in the foothill counties, or they will be small, insipid in taste, and unsaleable. The argument that the sale of the mineral lands would increase the amount of taxes, is not good; for our experience is, that the possessory title and improvements are now assessed at more than the title in fee and improvements would bring under the hammer.

Sargent's bill, now before Congress, in many respects is very good, but, in the opinion of the miners, fails to meet their wants. Supposing under Sargent's bill A, B and C, take up claims above and below me, and I have to purchase the right of way over A's claim to get water to work my ground. B, below me, says, you can not run your *debris* on or over my ground, and C, still lower, says the same thing; now what chance have I with my claim but to be *frozen out* by this little combination of A, B and C, no matter how valuable my claim may be? And have I any protection under that bill? and, if passed, will it not lead to endless litigation? There are plenty of "land sharks," who would control the mouth of every ravine, cañon, gulch or creek, where they could *freeze out* an owner of a good claim, or levy black-mail on him. Had not the title of the bill better be changed so as to read, "A Bill to Fee Lawyers and Officers of Courts?" Miners here hope that no such bill will pass.

If the mineral lands are to be sold, let it so be done that the mineral shall be subject to the prospector and miner on *unimproved* lands, as they are at the present time. To show that the agriculturist is fully protected in his rights, as against miners and all other persons, I give a few extracts from the many decisions made by our Supreme Court. This first quotation shows what the miner's chance would be if the title was complete in the occupant of these mineral lands: "Miners have no right to enter upon private land and subject it to such uses as may be necessary to extract the precious metals which it contains."—Hinshaw *vs.* Clark, 14 Cal., 460.

In the case of Livaroni *vs.* Miller, which went to the Supreme Court from this county, the Court said, that a miner had no right to wash the *debris* from the hill above on to the premises of the plaintiff, thereby materially injuring plaintiff's garden, fruit trees and buildings. In such cases, the right of the defendant to mine in and to use therefor the ravine above plaintiff's premises must be exercised in such a manner as not to damage the prior right of the plaintiff to inhabit and cultivate his premises.

Again: "The miner is liable for the damage to the growing crops caused by his acts, and if the owner of the crops should demand of the miner payment of the damages caused to the crops, and the miner should refuse to pay, a Court of Equity will restrain him from further working."—Rupely *vs.* Welch, 23 Cal., 452.

In the case of Smith *vs.* Doe, 15 Cal., 100, the Court says: "As a general rule, the public mineral lands of the State are open to the occupation of every person, who, in good faith, choose to enter upon them for the purpose of mining. But this rule has its limitation, to be fixed by the facts of each particular case. Certain possessory rights and rights of property in the mining region, though not founded on valid legal title, will be protected against the miner—valuable permanent improvements, such as houses, orchards, vineyards, growing crops," etc. When the agriculturist can sell, mortgage, and dispose of his possessory title, what need is there of more protection than is given in the decisions above quoted?

My last letter, as published, read "the Pacific, etc., paid dividends prior to 1850," which should have been 1859. In regard to "rebellious" ores, mentioned in my last, I have to "go back on it," and say that I was misinformed; for I am told by a practical assayer, who has had much to do with minerals in this county, that there are no rebellious ores here. If rebellious, it is for the want of gold. If I trod on the gentleman's toes in mentioning "rebellious," I hope this will cure the wound.

Placerville, Jan. 21, 1870. E. N. S.

VALUABLE MINES have been discovered within the past year in the Himalayas. There are found silver, lead, antimony, zinc-blende, copper and some gold. One mine at Shigri, on the old boundary of Northern India, is described as an enormous lode, in which the ore is several feet thick, and solid. The others are principally in the country of the Vazeers, or the Vazeeri Rupi as it is generally named in maps.

A LARGE BLACKBERRY BUSH.—The Humboldt *Times* has had a blackberry vine brought to its office in Eureka, that is forty feet in length.

Treating Ores.

[Written for the Scientific Press.]

EDITORS PRESS:—Being a constant reader of your valuable paper, my attention has been attracted by a communication from C. H. A., which appeared in your issue of Dec. 4th, 1869, the reply of J. S., in your issue of the 25th, and the rejoinder of C. H. A. in your last number. A discussion of this kind naturally attracts those who interest themselves in the very vexed points so often occurring in the science of metallurgy. Giving both of those gentlemen credit for acquirements in the science which their communications sufficiently substantiate, it would appear to me that the individual interests of each may, in some way unknown to me, be antagonistic. At any rate, the subject is not sufficiently ventilated, from the fact that both seem to labor under a feeling of dissatisfaction. The manner of the communications it is not my intent further to refer to, but in the matter which C. H. A. refers to, may I be permitted to make a few remarks? [We avail ourselves of this remark, to omit the first objection, which *does* refer rather to the manner than to the matter. —EDS. PRESS.]

C. H. A. makes the broad assertion that he believes "there is not an ore of gold or silver in this country that cannot be worked to a reasonable percentage—say 80 to 90 per cent. of common fire assay—by *some one of the known processes.*" (The italics are mine.) Now I have yet to learn that the "Triunfo ores," of Lower California, have been successfully worked! I do not mean as a chemical success, but as a *remunerative process*, which is the main point in view. The Shaba ore, which your correspondent refers to as being similar to that of the Triunfo, involves, so far as I know, similar difficulties. Can C. H. A. overcome these by any of the known processes so as to leave (if worked here) a margin of profit?

A silver ore containing antimony, which is frequently one of the constituents of the so called refractory ores, at a high temperature forms antimonic acid; this, attacking the silver, produces an insoluble compound (antimoniate of silver). Can C. H. A. evade this difficulty by any of the known processes? or will the electric processes refered to by J. S. remove it? A few facts are wanted to induce the speculation of capitalists to aid experimental science. Such would go further to induce the assistance of thinking men than the gasconading of tyros and humbugs.

To such men as C. H. A. and J. S., we anxiously look for the result of their experience as contributing to the advancement of the mining interests. J. G.

FORMS FOR TELEGRAPHIC MESSAGES.—The British postoffice authorities have prepared, for the use of the public, forms for telegraphic messages, to be used when the whole system of inland telegraphs is acquired by the government. A separate space in lines is allotted to each word, and the corresponding charge is printed clearly on the margin, so that the sender can see at a glance how much he has to pay, and the receiving clerk need be at no trouble in calculating how much he has to charge. Each of the forms thus divided into spaces is prepared for a message of fifty words, which is assumed to be sufficient in the majority of instances. In the right hand upper corner of the page a blank space is left for the stamps, which will probably be almost exclusively used to cover the charges of transmission. Attached to the form are directions for the guidance of the sender, with a tariff of charges, and full information as to the arrangements for porterage.

GALVANIZED WINE.—The story is going round that the house of a vineyard man somewhere in Europe was recently struck by lightning, and that the wine in the cellar thereof was immensely improved in flavor thereby. "This,"—says the story,—"came to the knowledge of General Marey-Monge, who caused a series of experiments to be instituted with various kinds of wine, the result being that a galvanic current applied to the liquid in the casks eminently improves even very inferior kinds."

Items from Boise City, I. T.

[Written for the Scientific Press.]

EDITORS PRESS:—The winter has been a mild one here, but in the mountains the snow is unusually deep and heavy. Miners look forward to a prosperous season.

Around here, a large quantity of mining ground hitherto considered as non-paying, is now being prepared for work, and o some, operations are to begin next week. Placers paying only $4 to $6 per day can now be profitably worked, as provisions and clothing are down to a living price, and there are hundreds of claims in Ada county and on Boise river that can be worked for ten to eleven months in the year that will yield from $3 to $6 a day. The great want in many places is water after the dry season sets in.

Since the fire, contracts have been already made for several fine fire-proof brick buildings, and this, with the work on the penitentiary and Government assay office, shortly to be commenced, will create a demand for brick masons at fair wages.

Real estate is increasing in value and demand in Boise City as business increases.

H. W. O. M.

January 28th, 1870.

THE TRUE SPIRIT OF INVENTION.—Three hundred years ago, when man had just begun to gain control over the forces of nature, and while he was yet fighting against religious intolerance for the bare liberty to *study* them, there was one great mind that soared above his fellows, with the capacity and will to look into the future, and form an appreciative estimate of what was in store for man through the genius of invention, which was then just beginning to make itself felt. Lord Bacon must have had a full understanding of the true spirit of invention, and a just appreciation of the influence which it was to exert on human affairs, when he wrote the following paragraph:

The introduction of new inventions seemeth to be the very chief of all human actions. The benefits of new inventions may extend to all mankind universally, but the good of political achievements can respect but some particular cantons of men; these latter do not endure above a few ages, the former forever. Inventions make all men happy without either injury or damage to any one single person. Furthermore, new inventions are, as it were, new erections and imitations of God's own works.

THE RUBBER TRADE.—There are now in America and Europe more than a hundred and fifty manufactories of india rubber articles, employing from four to five hundred operatives each, and consuming more than ten millions of pounds of gum per annum. The business, too, is considered to be still in its infancy. Certainly it is increasing. Nevertheless, there is no possibility of the demand exceeding the supply. The belt of land around the globe, five hundred miles north and five hundred miles south of the equator, abounds in trees producing the gum; and they can be tapped, it is said, for twenty successive seasons. Forty-three thousand of these trees have been counted in a tract of country thirty miles long and eight wide. Each tree yields an average of three tablespoonfuls of sap daily, but the trees are so close together that one man can gather the sap of eighty in a day.—*North American Review.*

FIRE-PROOF FLOORS AND WALLS.—The following is from the report of the U. S. Commissioner to the Paris Exposition. This mode of building is commended to especial attention: "Lay a floor of seasoned hemlock boards upon the timbers or floor-joists, and then lay a coat of cement, a large proportion of which may be sand, entirely over this floor, from wall to wall, of one inch thick; then let the cement become thoroughly dried, over which lay a floor of matched boards, nailed with 'forty-penny' nails. If there are wood partitions, there should be laid two courses of brick between the studs, and plastered to the base-board, to prevent all circulation of air. A floor laid as above will resist an immense volume of flame in a room for one hour before breaking through the cemented floor above; and the expense of cement is only ten to twelve cents per square yard."

Mechanical Progress.

The Foreman's Business.—We find the following in another of those letters in *Engineering* from "An English Workman in America": "There are hundreds of little secrets in doing work that escape the ordinary workman's observation altogether, which require great practice and perception to discover, and whereby one-half the time in labor may be saved; and it is as an instructor on these points that the thorough efficiency of a foreman is of incalculable advantage. Walking through the works of a large locomotive firm in England, three years ago, I saw several illustrations to the point. There was a pattern maker finishing a pattern for an axle box hexagonal on the bottom; the usual allowance for contraction was correctly made, but the angles on the bottom were straight and true. Now any experienced mechanic could have told him that such a pattern would cast a box hollow on said angles, that is to say, that placing a straight edge lengthways on the angle it would touch on each end, the middle being at least one thirty-second hollow because the casting always shrinks there; the pattern should have been made highest there to allow for this shrinkage. The pattern for the brass was made exactly the same angle as the bottom of the box (a blunder invariably made). In the first place, the shrinkage of the brass in casting alters the angle of the brass; in the second, if it came out of the mold the proper angle it would require a great deal of fitting, because the bottom of the brass would bed as soon as the sides; and a chipping would invariably have to be taken off the bottom, to allow enough to fit the sides; the proper method would have been to make the pattern the exact angle; then *take an eighth of an inch off the bottom*, so that by the time the angles of the brass were fitted, the bottom would come just home. This simple alteration would have not only saved metal and tools, but one-half the time required to fit the brass."

Self-Acting Variable Expansion Gear. The *Engineer* illustrates a novel feature in a portable engine recently exhibited by Robey & Co. at the annual show of the Smithfield Club, and thus describes it: The variable expansion is produced in a very simple and efficient manner by the governor. The governor, placed on the crank shaft, and revolving with it, is of course instantly affected by the slightest difference in the speed. The valve eccentric has a rectangular slot cut parallel to a line connecting its two centers of forward and backward motion. This fits on a square on the crank shaft, upon which it slides at right angles to the crank, being held in position by two wedges. Upon the governor balls expanding these wedges are drawn out, and by this means the travel of the valve is reduced, its cut-off is made earlier, while its lead remains perfectly constant."

Grouping Single Negatives.—In preparing group pictures, photographers have been obliged, when the parties could not all sit at once, to take the portraits singly, then arrange them in one picture, and photograph that. But a photograph of a photograph is not as good as one printed from the original negative. The Yale *Courant* says that Mr. Wiley Kenyon, of Crawfordsville, Ind., has an invention by which he can take any number of single negatives, arrange them artistically into a group, and print the group directly from the original negative.

Hydrostatic Test of Boilers.—*The Locomotive* says there is no doubt that boilers are very often permanently injured by the pressure to which they are subjected in making this test. "Each successive test weakens them, until they fail to longer bear the burden, and rupture, as did one recently at Mobile, while under manipulation by the U. S. Government *Inspector*."

New Submarine Torpedo.—The latest is an infernal machine in the shape of a sword-fish, charged with nitro-glycerine, and propelled at ten knots an hour, and at any desired depth, towards the vessel to be destroyed, by means of mechanism actuated by compressed air. It is described in the *Mechanics' Magazine.*

Ore-Separating Mechanism.—At the meeting of the Polytechnic Association of the American Institute on Dec. 30th, a member described an apparatus devised by him for separating light from heavy sands, based upon the fact that, when sand is poured in a stream upon the apex of a cone, and suffered to flow down its surface, the lighter particles will drop from the lower edge in a nearly vertical direction, while the ore grains, having a much greater specific gravity, and acquiring a much greater velocity in passing downward upon the surface of the cone, will pass from the latter in lines more directly in line with the surface thereof—the two being thus made to diverge in leaving the cone, and consequently being separated.

More Notes for Photographers.—The collodionised plate, on a "dipper" or support, must be passed into the bath with a steady sweep, because any stoppage midway will cause a line to appear where the surface of the liquid crossed the plate at the instant the halt was made. These dippers are commonly made of glass, but when the foot of the dipper projects much in front of the plate, and is let down rapidly into the bath, the liquid plays in little unequal currents against the collodion surface, and causes markings at this part of the plate. Dippers made of silver wire, curved so as to catch the bottom of the plate, are therefore preferable; moreover, they are so light that there is less risk of their breaking the glass bath when the plate is let down too suddenly."

Boiler Pressure Greatest at Bottom. "There has been much difference of opinion among engineers as to whether the pressure in a steam boiler was greatest at the top or bottom. We had the pleasure of seeing this question definitely settled a few days since. An elbow was put on the end of the blow-off pipe which entered the mud-drum. Into this elbow a plug was screwed, which was tapped to receive a half-inch pipe; to this pipe a steam gauge was attached and the blow-off cock opened. On comparing the gauges attached at the top of the boiler, and to the mud-drum as described above, it was found that the pressure was the greatest at the bottom by some pound a half, thus proving that the pressure at the bottom is, the indicated pressure plus the weight of the column of water."—*Locomotive.*

The Fields Steel.—Some weeks since we copied from the *Iron Age* part of an article on this subject, which was taken from the Troy *Daily Press*. It now appears that the report therein given was too highly colored. The *Iron Age* has received a letter from a gentleman who witnessed the experiments, and who says: "The experiments were *far* from being satisfactory to several persons present, and the quality of the article made was not equal to the "puddled steel" made at the works every day."

Temperature of Boiling Water.—This is not, by any means, always 212° F. It depends upon the pressure to which it is subjected. It is 212° only at the ordinary atmospheric pressure. In Quito, 6,500 feet above the sea, it is 194° F. In steam boilers the temperature of the water is the same with that of the steam. The greater the pressure, the greater the temperature of the steam; and to make more steam, the water must be equally hot with the steam already made.

Copying-Press Attachment.—A sheet of steel, so curved as to be highest in the middle, is placed upon the bed-plate of the press, and upon this the book is laid. When the platen is screwed down, the pressure comes first upon the middle of the page, and thence gradually towards each end. By this means the dampened sheet is brought into more perfect contact with the written page, the air being expelled, and wrinkles prevented.

Large Lathe.—At the Creusot Iron Works (France) is a lathe which will operate with 75 different velocities, and will shape surfaces of four inches to 47 feet in diameter. The greatest distance between the points is 13 feet 1·5 inches. The total weight of metal composing the machine is 95 tons.

Scientific Progress.

Extraction of Sulphur from Waste by Means of Superheated Steam.

Prof. Wurtz devotes a page of the *Chemical Repertory* for January 17th to a new process, patented by Mr. Divine, of New York, for separating sulphur from the effete materiel remaining after the use of iron oxide for purifying gas; thus not only rendering the iron oxide again fit for use, but also saving the sulphur,—an item amounting, in the yearly gas-make of New York, to some $250,000. Prof. Wurtz has for months closely watched the progress of Mr. Divine's experimentation; and he speaks in the highest terms of his ingenuity, and of the pertinacity with which he has clung to his idea until he has finally mastered all the difficulties which one after another presented themselves. We quote a few paragraphs:

"It is easy for a chemist to appreciate the considerations which have led Mr. Divine to the use of *superheated steam* as a medium through which to distil off the sulphur with the least liability of producing such molecular change as to diminish the activity and facility of the reaction between the iron oxide and the sulphide of ammonium of the crude gas—a reaction upon which, as my own chemical researches have indicated, the action and efficiency of the oxide as a purifier is chiefly dependent. Another important practical point is, that even were it possible, by simple distillation, to extract the sulphur, without injury to the residue, it would be hard to adapt apparatus composed of the only available materiel, iron. I have found that this material is too rapidly attacked by melted sulphur, at heats at which the latter can be distilled. In an atmosphere of steam this does not appear to take place, a very remarkable fact, first developed by Mr. Divine.

I may state, in this connection, that the problem of separating sulphur from certain other materials by distillation with superheated steam is one which had occupied my own attention in the laboratory before I became acquainted with Mr. Divine's plans; but in consequence of the many practical difficulties found and foreseen by me in the application, I was obliged to abandon it."

Detection of Different Red Dyes.—M. Tardieu gives the following methods: *Garancin-red* is not altered by solutions containing three or four per cent. of hydro-chloric acid or of ammonia. The liquids are not sensibly colored. The color is the most resisting of organic reds. *Cochineal-red* plunged into a solution of ammonia changes to violet, and communicates a very bright violet tint to the liquid. *Murexid-red* bleaches rapidly in simple contact with a solution of citric acid. *Carthamus-red* is completely decolorized by a short ebullition in a one-half per cent. solution of soap. *Aniline-red* is decolorized very rapidly by contact with ammonia, but the color is restored either by the addition of an acid or by the evaporation of the alkali. Marsh's apparatus reveals traces of arsenic. *Corallin-red* does not dissolve in cold water. It cedes a little of the color to boiling water, but is decolorized much more rapidly and completely by boiling alcohol. Alkaline liquids do not turn the color; acids precipitate the coloring matter in yellowish flakes.

Spectroscopic Analysis.—To sum up in a few words those principles of spectroscopic analysis which are our chief guide in solar researches: An incandescent solid or liquid gives a continuous rainbow-colored spectrum; an incandescent gas gives a spectrum of colored lines; and an incandescent solid or liquid shining through a vaporous envelope gives a rainbow-colored spectrum crossed by dark lines, and these lines have the same position as the bright lines which belong to the spectra of the vapors which form the envelope.—*American Exchange and Review.*

State of Science in England.—The new scientific periodical, *Nature*, says: It is stated that the Council of the British Association for the Advancement of Science have determined to ask the permision of the Lord President of the Council to appear before him as a deputation, to urge upon the Government the need of a royal commission ;to inquire into the present state of science in England.

A New Spectroscope.

The *Journal of the Franklin Institute* for December gives a translation, by Prof. Mayor, of a paper read before the Royal Saxon Academy of Sciences by Prof. Zöllner, describing a spectroscope of his own construction. By its aid, it is expected that the displacement of the lines in the star spectra, upon which calculations in reference to changes in star distance must be based, will be made more evident, and such calculations be consequently greatly facilitated. He thinks, also, that several other mechanical difficulties in the pursuit of spectroscopic research, will, by the new instrument, be obviated. He names it the *Reversion Spectroscope.*

Action of Sunlight on Sulphurous Acid.—Oscar Loew, Chemical Assistant in the New York City College, read a paper at a late meeting of the Lyceum of Natural History, in which he gave the result of some experiments instituted to determine whether sunlight, under the influence of which plants reduce sulphur from its oxygen compounds, has any reducing power upon these compounds outside of plants. We quote: "I exposed diluted sulphuric acid, solutions of sulphates, sulphites, and aqueous sulphurous acid, under various conditions, in sealed tubes, to the sunlight. With sulphurous acid only did I notice any change; and even the tubes containing this remained *clear during two months*, but after that time a change set in which slowly increased, and sulphur was deposited in a finely divided state. Sulphurous acid was thus gradually reduced to sulphur, but *oxygen was not liberated;* another part of the acid having been oxidized by it to sulphuric acid. It seems singular that such a period was required to initiate this change; and it would appear that a previous absorption of a great amount of light was necessary to the separation of the first atom of sulphur, which was followed then, however, by more atoms at shorter intervals."

Coal-Genesis.—"In my consideration of the subject, I am led inevitably to associate the coal-making process with *iron* held in solution in the waters of the coal-making epochs. The iron compounds which always accompany coal are *pyrites* (never pyrrhotine) *chalybite* or siderite, *ferrous hydrate*. These come of course from the fragmental beds which intervene between the coal-seams, and must have been conveyed in solution, having been brought into that state by action of oxygeniferous water on the sulphides of the crystalline schists from which these fragments originate. Hence the reason why little or no coal genesis occured before the carboniferous, as, previous to this, the atmosphere was not sufficiently oxygenated as yet by the influence of Life, the great and only oxygen-maker (according to the author) to form the ferrous solutions necessary, that is over the general terrestrial surface. Nevertheless such oxygenation may have occurred locally before this era, and hence the local formation of coal which some geologists maintain, in sediments older than the carboniferous. * * Another dissolved ingredient must have been carbonic acid. * * Coal, then, is the normal product of a peculiar eremacausis of organic matter in waters containing ferrous sulphate and free carbonic acid. Enormous pressure upon a plastic mass has without doubt been a subsequent and essential element."—*Wurtz.*

Heat of the Moon.—M. Marie-Davy,—who determined, contrary to the conclusion of Lord Rosse, that the moon gave out no heat,—has now retracted his statements, being by further experimentation convinced that its rays do contain a perceptible amount. Several other scientists, among whom is M. Volpicelli, have come to the same conclusion.

New Freezing Mixture.—M. Galletly says: "When citric acid and crystallized carbonate of soda, in powder, are stirred together, the mass gets into a pasty state, and in a short time becomes quite liquid. If equivalent proportions are used, the temperature falls from 60° F. to 8° F."

Bone Caves of Australia.—The explorations are still going on in the caves of the western district. A shaft sunk in one of them to the depth of fifteen feet shows bone fragments all the way.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Bright Prospects.—*Chronicle*, Jan. 22d: At no time since the first settlement of this county have its mining prospects been so encouraging as they now are. We believe that the coming summer will see us shipping bullion from at least three, and, very likely, half a dozen claims. Some of our companies will erect mills before fall. This will be the case with the Tarshish, from which a large quantity of very rich ore is being taken. The Exchequer have good ore in sight in the Buckeye 2 claim, and as the Co. have purchased Davidson's mill, they will commence the shipment of bullion early in the spring. The Leviathan have the furnaces and machinery for smelting works at the mine. The Pennsylvania have good ore in sight, and next summer will, in all probability, see a mill at the mine. It is in contemplation by the Pittsburg to erect hoisting works over the Wide West shaft. The Mountain Co. will cut into their ledge before many months. The Imperial tunnel is approaching the Florence ledge, and the Mount Bullion will reach the Duke of Wellington in a few months. The M. C. M. Co. have commenced work in earnest. English capitalists are taking hold of our mines, there being four that are now worked by London companies.

Items.—*Miner*, 22d: The Winchester Co. have let a contract to put their tunnel in order....The whole face of the Wide West tunnel is now in rock which will assay ten to fifteen dollars per ton....In the Globe tunnel a decided improvement has taken place in the looks of the rock....M. C. Tunnel No. 3, is getting better ore than ever....In the Exchequer, quite a gang of men are at work, and the developments are satisfactory.

AMADOR COUNTY.

Placer Mining.—*Ledger*, 29th: Since the late rains, several miners have gone to working placer diggings, and in some instances have done well—making from three to five dollars per day.

Ditch.—Another survey is making on the contemplated extension of the Butte ditch. The object is to bring the Mokelumne river to the top of the hill south of Sutter Creek for the purpose of furnishing water power for the quartz mills. Another advantage will be the opening of new placer diggings known to be good.

BUTTE COUNTY.

Gold in the Buttes.—Sutter *Banner*, 29th: Some years ago gold was discovered in a ravine on the southwest and was worked at good profit by a "rocker." This was thought to be the only place where gold existed in those hills. Last Monday we went prospecting. We "panned out" for over two hours; secured at every pan from one to three cents in coarse dust, and in one we found a little nugget which is thought to weigh 25 cents. Not only this in the bed of the creek, but we find good color in the bank. If sufficient water could be had for sluicing we doubt not this would be rich. It is believed quartz mines will yet be found in these hills.

MARIPOSA COUNTY.

The Fremont Estate.—*Gazette*, 28th: We have no hesitation is saying that the future for the town and county looks brighter than for years past. This is caused, to a great extent, by the resuming of work on the Mariposa mine. At the present time the main shaft is sunk down nearly 200 feet, and the vein is gradually increasing in width, being about 5¼ feet wide, and the rock has paid regularly. It gives every indication of rivaling the old Princeton vein in richness, while it can be worked with half the expense. The present proprietors of the Estate are running about 100 stamps, capable of reducing 100 tons of ore per day; and have contracted for the erection of a 60-stamp mill at the Merced river.

NEVADA COUNTY.

Starting Up.—*Transcript*, 25th: The miners now have abundance of water for hydraulic purposes, and claims have generally started up. Sargent & Jacobs, at Quaker Hill, are in full blast.

North Bloomfield.—Cor. of same, 26th: The late storm has filled the ditch, and the company will immediately start up, and employ a large number of hands. They have been to a great expense in refitting their claims, and have added two large-sized monitors to their working power.

R. C. Black has started up his old claims, working night and day, and employing 10 men.

Hydraulics.—Same of 27th: At Omega more ground is being washed off than ever before since the place was settled, and everywhere in the county the hydraulic mines are of a more permanent character, and the owners have made more extensive arrangements for work.

Pittsburg.—We are informed that they have struck the lead in the south shaft. They have been running for this a year. The mine is now paying handsomely.

Kansas Claims.—Same of 28th: Though the channel has not yet been struck, as reported, there is every indication that the tunnel is very near it. The shaft is down 180 feet, and a tunnel has been run between 400 and 500 feet from the bottom. The last 40 or 50 feet has been run under a stratum of quartz gravel, five feet above the top of the tunnel. It is believed that this is a bench which connects with the main channel.

Deer Creek.—Several Chinese companies are working the tailings on Deer creek, and ravine claims leading to the creek, the latter generally under lease from white men. Recently one company struck a very rich spot, and took out a large amount in coarse scale gold.

Millhorn, Baldridge & Huff have commenced operations on the hydraulic claims near the Vernon House.

Marietta.—Same of 29th: This mine, located above Omega, on the west bank of the Yuba, is owned by Lindsey & Co. The last crushing was taken out where the ledge was 12 feet wide, and all the rock was run through the mill, paying $25 per ton. At the point they are now working, 75 feet below the surface, the ledge is 14 feet thick. The average yield of ore last season was $17.50 per ton. The mill has now 10 stamps. It was started up last week.

Started Up.—The 8-stamp mill of W. C. Stiles, at the south end of the suspension bridge, is again in operation, after being idle more than a year. The mill is in first-rate order, and has two Eureka rubbers below the battery.

Quartz Prospecting.—A new lead has been found on the Red Dog road, one on Gold Flat, and another on the Willow Valley road. All of these have had rock crushed, and paid well.

Little York.—The Water & Mining Co. took 114 ounces of amalgam from the under currents in the two last clean ups, and it is estimated that the receipts for the balance of the season will amount to $10,000 per month.

Relief Hill.—Same of 30th: The Union, Eagle, North Star, What Cheer, Waukashaw and the Great Eastern are running tunnels, and have fair prospects. The Waukashaw has sunk a shaft 27 feet deep, struck bedrock, and obtained a first-rate prospect. They are running up a tunnel through which to wash.

Pittsburg.—*Gazette*, 27th: Commissioner Wilson has rendered a decision, on the application of the owners of the mine, and ordered the patent to issue. The application was contested by Williams & Co., but the Commissioner held that the conflict was of a character that would have to be settled in accordance with the mining laws of the district.

Moore's Flat.—Same of 28th: A friend yesterday, informed us that the miners are all up and doing at that place, water for hydraulicing abundant, and money plenty.

Empire.—Grass Valley *National*, 25th: Things are lively at this mine, and the ore now being taken out is rich. The mill is busy day and night, and 40 tons of ore per day is reduced. The tenth level has been opened, and the ledge is from 15 to 20 inches in thickness. The main shaft is down 1,000 feet—the ledge in the bottom showing free gold and sulphurets in great quantities. Same of 29th says: A gentleman just in from the Empire, tells us that nearly every shot in the ninth level produces a candle-box of rich specimen ore.

Allison Ranch.—Feeney & Co. have taken a contract to sink the main shaft 50 feet deeper. Contracts have been let for taking out ore. The ledge in the bottom of the main shaft, from four to five feet in thickness, fairly sparkles with gold, and rich, heavy sulphurets.

North Star.—A friend informs us that ore is now being taken out from the eighth level, which will average from $40 to $60 per ton.

Grass Valley Consolidated.—Grass Valley *Union*, 27th: From this mine, better known as the O'Connor, 51 loads of quartz gave $6,993 worth of gold, or $137.11 to the load. Dan Collins informs us that the rock crushed was taken out in 22 working days by three men, and was not selected. This mine has been idle for a long time.

West Eureka.—Same of 30th: Several persons who visited the mine yesterday report that the ledge is looking exceedingly well. The rock, to all appearances, comes out of the old royal ledge Eureka.

Greenhorn.—Same of Feb. 1st: This ledge is showing wonderfully rich. In the last three or four days gold to the value of from $5,000 to $6,000 has been taken out.

PLACER COUNTY.

The Weather.—*Herald*, 29th: The late rains were warm, and extended to the summit of the mountains, carrying off the most of the snow, and furnishing an abundance of water for miners; but we must have more snow in the mountains, or the supply of water will run short early in the season.

A Big Strike.—An Auburn telegram of the 2d, says: "An immense strike in quartz was made to-day at the Good Friday claim, about one mile below this place, at the foot of Bald Hill. The claim is leased by Messrs. Corvan and Battis. Rough estimates put the value of the rock at $40,000 to the ton."

SHASTA COUNTY.

Good Prospect.—The *Courier* says that Peckham, on Mad Ox, has sunk 27 feet, and at that depth took 80 pounds of average rock from which he extracted $9 by hand mortar.

SIERRA COUNTY.

Camptonville.—Cor. of *Messenger*, Jan. 29th: We move along, thinking that something will be struck soon. Only last Saturday a boy picked up a piece of rich rock, right at the edge of town. The owners of the Post Hole ledge, that was struck last fall, talk of going to work again. Last week, at the Alaska mine, the ditch broke and filled it to a considerable depth; but it is cleared out now. The Gold Ridge Ditch Co. has formed an incorporated company under another name, and will take the water to Depot Hill, known to be rich.

The late rains have encouraged placer mining a good deal, though such claims are nearly worked out here. Hugg & Co. will finish Camptonville this season. At Young's Hill they are about to put off a blast of 100 kegs of powder, to break up the hard gravel.

SISKIYOU COUNTY.

Eliza.—Yreka *Union*, 21st: Lash tells us that he has shut down on crushing, preparatory to removing the mill to the mine. His last run was 17½ tons of unassorted rock, from which he took 19 ounces.

Mining in Town.—John Knapp has found a good layer of gravel in his shaft. Brady & Co. have cut through the hard cement, and are in good paying ground.

TRINITY COUNTY.

Canon Creek.—*Journal*, Jan. 29th: Jas. Gilzean is opening a claim on Corral bar, and has found good pay. On East Fork, G. Anstead obtains excellent prospects. Gil. McCarty is taking out two and three-ounce slugs. James McConville is doing well, with favorable prospects. Baumgartner & Co., at Tyson's, are making big wages. All along the creek, and particularly from Dannebrink's to Tyson's, the mines are paying. Adam Burger's claim pungles better than ever. From $25 to $50 are picked per day while sluicing—two men at work.

Arizona.

Big Bug.—Prescott *Miner*, Jan. 15th: Recorder Potts tells us that the battery and inside plates of the Big Bug Co's mill had been cleaned up, after a run of six or seven days, and a great bulk of gold got—not retorted when he left. Mr. Hitchcock had men on the Independence lode, getting out rich ore. The Eugenie extension claim continued to yield plenty of paying ore, and there was enough in sight to keep the mill going for months. Mr. Potts intended to commence sinking on the Deposit and Safford lodes.

L. C. Gray and F. H. Wunderlich have arrived with later news and lots of gold. We saw one bar that weighed upwards of $1,200.

Another "Big Thing."—A party of men have arrived from the north with exciting news. They report, privately, that 300 miles north of Prescott, they found, in a mountainous country, diggings that prospected from two bits to $6 to the pan. The party consisted, originally, of 24 men, and started from White Pine about a year ago. On reaching the Big Colorado, 12 men left the party; the remaining 12 crossed the river near Callville, pushed on east, struck a fine gold country, well watered and timbered. While prospecting it, they were attacked by Indians, when three of the party were killed. The remaining nine then started for this place. They will soon return.

Colorado.

Swansea.—Georgetown *Miner*, Jan. 13th: This is a new town and smelting works four miles below Georgetown. Everything will soon be in operation.

Summit County.—Snake River items: Work on the Comstock progressing favorably....Michael Doud is taking out good ore from the Napoleon....Black & Miller still working on the Cooper extension.

Par Tunnel.—Survey completed, and work going on at the rate of 18 feet per week.

Bullion.—Hupeden & Co., on Tuesday, shipped 1,016.20 ounces of silver bullion, coin value, $1,126.24....Baker Co. ship to-day two bricks, one weighing 1,022.75 ounces, coin value $1,032.67, the other weighing 1,046.25 ounces, coin value, $1,013.17. Franklin Co. shipped, during last week, three bricks of silver bullion, respectively, 233 ounces; 563 ounces; 449 ounces. Total, 1,235 ounces, coin value, $703.54.

Terrible Mine.—Same of 20th: Shaft now 185 feet deep. Six drifts, aggregating 578 feet. This mine has yielded $260,000, and shows no evidence of less yield in the future. The first-class ore is shipped to Newark, New Jersey, or to Swansea, England. The second-class, is treated in Georgetown by chloridizing, roasting, and subsequent amalgamation.

Briggs.—Central City *Herald*, 10th: The mill is crushing 30 cords of ore from its own mine per week, which continues to give as large a yield as ever. From 25 to 50 tons of selected ore is sold to Prof. Hill every week.

Gold Hill.—Boulder *News*, 11th: Eric Bottolfson & Co., have struck a solid body of mineral nine feet thick, at the depth of 120 feet. It yields under stamps, from $80 to $100 a cord, for the whole vein. The 18-inch vein to the present debth gave $300.

Ni-Wot.—The sale of the property under the liens, has been adjourned one month. Work has been recommenced on the lode, and 20 stamps are running. Several parties are taking out ore in Ward District, to run in the spring.

Chicago Creek.—Ten men are at work sinking on silver lodes. Gray & Wilson are down 25 feet and have a very rich vein from six to 15 inches wide....Todd on the Plymouth Rock has good looking ore at 18 feet. On the Chief, they are down 60 feet. So far the ore is of a kind easily worked. Assays of these different lodes show from 200 to 1,000 ounces per ton.

Nevada District.—Same of 27th: The mills in operation this winter are Potter's, Clayton's, Sullivan's, Whitcomb's, and Clark's, (leased by Chatfield,) sixty-six stamps in all. Mr. Fagan on the Sparks lode has an engine up and a 4-inch pump in his shaft.

Idaho.

Loon Creek.—Cor. of *World*, Jan. 20th: "The snow is about eight inches deep in Oro Grande. A portion of our miners have gone to rocking, and are taking out enough to pay expenses. Mining will commence here about the 1st of March. Loon Creek, from here to its mouth, 40 miles, is being prospected."

Montana.

Phillipsburg.—Cor. of Helena *Gazette*, Jan. 20th: The Yankee Charley Tunnel Co. are still at work on the Apache hill. Merrell & Ullery intend to keep the St. Louis mill in quartz from 50 feet of the Comanche lode, and from the Mountain Queen lode; they have fully 1,000 tons of ore the start of the mill and are taking out a large amount every day. The Cole-Saunders Co. have 1,500 tons ready for the mill. The majority of our old discoverers have become Professors, and are taking out the silver without assistance. Here is Prof. Ethridge, making fair wages by pounding up float quartz in his hand mortar. Silver bricks are more plenty than greenbacks.

Struck It.—*New North West*, 14th: Nevius & Thayer struck the lead in Highland Gulch on Jan. 6th, at 500 feet in, having been within 10 feet of it when they quit in Oct. '68, to take a trip to the States.

Cedar Creek to Date.—"Jim Vogan" came in this week. He is contented with Cedar. He estimates the number of men in the camp at full 1,000, and met 150 on the road. Few are coming out. In Louisville, 20 houses are building; in Cedar Junction, 60. Meals are $1 in dust; wages $6. In Oregon Gulch, prospects of two and three cents to the pan are found in the gravel, but bedrock has not yet been reached, although a hole was sunk nine feet. The best prospects seen by Mr. Vogan, were $3.75 per pan, taken from "60 below," on Cedar, where bedrock is nine feet. General prospecting is being done from "80 below" to "132 above," in Barrett's district.

Moose Creek.—*Independent*, 15th: Last week, a party of 11 men came over the range. They report that the gulches across the mountains all contain gold, from Moose creek to the head of the St. Joseph river, and that the gulch just across the divide from this creek was discovered some time ago, and mined within four miles of the summit, under the name of Medicine gulch. Some very rich ground was opened on Moose creek late in the season.

Judging from the number of paying gulches on the southern slope of the Coeur d'Alene mountains, experienced miners are of the opinion that we are on the line of an extensive gold belt, which has been less prospected on this side, and that this as a mining region is just in its infancy.

Sable City.—On Monday the mill erected by Hauaur & Co., was started up. Everything worked smoothly. Some 250 tons of quartz are now at the mill. There is every reason to believe that the mill will yield $6,000 or $7,000 per week.

The Prospects.—Virginia *Times*, 19th: From Madison and Beaverhead counties, and all sections of the Territory we learn that the miners are in the best of spirits owing principally to the depth of snow on the mountains. Next summer, we predict, will be the season *par excellence* for placer mining.

Nevada.

COPE DISTRICT.

Mining Sales.—Elko *Independent*, Jan. 26th: A. J. Cope sold, on the 22d inst., 100 feet in the Argenta mine, to W. H. Ramaey and J. A. Hardin for $6,000 in gold. John T. Enright has sold 12½ feet in the Mountain City mine, for $400 in gold.

Bullion.—Reinhart & Co. received yesterday, by stage, five bars of bullion, valued at $2,300, from the Mountain City and Keystone mines.

A test of five tons of ore from the Great Republic mine, returned $75 per ton. The ledge is four feet in length.

HUMBOLDT.

Oreana.—*Register*, 29th: We understand that Mr. Mosheimer, of San Francisco, has taken the Oceana smelting and milling works, and is putting the same in order for reduction of ore. He hopes to be able to work any of the refractory ores of Humboldt, and has purchased a large lot of base metal ores as high as $40 per ton.

Reports from the Cumberland and the Register mines are very encouraging.

Union.—Judge Pease has now shipped to the English mill on Truckee 100 tons of ore from the Union Series, Winnemucca, which yielded a little over $87 per ton. He is taking out and sacking about 10 tons per day.

Unionville.—Cor. Elko *Independent*, 26th: The stagnation in business is occasioned by the fact that all the mills have a supply of ore on hand, including tailings, sufficient to keep them running for four months, and it is thought advisable to reduce the men to a light working force. The shipments of bullion will continue, but the amount of shipping ore will be materially reduced for the next four months.

REESE RIVER.

Bullion.—*Reveille*, Jan. 29th: During the week ending this date, the Manhattan mill produced 17,777 ounces of bullion.

An Austin telegram of Feb. 1st, says: A newly discovered mine at Mineral Hill produces ore that assays $1,962 per ton.

WASHOE.

New Tunnel.—*Enterprise*, Jan. 27th: A gentleman of experience is contemplating a tunnel from a point below Silver City up under American Flat and back under the range of hills to the westward, far enough to tap the leads in that locality.

Reported Strike.—Same of 28th: It was reported last evening that a body of very fine ore had been struck in the Sacramento mine, Cedar Hill. The company intend building a mill near the mouth of their tunnel.

A Grand Awakening.—29th: We understand that there is a great mining revival in Silver City vicinity. A great number of old mines are being reöpened, and some new ones located.

WHITE PINE.

Weekly Mining Review.—*Empire*, Jan. 30th: Matters have been without material change for the week. The mills have generally been kept busy, though the bullion product, for some reason, has fallen below the usual standard. Our exports amount to but $32,493.79. The case metal shipments, however, continue to increase. A great many furnaces are in course of erection, and still more are projected. It is believed by many that smelting is to be the great and permanent interest of eastern Nevada. There is no limit to our smelting ores. We hear of new discoveries and developments almost daily along the Base Range.

Items.—*News*, 29t Aurora South employs 30 men in the mine, most of them extracting ore....Blackfoot has a 40-foot tunnel and a winze from it 70 feet down from the surface....Butler is yielding a large quantity of good ore from the 30-foot shaft and the ledge is increasing in size. ....Crown Point No 8 is down 14 feet with a rapid improvement in width of ledge and quality of ore....Dick Turpin is being prospected by tunnel and shaft. The ledge is opening up large, showing an imense quantity of high grade ore. ....Imperial is taking very rich ore from the tunnel. The ore is sold readily at the dump....United States has been purchased in whole or in part by an Eastern Company. ....The furnace of Van Wyck & Co. started up Tuesday, on ore which will yield 50 per cent. of metal. The furnace has a capacity of 12 tons per day....Metropolitan mill is thundering away, and still has 200 tons of ore on hand.

Items.—*Empire:* Caroline now promises to be one of the best mines in Ophir district. The owners have been offered $20,000 for one fourth but have refused it. A mill will be put up in the spring....Raymond's furnace fired up on Friday. The first mine produced bullion carrying an average of $90 of silver per ton....Aurora South ships ore to the Metropolitan and Stanford mills....Eberhardt employs 20 men, and has an abundance of good ore in sight....Col. Butts is turning out some rich ore.

New Mexico.

Mining Items.—Elizabethtown *Telegraph*, Jan. 15th: Mr. A. L. Webb, an attaché of Maxwell's mill, Ute creek, informs us that the shaft on the Swansea lode is sunk 28 feet in a true vein of gold-bearing quartz. He furnishes statement of last week's clean-ups in the 15-stamp mill, of retorted gold, making a total of 488 ounces, valued at $20 per ounce in currency, at $9,760. We are rather of the opinion that the above should read weeks instead of days.

The new mill on Ohio gulch, is rapidly approaching completion.

The remainder of the machinery for the Ohio mill, arrived this morning,

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, location, amount, and date of assessment.	Day delinquent.	Day of sale
Alleghany, Sierra co., Dec. 30, 50c	Feb. 7	Feb. 28*
California, White Pine, Jan. 18, 50c	Feb 21	March 14
Cons. Chloride Flat, W. P., ec 14, $1	Jan. 29	Feb. 24
Crown Point, Storey co., Jan 5, $7.50	Feb. 8	Feb. 28
Cons. Virginia, Storey co, Jan. 7, $2	Feb. 12	March 5
Cosala, Mex., Dec 8, $1 50	Jan 19	Feb. 4
Columbia Cope, Nev. Jan. 29, 50c	March 5	March 25
Daney, Lyon co., Nev., Dec. 7, $1	Jan 9	Feb. 7
Empire M. & M. Storey co, Jan. 7, $10	Feb. 11	March 7
Glenwood, El Dorado co., Dec. 13, 20c	Jan. 10	Feb. 17*
Gold Hill Tunnel, Dec. 17, $1.50	Jan. 19	Feb. 5
Gould & Curry, Jan. 12, $15	Feb. 16	March 9
Hope Gravel, Nevada co., Dec. 10, $1	Jan. 17	Feb. 7
Imperial, White Pine, Jan. 5, 25c	Feb. 10	Feb. 28*
Julia, Storey co., Dec. 23, 50c	Jan. 25	Feb. 12
Kincaid Flat, Tuolumne co., Dec. 9, $2.50	Jan. 12	Jan. 29*
Kearsarge, Inyo co., Dec. 29, $5	Jan. 31	Feb. 19
Latawana, W. P., Nov. 22, 10c	Jan. 29	Feb. 19
Lady Bryan, Storey co, Jan. 12, $2 50	Payable immed'ly	
Mammoth, White Pine, Jan 4, 20c	Feb. 14	March 7
Meadow Valley, Jan 29, 50c	March 3	March 22
North Bloomfield, Nevada co, Jan. 15, $5	Feb. 12	Feb. 28
Noonday, W. P., Jan. 20, 30c	March 2	March 23
Ophir, Storey co., Jan 8, $2	Feb. 11	March 2
Pilot, W. P., Nov. 23, 10c	Jan. 3	Feb. 21*
Pinto, White Pine, Jan. 3, 15c	Jan. 15	March 7*
Sierra, Douglas co., Nev., Dec. 3, $1.25	Jan. 5	Feb. 4
Silver Vault, W. P., Nov. 22 5c	Jan. 11	Feb. 7
Taylor, El Dorado co., Jan. 5, 60c	Feb. 7	Feb. 28*
U. S. Grant, Nevada co., Jan. 19, 50c	Feb. 21	March 12*

MEETINGS TO BE HELD.

Amador	Meeting Jan. 17
Belcher	Annual Meeting Jan 25
Cherokee Flat Blue Gravel	Annual Meeting Feb. 5

LATEST DIVIDENDS—(Within Three Months).

Amador Co., div. $12 per share	Payable Jan. 7, 1870
Chollar-Potosi, div., $1	Payable Dec. 5, 1869
Eureka, div. $7 50	Payable Dec. 6, 1869
Ida Elmore, div. $1	Payable Dec. 14, 1869
Kentuck, div., $10 per share	Payable Jan. 5, 1870
San Marcial, div. 50c	Payable Jan. 21, 187

——*Advertised in this journal.

San Francisco Prices of Copper Ores.

San Francisco, Feb. 4, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 12 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	26 65	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

◆

British Columbia Mines.—The reports from the new mines on the Peace river are so favorable that a rush thither may take place this year. The excitement in Victoria is said to be intense. The difficulties and expenses of the journey are, however, very great, and it is thought that a new route must be found.

San Francisco Mining Stock Market.

MISCELLANEOUS STOCKS.

In miscellaneous securities we note a sale of ten shares of Spring Valley Water at $63 50, and five shares of California Steam Navigation Company at 50 per cent. The former incorporation will disburse its usual monthly ½ per cent. dividend on the 10th inst.——The San Francisco Gas Company has announced its monthly dividend of ¾ per cent., payable since the 1st inst.——North Beach and Mission Railroad also declared its usual dividend of ½ per cent.—— The Merchants' Mutual Marine Insurance Company pay a dividend of 1 per cent. on the 10th.——The Pacific Bank disbursed their customary 1 per cent. dividend on the 1st.——The California Theatre Company also pay ½ per cent. dividend out of the January earnings.——The Sacramento Gas Company paid its usual dividend on the first of the present month.

MINING SHARE MARKET.

The mining stock market exhibited marked activity in a number of prominent stocks, under considerable fluctuations; however, the tendency has been to lower figures from opening rates for the week under review.

The majority of a committee, appointed by the Board of Brokers, reported a bill containing the following provisions, amendatory to the Mining Incorporation Laws of the State, which was adopted by a vote of nearly the entire Board, and the President directed to present it to the Legislature, and urge its passage:

Overman—was in the market to a moderate extent, at uniform figures. A letter states that the richest ore ever taken from the mine was extracted during the week closing with January 30th. The ore-body is reported to be widening and yielding a large quantity. They are making preparations to open the 600-level, and the 226-level shows an improvement. During the week ending January 30th they extracted 739 tons of ore.

Sierra Nevada—increased in sales the past week. During the month of January the mill reduced 1,827 tons of ore, or 65 per day. The gravel deposits are reported to be looking and yielding quite well, and, taken altogether, everything exhibits a more favorable aspect.

Hale & Norcross—was in rather light request at improved prices. For the week ending January 29th, the yield was as follows: Upper mine, 279 tons; lower, 1,254¾—total, 1,533¾ tons. On band, 6,472¼ tons, of which 2,455 tons is low grade. On the sixth level the ore-breasts continue to look favorable in all the openings. Cross-cut No. 4, on this level, at the extreme southern working, has now penetrated the vein 10 feet, and has not yet reached the west wall, but the ore at this point is of low grade. The drift on the ninth floor of the fifth level has passed through the south ore-body at a point 70 feet south of the workings on that level, the ore being 11 feet wide and assaying $55 to the ton. The east drift on the 535-level is now 327 feet east of the shaft. The middle vein on the 300-level is yielding a very good quality of ore.

Gould & Curry—sold somewhat more freely. During the week ending January 31st they extracted 312½ tons of ore. At the seventh station of the new shaft the drift going southwest has the "west country," and the drift south runs in porphyry. The north drift has clay and bird's-eye porphyry. The north-west drift has a pure article of quartz, carrying no metal, and quite a large stream of water is flowing from this body of quartz. Later reports say this body of quartz continues and looks encouraging, and that the drift had penetrated the quartz about five feet, but samples assayed show no metal worth mentioning. The faces of the other drifts show no change.

Chollar-Potosi—was less active than the previous week, commanding uniform rates. For the week ending January 28th, 1,040 tons of ore were extracted. No material change in the mine since the previous report. At all points the ore is said to be of good quality, and in quantity there is no diminution. At the new shaft the drift from the 440-level is progressing rapidly, the material through which they are running consisting of clay and porphyry.

Kentuck—exhibits a very material decline. Reports to the 29th of January, state that the mine is yielding from 50 to 60 tons of low grade ore per day. So far as known, the ore between the 900 and 800 levels aggregates about 500 tons, valued at $20@25 per ton; between 800 and 600 levels, 1,000 tons, valued at $30; between 600 and 450, the ore will not cover more than cost of extraction. The smoke and gas from the smoldering fires still prevents them from working the east ledge, between the 800 and 450 levels.——Belcher received $7,647 50 in bullion on the 29th ult.——Crown Point exhibits no change for the better.—*Commercial Herald.*

STOCK QUOTATIONS, FEB. 3, 1870.

	Bid.	Asked.		Bid.	Asked.
WHITE PINE.					
Aurora Con.	$ 5½	$ 6	Noonday	40c	50c
Brodt	—	20c	Orig. Hidden Tr.	9	9½
Chloride Con.	—	1	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	—	Silver Wave	—	—
Mammoth	30c	—	Virginia	—	—
CALIFORNIA.					
Amador	$320	$325	Eureka	$220	$—
IDAHO.					
Golden Char't.	$ —	$ 10	Silver Cord	$ —	$ —
Rising Star	—	—			

◆

Wise Action.—In accordance with an act of the Legislature, the Massachusetts Board of Agriculture offers three premiums for treatises on roads and road-making—$200 for the best, $125 for the second, and $75 for the third. Such action as this is highly laudable. A similar bid might bring forth something which would show what we ought to do to get some decent pavement for our streets.

◆

Nine hundred and ninety-two persons were killed in the streets of London, last year, by horses or vehicles.

Mining Incorporation Laws.

At a meeting of the Board of Brokers in this city on the 2d inst. the following bill, entitled "An Act amendatory and supplemental to an Act entitled an Act to provide for the formation of corporations for certain purposes, passed April 14, 1853," was almost unanimously adopted:

Sec. 1. Section 5 of said Act is hereby amended so as to read as follows: The corporate powers of all incorporations shall be in the stockholders and shall be exercised in trust for them by a board of not less than three trustees, who shall be stockholders in the company, and the majority of them citizens of the United States, and residents of this State; and who shall, after the expiration of the term of the trustees first elected, be annually elected by the stockholders representing a majority of all the capital stock of the company, at such time and place, and upon such notice, and in such a manner, as shall be directed by the by-laws of the company, but all elections shall be by ballot, and each stockholder, either in person or by proxy, shall be entitled to as many votes as he owns shares of stock, and the persons receiving the greatest number of votes shall be trustees.

Sec. 2. It shall be competent at any time for the stockholders representing a majority of the capital stock of any incorporation organized under this Act for mining purposes to remove any trustee or trustees, or any other officer of the company, and to elect another or others to succeed him or them, and such meeting may be called at any time by such stockholders representing one quarter of all the capital stock of such incorporations, either for the purpose of electing such trustee or trustees, or other officer, or of investigating the accounts of the company. In all cases where a meeting of the stockholders is called for the purpose of removing a trustee or trustees or other officer of the company, and electing a successor or successors to the same, or investigating the accounts of the company, whether financial or otherwise, notice of such meeting shall be given in a daily newspaper published in the place where the office of said company is located, for ten days prior to said meeting. When any vacancy shall happen among the trustees by death, resignation or otherwise, it shall be filled for the remainder of the year in such manner as may be provided for by the by-laws of the company.

Sec. 3. The trustees, superintendent and secretary of any mining company, incorporated under the laws of the State, shall within thirty days after the passage and approval of this Act, file in the office of the County Clerk of the county where said office is located, a sworn statement signed by said trustees, superintendent and secretary of the entire transaction of said company since the last annual election, and said statement shall contain a full account of all work done, monies received and expended, and the number of men employed during said time, and the wages paid to each and every employé of said company. And such trustees shall also file a sworn statement with said County Clerk, that they have managed said mine to the best interests of all the stockholders of said company. And said trustees, and superintendent, and secretary shall file similar sworn statements with said County Clerk, as above required, every three months hereafter.

Sec. 4. Where a mining company does not possess its mill, or employs another mill or mills, for the purpose of crushing its rock, the work of crushing such rock must be let out by public competition to the bidder who guarantees to return the greatest percentage of its assay value at the least comparative cost. Notice of the reception of such bids by the trustees to be published at least ten days, in a daily newspaper printed nearest the location of the mine, as well as in one published in the place where the office of said company is located.

Sec. 5. No contract or contracts shall be made by any officer of any mining company, whether for milling, mining, or any other purpose whatever, to extend beyond a period of three calendar months, the same notice to be given as required in section 4.

Sec. 6. A failure to comply with the foregoing acquirements on the part of said trustees, superintendent or secretary shall subject each of them to a fine not exceeding $5,000, nor less than $500, for each failure, to be recovered upon information of any stockholder before any court of competent jurisdiction.

We shall have some comments on this in our next issue.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Badly-Cleaned Wheat.

Wheat is often brought to this market so badly cleaned it is absolutely rejected by purchasers. Often, in such cases, the wheat itself is of excellent quality, and is unmarketable only because it is so badly cleaned that its actual value cannot be ascertained. Of course, when such wheat is bought, the purchaser takes good care to secure a perfectly safe margin for his profit. In other words, if he cannot buy the wheat for less than it is apparently worth, he won't take it at all. Buyers will always magnify any shortcoming of this kind for their own profit, and the consequent loss of the farmer. It is always to the advantage of the producer to bring his grain, especially wheat, to market as faultless as possible. When wheat is good, and thoroughly cleaned, as it always should be, the highest market price can be unhesitatingly demanded and readily obtained. It is a mistake to suppose that the farmer can impose bulk upon the city buyer at the expense of quality. If anything of that kind is attemped, the buyer is sure to be the gainer in the end. Clean your wheat thoroughly at home, and then secure the highest price, and save for your own use the refuse.

What Our Farmers Want.—What the farmers of California, and especially our fruit and vegetable producers, want, is, more direct traffic between the producer and consumer, and the disbanding of the great army of middle-men, which absorbs the chief part of the farmer's profits and takes large bites from the consumers. What possible necessity is there that grapes which the farmers are willing to produce at four and five cents a pound should cost the consumer fifteen or twenty? Why should apples and peaches cost the consumer two or three times as much as the producer gets for them? Our system of traffic is all wrong, and some steps should be taken to improve it. By a proper system, our home consumption of fruit might be nearly or quite doubled, with no increased expense to the consumer, while the health and comfort of the public would be vastly benefited. It is gratifying to note that steps are being taken in some quarters to bring about so desirable a result. Our fruit-growers must combine in this work for their own protection.

Turning Corn into Pork.—Parties in Los Angeles, says the *News*, impressed with the folly of the past in selling corn at twenty or thirty cents per bushel, have determined, for the coming year, to convert their corn into bacon. Corn is now selling for something like thirty-four cents per bushel. Bacon is worth twenty cents per pound. Does not every farmer know that profit will result from feeding corn, at present prices, to hogs? It is simply the exhibition of the most egregious folly to sell corn at thirty-four cents which is worth fifty cents or more per bushel when converted into bacon.

The Ramie on Overflowed Lands.—To persons in the California valleys who may be contemplating the culture of the ramie, it may be interesting to learn that of all the growing crops submerged by the late overflow in Texas, the ramie suffered the least.

How to Keep Onions.—The editor of the Santa Barbara *Press* has been presented with a lot of onions dug in August, preserved since that time in an air-tight box, and now perfectly sound. Mr. Goux, the donor, says that by this method he has kept onions good from October to March.

Preparing Wheat for Seed.

Next to securing seed of good quality, is its preparation for sowing. The best of wheat, as it comes from the thrasher, will contain some imperfect seeds, many of which will germinate, and cumber the ground with a sickly plant, which at harvest mingles its seed with the product of the more perfect plants, and thereby reduces the quality of the crop. If the process of "pickling," now so generally employed, is properly conducted, nearly all these imperfect seeds may be removed.

How to Prepare and Use the Pickle.

Take a half hogshead and fill two-thirds full with a solution of bluestone (six gallons of water to four pounds of the bluestone); then put into the tub a suitably shaped basket capable of holding one and one-half bushels of wheat, and gently agitate the basket by lifting it up and down. All light and defective seeds will float on the top, and can be skimmed off. This being done, the basket should be raised out of the water and allowed to drain for a minute or two, and then emptied upon the floor and left for a night to dry. Eight bushels of wheat can be pickled in from fifteen to twenty minutes. Seed is generally pickled the day before it is intended to sow.

Mr. C. P. Burkhart writes to the Willamette *Farmer* that he has been experimenting in this matter for some years, and has finally adopted the following method:

First, take the wheat and spread on the barn floor, and sprinkle well with water, and stir well with scoop-shovel till perfectly damp, and keep it in that condition by adding water, and stirring till ready to sow. During the process, if the sprout should make its appearance, don't be alarmed, but stir often, so as to give a free circulation of air among the wheat, which will prevent further sprouting. Stir at least every third day, and add water, if necessary, as the wheat absorbs a greater quantity than one would suppose. When ready to sow, dissolve one pound of vitriol [bluestone] for every sixteen bushels of wheat which has been prepared. Sprinkle the vitriol water over the wheat, and stir well. Now the grain is ready to sow—one bushel and three pecks to the acre. Sow any time from the first of February to the fifteenth of March, with perfect safety, and, my word for it, it will ripen several weeks earlier than wheat sown from the same kind of seed not prepared as above, and will yield far more than wheat unprepared. I have prepared, as above stated, and sown alongside of wheat sown in November, and cut all at the same time. Also, I sowed two acres adjoining my prepared seed, taken from the same bin, without being prepared, and the consequence was, the prepared yielded six bushels per acre more than the unprepared did, and the harvesting was fifteen days later.

We should prefer the wetting after the manner first described, with the use of pure water, and the bluestone added afterwards, for the reason that we are thereby enabled to remove the imperfect seeds that cannot be taken away by the ordinary separating machinery, which separate by size alone. When the seed is first wetted with the acidulated water, it will not do to allow it to stand over twenty-four hours, at most.

There is no doubt but that the addition of other ingredients, so as to form a sort of fertilizing paste over the entire seed, will add greatly to the effect produced. Soot from stove pipes is a most excellent material. Superphosphates, or any of the prepared guano manures, considerably diluted, could no doubt be employed in that manner. The decaying matter of the seed itself furnishes the first nutriment for the growing germ; the addition thereto of artificial stimulants in such immediate contact, as described above, greatly assists the further growth of the plant, until its rootlets are able to go further in search of food. The superphosphates, etc., may be added as a powder, which will readily adhere, by a proper mixing, to the moistened seed.

The Santa Cruz Farmers' Club on the Use of Bluestone.

The Santa Cruz Farmers' Club discussed the use of bluestone at their last meeting. Mr. Humphreys, as reported in the *Sentinel*, said by experience he had found that of wheat sown from the sacks without the bluestone process, not one grain in five germinated and produced true wheat free from smut. He firmly believed that in the last twelve years he lost $1,000 in wheat alone, by not following the latter process. His plan was to bluestone early in the morning, and sow immediately. He used one pound of bluestone in four gallons of water to 500 pounds of wheat.

Mr. Monteith said he had bluestoned on the Merced river a crop of twenty acres, used one pound of bluestone to 300 pounds of wheat, and a good crop was the result. Had used salt from pork barrels and the brine) in the place of bluestone, and found it answered better than bluestone. Was satisfied that the salt process was better and cheaper than the bluestone. Lime had been tried, but failed.

Salt Cannot be Substituted for Bluestone.

The Contra Costa *Gazette*, fearing that the above report of the experience of Mr. Monteith may lead some persons to rely upon the substitution of salt for bluestone, to their cost, cautions its readers against any such fallacy, and says that not only salt, but urine and lime and various combinations thereof were thoroughly tried in England long before the virtues of bluestone were known, and that they were proven utterly ineffectual as a preventive of smut.

"What I Know About Farming."—Under the above head, Horace Grecley is now publishing in the *Tribune* a series of articles, which will be addressed more particularly to young men, and the aim of which will be "to make them acquainted with truths and principles that ought to interest all who eat as well as those which produce." Many facts will also be given which Mr. Greeley thinks practical farmers may profitably consider. He claims, in his announcement, that "Agriculture in the future is certain to be very different from what it has been in the past." This is one of the facts which he proposes to demonstrate.

In Mr. Greeley's third article of this series, and the last which has reached this coast, he refers to certain benefits which he hopes may arise from coöperation in farming. This is a subject upon which much may be said, and one which has attracted quite too little attention in this age of coöperation. In drawing attention to these papers, we would also refer the reader to an editorial in another column, on the subject of securing farm homesteads for mechanics as well as farmers, out of our public domain, and wherein a plan of farm coöperation is referred to, which will be more fully enlarged upon in a future issue.

Fall Bearing Rasberries.—A correspondent of the *Hearth and Home* writes to know if fruit growers in the vicinity of New York have made any extended experiments with fall bearing rasberries. The better varieties of this kind to cultivate are the Arnold Canada Red, Belle de Fontenay, and Catawissa. The first two are quite hardy, but the latter rather tender, but very prolific. To obtain a good crop in autumn, the canes should be cut off close to the ground in spring, because the fruit is borne upon the young shoots of the season. Linn's Everbearing and Ohio Everbearing are good autumn-bearing sorts of the black rasberries. We are not aware that the full varieties of this berry have ever been cultivated in California. Would it not pay to make the experiment?

Essentials to Success in Farming.

Every thorough, earnest farmer should bear in mind, as an important fact, that it is not expensive manuring alone, nor thorough culture, nor drainage, nor any other one or two things combined, that can insure success on the farm. There should be united to the above a thorough practical knowledge—an intelligent training to the business, with habits of study and observation. There should be an enlightened and liberal expenditure in experimentation, embracing all the processes necessary to productive cropping and permanent improvement of the soil. This is the kind of farming which always meets with success when properly and courageously carried out. If it fails, it will not be on account of any fault in the system, but because of a lack of skill, or judgment, or care, in carrying it out.

Luther H. Tucker, of the *Country Gentleman*, and Professor of Agriculture in the New Jersey Scientific School, in a recent lecture on the subject of agricultural education, stated that an advanced condition of agriculture requires four essentials—two of them in the man and two of them in the circumstances under which life is placed. They are: 1. Energy. 2. Intelligence. 3. Good markets. 4. Capital. Energy, perseverance and determination are among the primary requisites of successful agriculture. *The greater the degree of intellect to guide the will, the higher the end reached.* Good markets are essential to success in agriculture as in other pursuits. Capital is needful to carry out improvements: and a lack of it, like distance from market, is a circumstance external to the farmer which he cannot always control, and which neither education, intelligence, nor energy can remove.

The Season at the East.—A gentleman at Waterbury, Conn., picked green peas, grown in the open air, for his New Year's dinner. At New London, in the same state, a bed of violets continued in full bloom all through the first week in January. At the island of Martha's Vineyard a gentleman picked a dandelion which had the temerity to grow and appear in full bloom on the first day of the new year, and took it to the editor of the *Vineyard Gazette.*

On this side of the continent the first day of January was one of the most lovely days we have had for the last twelve month.

The *Oregonian*, in its issue of Jan. 4th, acknowledged the reception of a package of plums taken from a tree in the orchard of Mr. Luelling at Milwaukie, in that State, on New Year's day. They were of a second crop, in all respects well and fully matured.

Vegetable Life in Winter.—Modern research has shown that vegetable growth is not suspended in winter, as has been generally supposed. The roots, especially, grow, wherever they are not fast locked in frost; and there is a general, though feeble, circulation of sap during the winter throughout all perennial plants and trees, perfecting the more rapid growth of summer, and slowly aggregating plant fiber from the elaborated portion of the sap which remains after the fall of the leaf in deciduous trees. This action is more extensive and perceptible in evergreens, from the fact that the elaboration of the sap in such plants is constantly going on by the continuance of one leaf until another is matured to take its place.

California Mustard Seed in New York. New York advices state that the principal part of the California brown mustard seed in the New York market has recently been bought up on speculation. The stock was held at twelve cents per pound, in the early part of January; and brown Trciste at sixteen cents.

Dog-Power for Churning, Etc.

Few persons are aware how easy it is to obtain profitable work out of a dog. Such power was largely in use by the ancients, especially for drawing water. All that is required is a wheel on the principle of the revolving part of a squirrel cage, six or eight feet in diameter, and two or three feet wide, within which a dog may be placed. This wheel may be made of rough lumber, mounted on a proper shaft, on which should be placed a driving drum, which may act direct for pumping, churning, etc., or through an intervening pulley and shaft, on which it is well also to place a balance wheel, weighing thirty or forty pounds. A crank and pinion will of course be required. A small-sized Newfoundland or a shepherd dog can soon be taught to work, and will be found quite heavy enough for a half-barrel churn.

Such a power might be readily applied to drive a family sewing machine—the power to be accumulated by winding up a weight, or by pumping water into an elevated reservoir, to be utilized by being drawn off through a small turbine wheel. It might be usefully applied in any farm house, where much churning or sewing is required, and to the great comfort and convenience of the female members of the family. The planning and construction of such work would be a good exercise for the boys. It would serve to develop their mechanical ingenuity, at a trifling outlay for material. It would, moreover, turn worthless dogs to some profitable account.

A Raspberry Tree.—The salmon berry, a species of the raspberry, which flourishes in Northern California and Oregon, possesses a peculiar characteristic, which, according to the *Hearth and Home*, has hitherto been overlooked by botanists—viz: that the stems are perennial instead of biennial, as all other known species of this plant are. A gentleman has sent several of these plants to the editor of the above-named journal, with a view of having them propagated at the East. A statement accompanied the plants, noticing the above-mentioned peculiarity, and also the fact that they grow to a very large shrub. A section of one of the stems is figured in the *Hearth and Home*, showing regular annular rings, from which its age is known to be ten years. Its diameter is two and three-eighth inches one way, and two inches the other—the section being somewhat oval in form. It seems almost incredible that a raspberry plant should grow to such a size, yet the gentleman who forwarded the specimens says the largest so forwarded was quite small in comparison with many growing in his immediate neighborhood. Verily we may believe that the wonders of California vegetation are not half told.

Setting out Trees.—Of late years, says the *Prairie Farmer*, the old way of cutting back the limbs of trees to be planted has been abandoned in Europe. Now the limbs are not cut back, but only such limbs removed as are too close. The middle limb and four or five others are left in their natural state. The second year these limbs are cut back to about half of their length. The result is that soon after the planting in spring, leaves appear at the top of the branches, and by their aid new, small rootlets are generated earlier than otherwise, and that the trees in the second year form stronger wood than if they had been cut back the first year.

How to Prevent the Taste of Turnips in Butter.—B. H. Baldwin, of Bergen county, N. J., says in the *Am. Agriculturist:* "When cows are fed upon turnips or cabbage, the taste may be prevented in the butter by adding about four tablespoonfuls of a solution of saltpetre (1 oz. to the pint of water) to the cream pot before putting in any cream, and stirring thoroughly each time that cream is added."

Animals Eating Bones.

Cows, hogs and other animals are frequently known to chew bones, leather, etc. The reason of this extraordinary appetite or craving was recently asked at a meeting of the Farmers' Club in New York. In answer it was suggested that certain elements were doubtless wanting in their food which bone-dust would supply. Acting upon this belief, in Central New York there are manufactories where bone-dust is prepared especially for stock, and sold to dairymen for this purpose. There is a bone disease sometimes prevalent in the Eastern States, for which bone-dust is occasionally sprinkled in the field where the cattle feed. In districts in England where they feed hogs on whey exclusively, the bones of the animals are said to be sometimes so small that they cannot stand; and this is due to the want of bone-making material in their food. It is doubtless for want of a similar supply in the food of cows that they go for the bones and brick-bats.

Trees and Vines.—The season for setting out trees, vines and shrubs, will soon pass away for the year. From reports which reach us from various quarters, we should judge that a much larger number of trees have been transferred from the nursery to the field this year than at any former period in the history of the State. More than usual attention is being given to nut-bearing and timber trees. The cultivation of trees for fuel would also, no doubt, prove very profitable in many parts of the State where fuel is very scarce and high. Many farmers, whose lands are suitable, are also planting hedges, preferring living fences, that yearly grow better and firmer, to the tumble-down fixtures that are a source of constant expense and annoyance.

The promulgation by the press of facts bearing upon the effect of trees on climate, no doubt, has had some influence in this direction. If our farmers generally, and especially those residing in the valleys, would unite in systematic action in this matter, the result could not fail of marked beneficial effects. But even leaving the matter of climate out of the question, our farmers could not better employ their leisure time than in covering portions of their ground and the adjoining roadsides with trees. Their usefulness for fruit, timber and fuel will yearly add to the value of the land, and will in a very short time become a regular and permanent source of income.

Adulteration of Milk.—At the recent annual meeting of the Milk Producers' Convention, in Boston, the directors reported that from the best information they could obtain, they were satisfied that not less that 25 per cent. of the milk sold in that city was manufactured by adulteration. In Switzerland, when a dealer is found guilty of adulterating his milk, he is condemned to no less than eighteen months imprisonment and the loss of civil rights. The Swiss pride themselves upon the quality of their milk, and take those precautions to maintain its reputation. In Paris, when a man is detected in watering milk, he is liable, beside the other punishment inflicted on him, to have a notice of his dishonesty posted up on his place of business for a series of years. It would be well if we had some such laws in this country.

Influence of Railroads on the Hatching of Eggs.—A peculiar effect of the proximity of railroads on the hatching of eggs has been mentioned in various papers. It has been found that there are scarcely any chickens raised in poultry yards which are situated in the immediate neighborhood of the rails of a much frequented railroad. This fact is supposed to result from the earthquake-like trembling shaking the soil caused by passing trains, which exert an unfavorable influence on the eggs.

Fruit-Growing in Alameda.

[Written for the Scientific Press.]

The Town of Alameda

Is rural in all its aspects; and were it not for the puffing, rushing engines and trains roaring along the railroad, where all the freight to and from San Francisco over the W. P. R. R. passes, together with local passenger trains, Alameda would quietly slumber amidst its forest of evergreen oaks and many planted sorts of noble trees—its cupolas and steeples only peering above the shrouding shade. With regularly laid-out streets, it is not yet crowded with buildings; but fine grassy lawns, elegant gardens and magnificent residences meet the traveler's gaze with a succession of ever-pleasing variety and change.

A Good Example.

While admiring a private garden, covering a whole square, symmetrically laid out, yet agreeably arranged as to walks and borders, trees, vines, shrubs and plants, surrounding a home-like mansion, half hid by native oaks, the proprietress—an intelligent French lady, thoroughly conversant with all the details of gardening—kindly invited me in, and showed me over the grounds. She evidently finds time for recreation and real, genuine, hearty enjoyment in the management of the place and in the tender care of every plant. While conversing with this estimable woman, I could not but compare her pleasing, cheerful mode to the sickly smile of too many of my own countrywomen—too delicate to bathe in the sunny air with blushing cheeks, and too fragile to walk and romp, and laugh and work, among the blossoming flowers.

Many fine residences here are beautifully inclosed, and embellished with artistic skill. But I saw some gardening that was not in good taste.

Haile's Nursery.

I visited the nursery of Mr. C. H. Haile. This gentleman informed me that his business is better this season than ever before. A man of ample and practical experience, his theories are systemized to conform to facts. He gave me much statistical information. His cultivation is very thorough, and the growth of trees and yield of fruit immense, and of the finest quality. While hundreds of wagon loads of fruit rotted on the ground last season in Alameda county, he found a ready sale at remunerative prices for all that his grounds produced, in consequence of perfect training and thorough cultivation. His orchard is planted rather close, so as to gain self-protection from winds. His system of training is upright, so as to allow free circulation of air under the trees, and give free room to plow among them, without interfering with spreading limbs.

Lemons and Oranges.

At Mrs. Dr. Haile's residence I was shown the noted lemon tree, the seed for which the late Dr. H. brought from Panama in his vest pocket, and planted, fifteen years ago, where it is now growing. The tree now stands eighteen feet high, is very symmetrically-formed, vigorous and thrifty, branching low, and spreading sixteen feet across. The lady informed me that at least 250 lemons have been gathered from the tree this season, and I estimate the number on the tree now at 350. This tree has produced fruit several seasons. I saw lemons in all stages of growth, from the blossom to the ripened fruit. The full-grown fruit is of medium size, and very beautiful. The quality is excellent. The skin is rather thicker than the imported lemon, and the pulp less acid, but exceedingly pleasant.

As lemons are more tender than oranges, it is evident that we can grow our own oranges as well as lemons, without going down the coast to do it. It is a well known fact that in the East it takes from eight to twenty years to get pears and apples from the seed without grafting. Even if it takes that length of time here to get good bearing orchards of lemon and orange trees, it is a promising enterprise for our orchardists to go into. I have seen orange trees three years old bearing fruit. The business cannot soon be overdone. It is now pretty generally acknowledged, from experiments already made, that oranges and lemons can be successfully raised as far north as Oroville, with careful cultivation and shelter from prevailing winds. Belts of evergreen trees, such as the Monterey cypress and the *Eucalyptus*, planted around such an orchard, would answer every purpose.

Fruit Vale.

Riding from Alameda to Fruit Vale on a day redolent of balmy spring, the sunlight softened with a haze of fleecy clouds, that cast a living glow upon the green fields and spread a purple sheen over the drowsy waters of the bay, a quiet splendor drowns the sense of care, and charming landscapes open to the view. Fruit Vale is principally occupied by wealthy owners of magnificent homesteads. Nature and art—improving on each—combine to form a pleasant picture.

Low Training—An Unprofitable Experiment.

I noticed one orchard that, when young, had been trained on the low-branching system, the proprietor having been advised to do so by the pretending wisdom of a California journal. A net-work of low-spreading limbs prevented the ground from being properly plowed between the same. Moss and mildew attacked the trees, and the fruit, which was inferior, rotted on the ground. Mr. J. Wilson has taken it in hand, and cut off all side limbs, which sometimes necessitated the removal of two-thirds of the tree, so that he can cultivate the ground and obtain good fruit. I also noticed that several other gentlemen were doing the same thing. It is always proper to allow a tree to spread after it has attained a height sufficient to do so without interfering with plowing; but thorough cultivation should always be the first object, protection from severe winds the next, and, where many trees are together, this can be as well done with erect as with spreading habit. A free circulation of air under the tree near the coast where the air is damp is very essential, and upright training will insure this. The nature of a tree should never be disregarded. If a tree is properly trained from the start, it will generally not require much pruning afterwards. A continuation of the subject of fruit-growing in Alameda will form the subject of another letter. S. H. H.

Nest Eggs.—C. A. Davis, Berkley, Mass., makes nest eggs from real ones as follows: A sufficiently large opening is made to allow the shell to be emptied of its contents. Plaster of paris is then mixed with water to the consistency of cream, and the shells filled with the mixture, which hardens in a short time. The result is a nest egg, perfect in shape and color, and still serviceable if the shell gets broken off.

Farmers' Clubs in Massachusetts.—The Boston *Cultivator* gives a list of twenty-six farmers' clubs, with the officers, in as many different towns in the State of Massachusetts. Some of the clubs are provided with agricultural libraries.

San Francisco Market-Rates.

Wholesale Prices,

Thursday Evening, February 3, 1870.

Flour, Extra, ⅌ bbl	$5 00	@	$5 50
Do. Superfine	4 50	@	4 75
Corn Meal, ⅌ 100 lbs	2 00	@	2 25
Wheat, ⅌ 100 lbs	1 15	@	1 65
Oats, ⅌ 100 lbs	1 15	@	1 50
Barley, ⅌ 100 lbs	1 15	@	1 25
Beans, ⅌ 100 lbs	2 50	@	3 50
Potatoes, ⅌ 100 lbs	75	@	1 10
Hay, ⅌ ton	11 00	@	17 00
Live Oak Wood, ⅌ cord	9 00	@	14 00
Beef, extra, dressed, ⅌ lb	7	@	10
Sheep, on foot	2 50	@	3
Hogs, on foot, ⅌ lb	5	@	
Hogs, dressed, ⅌ lb	8	@	

GROCERIES, ETC.

Sugar, crushed, ⅌ lb	13	@	—
Do. Hawaiian	8	@	11
Coffee, Costa Rica, ⅌ lb	18½	@	19
Do. Rio	17½	@	18
Tea, Japan, ⅌ lb	75	@	90
Do. Green	60	@	1 25
Hawaiian Rice, ⅌ lb	9½	@	10
China Rice, ⅌ lb	5½	@	6
Coal Oil, ⅌ gallon	42½	@	45
Candles, ⅌ lb	16	@	18
Overland Butter	25	@	28
Ranch Butter, ⅌ lb	35	@	40
Isthmus Butter, ⅌ lb	25	@	38
Cheese, California, ⅌ lb	16	@	20
Eggs, ⅌ dozen	30	@	35
Lard, ⅌ lb	12½	@	13
Ham and Bacon, ⅌ lb	16	@	8
Shoulders, ⅌ lb	10	@	12

Retail Prices.

Butter, California, fresh, ⅌ lb	45	@	50
do. pickled, ⅌ lb	35	@	40
do. Oregon, ⅌ lb	25	@	—
do. New York, ⅌ lb	40	@	—
Cheese, ⅌ lb	20	@	25
Honey, ⅌ lb	25	@	30
Eggs, ⅌ dozen	45	@	50
Lard, ⅌ lb	20	@	22½
Hams and Bacon, ⅌ lb	22	@	25
Cranberries, ⅌ gallon	1 00	@	1 25
Potatoes, ⅌ lb	2	@	3
Potatoes, Sweet, ⅌ lb	—	@	2
Tomatoes, ⅌ lb	2	@	3
Onions, ⅌ lb	3	@	5
Apples, No. 1, ⅌ lb	4	@	5
Pears, Table, ⅌ lb	5	@	
Plums, dried, ⅌ lb	10	@	12
Peaches, dried, ⅌ lb	10	@	15
Oranges, ⅌ dozen	50	@	75
Lemons, ⅌ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ⅌ lb	—	@	25
Soap, Pale and C. O.		@	12
Soap, Castile, ⅌ lb		@	20

Scientific Press.

W. B. EWER........................SENIOR EDITOR.

A. T. DEWEY. W. B. EWER.

DEWEY & CO., Publishers.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance..................$4 00
One copy, six months, in advance.................. 2 50
Delivered by city carriers, per month.. 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month........................ 3 00
One column, one month........................ 40 00
One column, one year.......................... 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, Feb. 5, 1870.

Table of Contents.

Independent Order of Odd Fellows—Ill.......... 81
Novel Experiment...... 81
Sale of Mineral Lands.. 82
"C. H. A." vs. Others.. 89
Testing Ores........... 82
Items from Boise City.. 82
Legislative............. 88
To Correspondents...... 88
Roasting Furnaces in Sonora—Ill.............. 89
The Fence Law......... 88
Incorporation Laws.... 85
New Incorporations. ... 96
Full List of Patents.... 89
When to Pay Off........ 90
READING FOR THE HOUR.—Impressions of California; Behavior in Church; How Watches are Made; Hints and Recipes, etc 92
FARMING AND GARDENING.—Essentials to Farming; Wheat for Seed; Badly-Cleaned Wheat; Dog-Power; Animals Eating Bones; Fruit-Growing in Alameda; S. F. M. Rates. 86
MECHANICAL PROGRESS — The Foreman's Business; Oro Separating; Mechanism; Boiler Pressure; The Fields Steel, etc...... 83
SCIENTIFIC PROGRESS — Extraction of Sulphur from Waste; A New Spectroscope; Action of Sunlight, etc.............. 83
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Idaho, Montana; New Mexico and Nev. 84
S. F. Shareholders' Directory.................. 85
S. F. Stock Market...... 85

Notices to Correspondents.

W. E., of Dayton, Nevada, thinks that, by the use of reverberatory furnaces, copper ore can be profitably smelted. He says that ores averaging 12 per cent. can be worked thereby at a profit. Each furnace will smelt in twenty-four hours ten tons of ore, yielding two tons of 50-per cent. copper; one cord of wood to be used for each ton of ore; or the ores may be roasted in kilns and the sulphur collected, which would render it profitable to work 7-per cent. ores. The question is one principally of finances, and depends greatly on the situation of the mines, the abundance or scarcity of the fuel, wages, etc.; but in the majority of cases we are afraid that, in the present condition of affairs, copper ores, as such, can hardly be worked at a profit on our coast, unless very rich.

MRS. A. E. S., Meadow Valley.—From your description it would appear that the water contains iron (probably as carbonate), in which case it is rather beneficial than injurious to the health. As the water in a spring is being continually replaced, we know of no *practical* means of keeping the iron continually precipitated. If it will separate out by standing, so that the residue can be used for washing, it would seem best to draw the water for this purpose sometime beforehand, let the sediment settle, and then draw off the clear part for use. You can determine whether the substance is really iron by taking some of the fresh water and testing it with ferrocyanide of potassium, which, if iron is present, will give a *blue* precipitate.

AMERICAN RAILWAY EXCHANGE.—We acknowledge the receipt of a complimentary ticket, entitling us to the privilege of the American Railway Exchange of Philadelphia, the object of which is to furnish convenient headquarters for residents or visitors connected with any department of the railway interest. The leading scientific journals of the country, with reports of surveys, railroads, etc., and the correspondence of the Exchange, will be kept on file for the use of members, to whom will be given various other facilities for business information, etc. An annual subscription of $10 entitles subscribers to the use of the reading rooms and to the services of the Exchange as correspondent.

◆

DARIEN CANAL.—It is said that an easy and practicable route for this canal has been discovered. The proposed line is run from Santa Metora Real to Tneto Conido, and the distance is 38½ leagues.

Public Lands for All and Not for a Part of the People.

A NEW SUGGESTION FOR THEIR EQUITABLE DISTRIBUTION AND SALE.

There has not arisen for many years a subject that comes so directly home to a large majority of the adult population of the United States as that of the judicious and equitable segregation of its public lands, accompanied by its many and important issues. There, consequently, need no apology for entering fully into its discussion, especially as it will hereafter be endeavored to be shown that we, residents of the Pacific coast, possess an important and immediate interest in the statesmanlike disposition of this question.

Little need be said relative to past and present practices. These are pretty well known, viz: that surveyed public land can be purchased by private entry at $1.25 per acre, payable in installments; or unsurveyed lands can be preëmpted to the extent of 320 acres, the same price becoming due in like manner on being surveyed. And, further, within the past few years, Congress, in order to encourage their settlement, and to afford the opportunity to every industrious head of a family of obtaining a homestead, what is termed the "Homestead Law" was enacted, by which any head of a family may *once* claim, by attending to certain rules which are laid down for the purpose, a quarter section, or 160 acres, gratuitously, excepting some small fees for surveying, registration, etc., on complying with this important condition—viz: that the homestead claimant shall cultivate and reside upon such homestead claim for five years before an United States patent shall issue, donating the property in fee.

Equitable and Statesmanlike Laws which Ought to Prevail.

In considering this phase of the subject, class distinctions and class privileges will be wholly ignored, and this the thorough statesman will do, holding in view only what would probably prove the most conducive to the general advantage of the body politic, and that of its individual members. The homestead law, as it now stands, is something like that which is occasionally seen acted by a greedy schoolboy, who, while exhibiting to his schoolmates the contents of a basket containing fruit, cakes and lollypops, checks their longing tastes by remarking that, "those who ask shall not have any, and those who do not, do not want any."

In like manner, by the homestead law, those generally who are in a conditon, from their agricultural occupations, to comply with the conditions respecting residence, are almost always incapable of taking advantage of the privilege, owing to deficiency of pecuniary means; whilst, on the other hand, the city artisan is practically debarred from obtaining a country homestead, however desirous he may be of securing such on which to pass the evening of a well-spent life, because he cannot comply with the condition of residence, excepting at the cost of losing more remunerative urban employment during the vigor of life; and if he postpones the attempt until a later period, when the muscular energy of youth has passed away, he will have become unfitted to be a pioneer for converting a wilderness into a garden. Under the existing system, by allowing "private entry" to be made of public lands that are surveyed without any conditions for the improvement or settlement of such lands thereafter, the agricultural homestead seeker is daily driven further and further from a market and other social convenience, to seek for the same, because, since the price of $1.25 per acre was fixed for Federal lands, their value has increased largely, so much so that it now generally occurs that the speculator so far precedes the homestead-seeker that the former will be found to have gobbled up everything worth accepting by the latter; and this gobbling up by speculators precedent to the homestead-seeker will go on in an accelerated ratio in proportion as the wealth and population of the United States increases, until—as it nearly has—the homestead privilege will become a nullity in practice, unless Congress intervenes to prevent it.

Congress can easily accomplish this by enacting that one of the conditions of the sale of lands by private entry shall be, that a given rateable amount of expenditure in cultivation and improvements shall be made by the purchaser of lands so obtained, and that within a given period or periods on pain of forfeiture of deposit and land. It would also be well if Congress, in place of residence on 160-acre homestead selections, allowed the patent to issue at the expiration of five years, on proof being made that within that time the locator, in labor and improvements, increased the value of such quarter section, say to the extent of $5 or $10 per acre. Such a change in the law would enable many mechanics, miners and others, to obtain what they are desirous of doing—viz: a country homestead on which to pass their old age; while it would tend generally to induce the population of our great cities to become more interested than they have hitherto done in agricultural affairs, and so compensate, in some measure, what Horace Greeley has so ably denounced in the columns of the *Tribune*—the continued crowding of so large a proportion of our rustic population into the cities.

How the Proposed Change would Affect California Mechanics and Miners.

A change in the homestead law, which would substitute cultivation and improvement without necessitating continued residence for five years, would enable city mechanics and artisans to take advantage of the privilege, and would form an appropriate and secure investment for their savings, besides combining many ultimate benefits, not the least among which would be the public advantage derived from the reflex immigration which would follow from the emigration of citizens into rustic districts. As matters now stand, the savings, especially in this city, of provident mechanics, tradesmen, etc., are accumulated in savings banks, and loaned out to inflate the value of city building lots to the great detriment of those who are not the fortunate possessors of such property; whereas, if one-third of the amount of the $25,000,000 so hoarded up in this city was distributed in the acquirement of country homesteads, there would not need to be a single industrious man unemployed in the State. In order to obtain the most profitable results, coöperation on the part of agricultural investors will be necessary, remarks respecting which will be deferred to another occasion. In the meantime, the suggestions thrown out we believe are worthy of serious thought.

To a thorough statesman, it will be apparent that the mode most calculated to bring uncultivated land into a cultivated state in the shortest time, and most efficient manner, is the course which ought to be adopted; also, that no equitable reason exists why, if the condition just alluded to is fulfilled, the professional man, tradesman, miner or mechanic, should not be endowed with the same privilege, practically, as the plowman, especially, if by doing so, the general happiness, wealth and prosperity of the entire community would be thus promoted.

◆

PROSPEROUS.—The *New Age*, edited by Frank B. Austin, and published by the Odd Fellows' Publishing Co., is now in its sixth volume, and, we are pleased to learn, enjoying a large circulation, betokening permanent prosperity.

Legislative.

In the State Legislature, several measures of general interest have been proposed. Senator Betge offered a resolution in the Senate, January 27th, to the effect that the Legislature should instruct Senators and Representatives to endeavor to get the government to grant a liberal subsidy for a monthly mail service between San Francisco and Melbourno. Undoubtedly, by the establishment of such a line, great advantages would accrue to the city and State.

The same day, Senator Lowis introduced a bill to promote the farming interests of the State, and to provide for the exportation of California produce free of port charges. This is to be accomplished by granting to the "Farmers' Wharf and Dock Company" a large tract of submerged land at this city, for wharf, dock and commercial purposes, where vessels loading with California products are to be free from wharfage or dockage. We have not been able to get the whole bill, to see exactly how this thing is to be managed.

Mr. Maclay introduced a bill to encourage the production and manufacture of sugar in California. The bill provides that a sum of three cents per pound shall be paid by the State for any lots of 10,000 pounds of good marketable sugar made from products of the soil in this State during the next three years after the passage of the bill, provided the amount of premium shall not exceed in the aggregate $25,000.

Mr. Williams introduced a bill in the Assembly for the relief of mining counties, looking to the donation by the national government of the mineral lands to the State, to be held in trust for the several counties, and to the sale of these lands for the payment of county indebtedness; any surplus remaining, after paying the counties' indebtedness, to be given to the General School Fund. It would be well for the State could it get the lands presented to it, but we fear the matter is rather impracticable.

A bill in regard to the trespassing of animals upon private property passed the Assembly, but has not yet been printed.

A couple of bills, amending the law regulating the management and sale of swamp, tide and other lands, have been introduced into the Senate; and bills for the protection (?) of quartz miners (providing that mines over 200 ft deep, shall have 2 shafts, at least 200 feet apart, for the safety of the workmen in case of fire or other accident), and also of farmers in certain portions of San Diego, into the Assembly.

The Commissioners appointed by the last Legislature to report on the practicability of making a new outlet for the flood waters of the Sacramento, have presented their report. They propose to cut a canal, which will relieve the river of a portion of the flood at high water, and also drain the district on that side of the river, from the bend, about midway between its junction with the Feather and Knight's Landing, down to Suisun Bay; also a canal to drain the lands, on the other side of the bend, into the river; and to levee the Feather and Sacramento rivers. The total cost of these and the other complimentary works is estimated at about two and a half millions; the total number of acres as 500,000; hence the cost per acre would be about five dollars. The effect of these works would be the reclamation of the whole of the Sacramento swampland delta, except that portion lying below the mouth of the American river on the east side, which would be greatly benefited. The land owners favor action, and ask no pecuniary aid from the State, and no assistance, except legislation, to enable them to levy a tax on the lands to be benefited, and collect the same as the work progresses.

◆

THE ARTESIAN WELL at Oakland has been carried down 300 feet, and has at this depth struck bedrock.

The Sale of Mineral Lands.

The bill of the Hon. Mr. Sargent on this subject seems to meet with approbation from the majority of people on this coast, as expressed through the different newspapers. We publish in another column, however, a letter from El Dorado county, in which the opposite opinion is expressed, and in which several points are made which are well worth the attention of our readers, and which gives the ideas of many miners, whose opinions demand careful consideration.

The principal objections to the bill in question seem to be, that this policy will concentrate the mineral lands in the hands of the few wealthy speculators; that it will interfere greatly with prospecting; that it will materially damage mining operations by interfering with canals, ditches, etc.; and that it will render it an easy matter to levy black-mail or "freeze out" honest miners in the manner described by our correspondent.

The advocates of such a measure, on the other hand, urge that, by securing to people the titles to their lands, they will settle permanently and develop the resources; the impoverished condition of the mining counties being chiefly due to the want of security of title; and that it will put an end to the bogus mining claims held by persons who never have done, and never intend to do, any permanent work on them, but levy a tariff on the real worker and cripple the resources of the country.

We believe that some change is urgently demanded, and that our existing laws must be modified or changed to a considerable extent. It is, however, always a matter of great difficulty to say exactly how and what changes ought to be made, and the matter should be thoroughly discussed and ventilated before any measure on the subject is made a law.

We are inclined to favor some such measure as Mr. Sargent's, believing that the result will be to build up and enrich many localities which are now decaying. If a person once becomes a confirmed owner of land which he has considered valuable enough to purchase or preëmpt, he will develop this land to a higher degree than is done under existing laws, and instead of the hasty and wasteful manner of working claims, which has hitherto obtained to a great extent, this will be done more slowly perhaps, but certainly more carefully and more thoroughly, and hence will inure greatly to the benefit of the State.

In regard to speculators, there seems to be a great diversity of opinion, one party claiming that the bill assists, the other that it hinders their operations. So much, we think, is certain, that it will prevent their locating and holding claims for an indefinite number of years without doing any work upon them; and we would call notice to the fact that the bill provides that no location shall exceed 160 acres for any one person or association.

But while, in general, in favor of Mr. Sargent's bill, we still think it capable of improvements in several particulars. For instance, there should be more protection given to the miners. The right of way for canals, ditches, sluices, etc., should be granted in such a way that no honest man should be prevented from working his claim, and that black-mailing should be rendered impossible.

In regard to prospecting, it should also be noticed that the bill provides only for mining titles, and the claimant must have expended in actual labor and improvements an amount of not less than $1,000, so that unimproved lands are still subject to the prospector and miner, as in the original bill.

On a careful review of the bill, we think that many objections will be found to be only apparent, while several improvements can still be made. We have not space to treat more fully on the subject in this issue, and have brought the matter up, principally, that the different views of those interested may be made public, and the various features be well discussed before any definite steps are taken. It is only by looking at all sides with impartiality and care, that we can hope to make laws which will not require unmaking, or being put in force.

Roasting Furnaces in Sonora, Mexico.

BY GUIDO KUSTEL.

[We received a call this week from Mr. Küstel, who has lately returned from a trip among the mines and works in Sonora. Mr. K. found things generally quite dull, owing, in great measure, to the unsettled state of the country. This status has continued so long and proved so fatal to many promising enterprises, that many there would like to see the country under the protection of the United States. This, it is thought, would lead to an immigration of a better class of people than the natives, and some respect would be had to life and property. Under the enforcement of proper laws in this respect, and with competent engineers to manage the works, there is no doubt but that investment in mines would prove immensely lucrative. A measure, which is of very great importance to miners, has been introduced into the Mexican Legislature, and very likely will become a law. This does away with the export duty of eight per cent. at present imposed on coin, and, if passed, will relieve the mines of a very oppressive burden, Mr. Küstel furnishes us with the following article:]

Editors Press:—Silver ores of Sonora, as a generality, require roasting. This preparation is necessary not only for the pan and barrel amalgamation, but in many cases also for the patio amalgamation. In the latter instance the roasting is not perfect, the object being to form chlorides and sulphates only to some extent; but the finishing of the chemical operation is trusted to the patio process. All roasting heretofore has been done in the old-fashioned single furnaces, having one hearth, capable of receiving 800 pounds of ore. Two men are employed at the same time at each furnace. The roasters are either Yaque Indians or Mexicans, who are good laborers but no skillful roasters. It is, therefore, of importance to construct furnaces by which a good result can be obtained independently of the skill or good-will or the roaster.

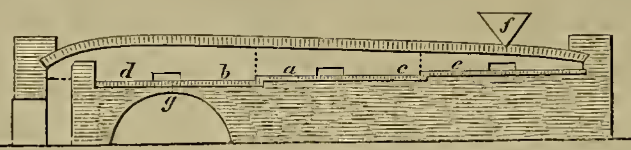


Fig. A.—Roasting Furnace, Accordino to Kustel.

Mr. Ottocar Hofmann, who was engaged to introduce the chlorination process on silver ores at La Dura, built a furnace of thirty feet in length, as recommended in my book on Concentration and Chlorination, page 237. This furnace represents—as Fig. A shows—three hearths in continuation; but, in order to make the workmen better understand where the charge for each hearth terminates, there is a step of four inches between each, so that the last one, where the charge is introduced, is eight inches above the level of the first hearth, *d*, *b*. Two men are generally sufficient—one at the finishing hearth, and the other to stir the ores, alternately, on the middle and on the last hearth. A light red heat is kept up continually in the first department, *d*, *b*, the ore requiring diligent stirring for two or, if it appears very rebellious, three hours. The roasted ore is then discharged through the hole, *g*, near the working door. The ore from the middle hearth is now shifted over to the first one, from *a* to *b*, and from *c* to *d*. The middle hearth, being thus cleared, receives the charge of the third from *e* to *c* in the same way, and this is then charged with fresh ore through the funnel, *f*. The discharging and moving of the ore from one hearth to the other is, by itself, a perfect stirring, and it cannot happen here, as is the case very often in single furnaces, that raw ore should remain in the corners of the hearth or some other place inconvenient for raking. It is also evident that a great deal less fuel is consumed. The low temperature with the beginning of the roasting in single furnaces, and the gradual increasing, requires more time and more fuel and a good deal of attendance—circumstances which are not met with in long furnaces. But also the chemical result deserves consideration. By reliable analysis of Mr. Graff it is ascertained that, comparing the result of roasting of the same ore, a sample of the single furnace contains twice as much unchloridized silver as that of the long furnace.

At Trinidad, Mr. O. Hofmann built another furnace, similar to that in La Dura. The advantage gained in both places by adopting long furnaces in place of the single ones, induced Mr. Graff to put up a like furnace at the San Martial silver works, where Yaqui Indians are employed in roasting. In consideration of their indifference as to the result of their work, Mr. Graff concluded to build his furnace 60 feet long, representing six hearths, with as many working doors. The length, however, requires a small additional fire place. Without question, a great advantage is found in moving the ore six times in six hours from one hearth to the other, discharging every hour. The ore, arriving at the finishing hearth, is most uniformly prepared, independent of the skill of the Indians, of which twelve are employed at one time, stirring alternately, carrying wood to the furnace, the ashes out of the *hacienda*, spreading the discharged ore over a large surface ground, in order to have it cooled down in course of an hour, ready to be transported to the sifting apparatus. This length of a furnace appears a local necessity; and, although in many respects advantageous, it requires, for the same amount of ore, double the number of roasters compared with a 30-foot furnace, where the ore is kept two hours on one hearth instead of one.

The roasting furnaces at Agua Caliente are also undergoing a change. Each two single furnaces will be combined to one, giving a hearth surface of thirty-five feet in length; and there is no doubt that, wherever in Sonora the pecuniary circumstances admit a change, the single furnaces will be replaced by long ones, and that this change will gradually spread into Chihuahua and Sinaloa.

Furnaces the hearth of which is large enough to receive a thousand pounds of ore, where the width of each hearth should be equal to its length at least, are easier to handle if working doors are made on both sides. This arrangement allows the use of lighter and shorter hoes and rakes, the roaster works with less exertion, and the floor of the hearth stands longer.

◆

Ætna Foundry.—Over thirty-six tons of iron were melted at this foundry last week. The proprietors now have orders for several Varney's amalgamating pans, and a large-sized Varney & Rix's rock crusher; an engine and hoisting works for the Joe Walker mine, Kern county. Amongst other work lately turned out, has been a quantity of Pendergast's superior white iron shoes and dies for stamp mills, and also iron works house-fronts.

We wrote a short time ago an item—which seems to have been lost between the editorial and printing department—concerning a large screw for a propeller which was cast at these works. This is the largest ever cast on the coast, we believe, and the work was done in the most excellent manner, the surface being almost as smooth and as free from flaws as if turned out by a lathe.

◆

Sorghum Sugar.—Mr. Purdy, the gentleman to whom we referred a week or two since, as engaged in some experiments near Gilroy, for the manufacture of sorghum syrup and sugar, has shown us several samples of sugar, which he has more recently produced. A small quantity only has been made, merely as an experiment; but sufficient to prove that we can both raise the plant, and make the sugar in California.

◆

View of the I. O. O. F. Hall.—On our first page is a very correct view of the Odd Fellows' Hall in this city, drawn and engraved expressly for the *New Age*, by the artist of the Scientific Press Office. As a work of art, it is highly creditable to the artist, and will compare favorably with, if not excel, much work of the kind in the Eastern States.—*New Age, Jan.* 1.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending January 25th.

- **Mortising Machine.**—John Cox, Portland, Oregon.
- **Combined Harvester and Thresher.**—David Hallowell, St. Helena, assignor to himself and Charles A. Lowe, San Francisco.
- **Needle and Arm for Sewing Machine.** Mary P. Carpenter, San Francisco.
- **Smoothing-Iron Handle.**—Theodore Van Tassell and Richard Starr Pollock, San Francisco.

Reissue.

- Division A.—**Furnace for Roasting and Treating Ores.**—Charles Stetefeldt, Austin, Nevada.
- Division B.—**Process of Treating Silver Ores.**—Charles Stetefeldt, Austin, Nevada.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than any other agency.

◆

"C. H. A." vs. Others.

We have published quite a number of letters, which were drawn out by an article in our columns on "Rebellious Ores and New Processes," published last December, hoping thereby to elicit some facts of interest on points where light is needed, and not for the purpose of ventilating mere generalities of opinion. The subject seemed certainly to interest many of our readers, for we have received more letters than we could publish. We think that some of the writers, however, do not view the matter fairly.

The points in the article in question which seem to attract special notice, are the remarks on "practical men," on "doctors," and on "new processes." In regard to the first two, we think there is no further need of discussion, as it is to be understood thereby that those who put themselves forward as preëminently practical or scientific, without having the proper qualifications, are intended. On this point all agree practically with the writer. Pretenders cannot be handled too roughly. The deduction that *all* practical men are underrated, is very unjust, as no such conclusion can be drawn, in fairness, from the article.

In regard to new processes, "C. H. A." is also right in a great measure. All of the more important principles of metallurgy, as practiced on our coast, have long been known. Many persons, from want of information, have tried, or even invented, many different things, which have been proved elsewhere long before. Our chief need is the proper *application* and *modification* of old processes. And before we can expect new inventions of importance, we must have trained engineers of skill and experience, who may benefit by the labors of others, and thus be able to turn their exertions to better profit.

The value of a thorough education is becoming more and more apparent every day. The first point desirable to be gained is the knowledge of what has been done in our profession in other parts of the world, and the deductions from these facts constitute theory. If our inventors only studied what others have done before them, and saw thereby what was to be avoided and what grappled with, they would save themselves an infinite amount of unprofitable labor. Now this is by no means a discouragement to their efforts; it should, on the contrary, be a stimulus. If they have been able to do as well as they have done without the benefit of others experience, it may reasonably be expected that they will make great advances when they receive this benefit by education.

It is with the purpose of extending desired information to those who are unable to go to other places to get it, that we invite miners and millmen to write us about the processes carried on at their special works. In this way, each can see what others are doing, and the benefit will be mutual. We are always glad to hear from our readers, and will notice all that is worthy of consideration.

WHEN TO PAY OFF—A SLANDER REFUTED.—The English are very much exercised on the question of the time at which wages should be paid off to workingmen. The question is said to grow out of the fact that a large part of the payments made on Saturday is spent in dissipation on Sunday; whereas, in a few places where paying off on Monday has been introduced, the result is much better. It is acknowledged, as a matter of frequent occurrence in that country, that large mechanical establishments which pay off on Saturday are unable to start on Monday, because the laborers do not get over their Sunday's spree in time to be fit for work the next day. No such charge has ever been brought against American workmen; yet drunkenness is frequently spoken of by our own people, as well as foreigners, as a national vice in this country. We think the above acknowledgment fairly entitles our British cousins, if either, to that distinction—if distinction it may be called. American mechanics, as a class—natives of the country—are probably as free from the vice of drunkenness as any other nationalty on the globe, and we hold the charge above referred to, so frequently made, as a malicious slander upon American nationality.

* * *

THE AMOUNT OF WATER excreted by the kidneys varies. It is estimated at about 30 ounces in summer, and at 40 in winter for a person who drinks only what nature requires. From the skin is excreted in ordinary circumstances, from 1¾ to 5 pounds in 24 hours, and in extraordinary cases, as of glass-blowers, etc., it has amounted to 16 or 20 pounds. We require, therefore, from 4 to 12 pounds of water daily, to keep all the organs and functions in healthy working order.

* * *

THE RANGE OF TEMPERATURE in which men live is from 130° above to 70° below zero—200 degrees. Workmen in furnaces are accustomed, in some places, to enter a room when the floor is red-hot and the temperature of the air stands at 350°. The "Fire-King" Chariot was in the habit of entering an oven at a temperature of 400° to 500°—which would crisp a steak to charcoal.

THE Scientific Press, of San Francisco, formerly the Mining and Scientific Press, the first number of which for 1870 we have just received, comes to us much improved in appearance. With its new title it has increased the reading space of its columns, introduced a farming and gardening department, and still retains the popular features of mining reports from the different States and Territories, and editorials and communications on subjects allied to mining. In short, the Scientific Press is a first-class California publication, an ornament to a State renowned for the number and excellence of its newspapers.—*Colorado Miner, Jan.* 13.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

WM. H. MURRAY, California and Nevada.
S. H. HERRING—California.

Resident Agents.

CENTERVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—Thos. Starr.
CARSON CITY, Nev.—John G. Fox.
TREASURE CITY, Nev.—J. L. Robertson.
SHERMANTOWN, NEV.—P. C. Renfrew.
SILVER CITY AND IDAHO TER.—Sam. Heidelberger.
SILVER CITY, Idaho—J. Caples.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orahood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Barkalow & Brothers.
LONDON—George Street, 30 Cornhill, E. C.
HEDSON & MENET, 41 Park Row, New York.
A. O. KNOX, City Soliciting and Collecting Agent.

I. O. O. F.

THE NEW AGE,

A WEEKLY JOURNAL OF SIXTEEN PAGES.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

Kustel's Treatise on Concentration of All Kinds of Ores,

Including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally. Illustrated with 120 Diagrams on 7 Plates.

CONTENTS:

I.—INTRODUCTION.

1. The Dressing.—Dressing of Ores; Principles of Dressing; Division of Dressing.
2. The Separation.—Separation of Gangue from Ore in the Mine; Dressing of Ores outside the Mine; Separation by Hammers; The Ragging; The Spalling; The Cobbing; Separation by Hand; The Picking.
3. Cleansing and Sizing Contrivances.—Washing and Sizing; Stationary Apparatus; The Sluice; The Kiln; The Step Sluice; Movable Machines; The Hand Riddle; The Rocker; The Circular Hand Riddle; Swinging and Jarring Riddles; The Jarring Riddle.
4. Rotary Sizers.—The Trommel or Drum; Cylindric Trommel; Prismatic Trommel; Conical Trommel; Combined Trommel; The Sifting Wheel; Sizes of Grains for Jigging.

II.—REDUCTION.

1. Reduction of Ores.—Reduction of Ores to a Proper Size; Breaking under Heavy Stamps; Reduction by Rock Breakers; Hanscom's Crusher; Blake's Quartz Breaker; Reduction by Stamps.
2. Description of Batteries.—The Foundation; Mortar Blocks; Frames; Iron Frames; Howland's Rotary Battery; The Straight Iron Battery; Bryant's Battery; Wright's Iron Battery.
3. Details of a Battery.—The Mortar; Stem or Lifter; Shoe or Pestle; Socket or Head; Tappet; California Tappet; Cams—Wooden Cams; Iron Cams.
4. Speed, Curve and Order of Lifts.—Limit of Speed in Crushing; Construction of the Cam Curve; Order of Successive Stamp Lifts; Hanging-up of Stamps.
5. The Discharge of Batteries.—The Discharge in Dry Crushing—with Grates; without Grates; with Sieves; Dust Chambers; The Discharge in Wet Crushing—the Grates and Screens.
6. Feeding of Batteries.—Hand-Feeding; Stationary Hoppers; Movable Hoppers; Quantity of Water for Crushing; Remarks on Speed and Weight of Stamps.
7. Reduction by Rolling Mills.—Construction of Rollers; The Frame; Feeding of Rollers; Remarks.
8. Grinding.—The Arastra or Tehama; The Edge or Chili Mill; Ball Mills; Lundgren's Pulverizer: Cylinder Mills; Ferrand Mill; Hopkins' Grinder; Horizontal Mills; Iron Pan Grinders.
9. Pans with Plane Mullers.—The Common Pan Grinders; Tub Grinder; Bartolo's Grinder; Knox's Pan; Varney's Pan; Wheeler's Pan; Union Grinder; Moore's Quartz Grinder; Gaston's Grinder.
10. Pans with Conical Mullers—Hepburn & Peterson's Pan; Belden's Pan; Baux & Guiod's Grinder.
11. Pans with Tractory-Conical Mullers.—Excelsior Pan; Wheeler & Randall's Pan; Excelsior Continuous Grinders.
12. Pans with Perpendicular Mullers.—The Centrifugal Ore Grinder; Varney's Quartz Grinder.

III.—CONCENTRATION.

Concentration of Reduced Ore.—Division.
A. Concentration of Ore Grains (Jigging Stuff).—The Principle; The Jigging.
2. Movable Jiggers.—The Movable Jigger.
3. Stationary Jiggers.—Hydraulic Jigger; Petherick's Separator; Stationary Jigger.
4. Continual Jiggers.—Percussion Jigger, Setz Herd); Continual Cylinder Jigger; Continual Jigger; Hydraulic Continual.
5. Rotary Machines.—The Rotating Cylinder (Strom-setz Maschine); Rotating Wheel (Setz-Rad); The Dolly Tub; Auferman's Dry Jigger.
B. Concentration of Ore Sands and Slimes.
6. Assorting of Sands.—The Labyrinth; Borlace's Slime Separator; Ph. Hofmann's Separator; Rittinger's Funnel or Pointed Box; Rittinger's Spitz-Lutte.
7. Feeding of Concentrator.—Feeding-Boxes; Stationary Feed-Box; Rotating Feeder.
8. Stationary Concentrators.—Hand Buddle; Sleeping Table; Rack; Sweeping Tables; Round Buddle; Concave Buddle; Blanket Tables.
9. Percussion Tables.—Percussion Tables; German Percussion Table; Continual Percussion Table; Hunter's Continual Percussion Table; Varney's Percussion Buddle.
10. Oscillating and Shaking Tables.—Borlace's Concentrator; Hendy's Concentrator; Hungerford's Concentrator; Barron's Concentrator.
11. Steady Moving Concentrators.—Concave Rotary Buddle; Convex Rotary Buddle; Burton's Table; Self-Discharging Blankets; Horizontal-Moving Blanket.

IV.—SPECIAL CONCENTRATION.

1. Concentration of Gold Ores.—Concentration of Gold Ores; Amalgam of Gold Quartz; Amalgamation and Grinding; Combined Concentration and Amalgamation; Treatment of Concentrated Stuff.
2. Concentration of Silver Ores; Concentration Works; Cost of Concentration; Concentration of Tailings.
3. Concentration of Lead and other Ores.—Concentration of Lead, Copper and other Ores; Value of Ores for Concentration.

V.—CHLORINATION.

Extraction of Gold from Sulphurets or Arsenicials by Chlorination; Assay of Gold Sulphurets by Chlorination; Chlorination Process for Sulphurets; Loss of Gold in Roasting; Single Roasting Furnaces; Double Furnaces; Mechanical Furnaces; The Roasting Operation; Roasting with Salt.

Chlorination.—Damping of the Roasted Ore; Sifting; Production of Chlorine Gas; Lixiviation; The Precipitating Vat; The Precipitation; Cost of the Chlorination Process per ton of Ore; Remarks.

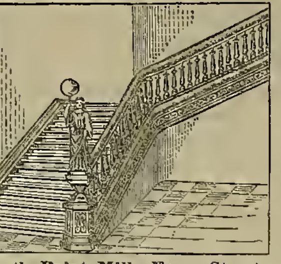
Other Methods of Dissolving and Precitating the Gold from Sulphurets.—Chlorination at Reichenstein; Chlorination at Schemnitz; Calvert's Method for Auriferous Quartz; Extraction of Gold, Silver and Copper.

PRICE, - - - - - - $7.50 per copy.

Sent by mail, and sold wholesale and retail by DEWEY & CO., publishers, office SCIENTIFIC PRESS, San Francisco.

HIBBERD, SANBORN & CO.,

STAIR



BUILDERS.

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Nowels and Balusters.

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c.; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

SPAULDING & BARTO,

BOOK AND JOB PRINTERS,

Scientific Press Office,

NO. 414 CLAY STREET,

SAN FRANCISCO.

CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,
AND
PRINTING OF ALL KINDS FOR BUSINESS MEN
BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,

Neatly, Correctly and Promptly Printed.

OCCIDENTAL

Insurance Company,

OF SAN FRANCISCO.

Cash Capital, - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

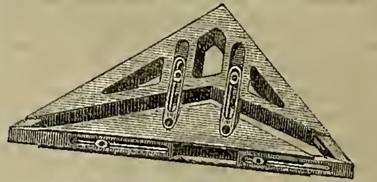
Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

CHR. CHRISTIANSEN, President
B. ROTHSCHILD, Secretary 20v17-3m

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

To Carpenters and Stair Builders.



Drew's Patent Extension Pitch-Board

Saves TIME, LABOR, and LUMBER, and secures exactness and perfect work. This is a very simple instrument, which is quickly and easily adjusted (as may be seen by the engraving), so as to give any desired pitch and tread for stair building. It is adjusted by a system of slides and screws. Full information may be obtained of the inventor, JOHN R. DREW,
5v20 Cor. Natoma and Fifth streets, S. F.

The Scientific Press,

Devoted to SCIENTIFIC AND MECHANICAL PROGRESS, MINING, FARMING AND MECHANIC ARTS, contains more VALUABLE READING MATTER than any other weekly journal west of the Rocky Mountains. It is the best printed and only finely-illustrated paper on the Coast. Its articles are able, timely and reliable, and written in a more interesting and easily comprehensive style than scientific papers in general. Now in its twentieth volume, it is printed on superior paper, containing sixteen pages, equal in size to the first-class journals of the Atlantic States and Europe. All our best citizens are interested in the new discoveries in the development and progress of the three great industrial pursuits named above, which are closely allied on this coast, and are jointly represented in the PRESS, rendering it a popular and influential journal with all industrial readers. Subscriptions reduced to $4 a year, Jan. 1, 1870.

To Inventors on the Pacific Coast.

OUR U. S. AND FOREIGN PATENT AGENCY presents many and important advantages as a Home Agency over all others by reasons of long establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or a description in the SCIENTIFIC PRESS. We transact every branch of Patent business, and obtain Patents in *all civilized countries.* The large majority of U. S. and Foreign Patents granted to inventors on the Pacific Coast have been obtained through our Agency. We can give the best and most *reliable* advice as to the patentability of new inventions. ADVICE AND CIRCULARS FREE. Our prices are as low as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior.

ENGRAVING ON WOOD, of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also, engraving on metals.

DEWEY & CO.

International Hotel,

JACKSON STREET,

BETWEEN MONTGOMERY AND KEARNY STS.,

SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.

Prices varying from $1 50 to $2 per day for Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

☞ Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House FREE OF CHARGE, and to any part of the city for 50 cents
21v12 F. E. WEYGANT. Proprietor.

The Aerial Steam Navigation Company.

At a meeting of the stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cazneau, Henry F. Williams and Simon L. Jones were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars, said shares to be *unassessable.* The funds thus raised are to be devoted exclusively to the construction of the first aerial steam carriage, and to be deposited in the Bank of British Columbia, to be disbursed upon requisition of Mr. George K. Glnyas, Engineer of Construction. The working, drawings, etc., can be seen at the office of Gen Thomas N. Cazneau, No. 321 California street, where subscriptions will be received. No invention for navigating the air has before received such positive indorsements from engineers of reputation, or so liberal encouragement from prominent capitalists as Marriott's Avitor, which now seems sure of being thoroughly tested on a large scale. 2v2-my

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.

Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

Business Cards.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

A. H. JORDAN,

Architect, Designer and Draughtsman,

No. 430 Montgomery Street,

SAN FRANCISCO. 16v19-qy

NATHANIEL GRAY. C. M. GRAY.

N. GRAY & CO.,

UNDERTAKERS,

641 Sacramento St., cor. Webb, San Francisco.

☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

Farmers and Mechanics BANK OF SAVINGS,

No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.

H. DUTTON, President.

GEO. M. CONDEE Cashier. 19v16-3m

W. T. ATWOOD,

PURCHASER OF

COPPER ORES, BARS, MATT Etc., Etc.,

505 Montgomery street, San Francisco.

The highest market price paid for ores assaying 10 per cent. and upwards. 23v17qr

M. M. COOK. H. N. COOK.

M. M. COOK & SON,

MANUFACTURERS OF

LEATHER HOSE,

Belting, and Horse Collars,

801 Battery street, Corner Broadway,

SAN FRANCISCO.

☞ Belt Leather for sale. 26v19-3m

H. S. CROCKER & CO.,

Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM

PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

California Steam Navigation COMPANY,

Steamer CAPITAL.................CAPT. E. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE................ —— ——
" CORNELIA.................CAPT. W. BROMLEY
" JULIA....................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE,
President

13v12

TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. C. ALLEN & CO., Augusta, Maine, 5v20-3m

Professional Cards.

JOHN GORMAN,

NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.

No. 612 MERCHANT STREET. 5v20-3m

J. S. PHILLIPS, M. E.,

CONSULTING ENGINEER

Examiner of Mines, etc.,

423 Washington street.......................San Francisc

(Having had 33 years' experience in Europe and America, supplies drawings and designs for Pumping, Hoisting, Crushing, Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

DR. KNOWLES, Dentist,

HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JOHN ROACH, Optician,

Has removed from 622 Montgomery street to

540 Washington street,

East of Montgomery.

Surveying Instruments made, repaired and adjusted
22v17-3m

JAMES M. TAYLOR,

Attorney and Counsellor at Law,

Court Block, 626 Clay Street

SAN FRANCISCO.

2v15-1qy

GILES H. GRAY. JAMES M. HAVEN.

GRAY & HAVEN,

ATTORNEYS AND COUNSELORS AT LAW,

In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,

27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,

Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

DR. R. R. ROBERTS,

The Great Magnetizer,

Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all CURABLE Chronic Diseases by ANIMAL MAGNETISM and the SWEDISH MOVEMENT CURE. 2v20-1y

Advertising and Subscription Rates for the Scientific Press.

SUBSCRIPTIONS IN ADVANCE:—One year, $4; six months, $2.50; single copies, 10 cents; Monthly Series, $4.50 per annum; Quarterly Series (stiff paper binding) $5.

Lowest Rates for Advertising:

We shall adhere to the following rates (payable in gold coin) for advertising in the SCIENTIFIC PRESS from this date:

	1 week.	1 month.	3 months.	1 year.
One sq. (10 lines agate)	$1 50	$ 3 00	$ 8 00	$ 32 00
Two squares	3 00	6 00	15 00	60 00
Three squares	4 50	9 00	20 00	76 00
One-fourth column	6 00	12 00	28 00	100 00
Half column	12 00	20 00	54 00	200 00
One column	20 00	40 00	100 00	400 00

RATES BY THE LINE.

Per line.—One week, 25 cents; one month, 80 cents; three months, $2; one year, $5.

Per line, ten lines or more.—One week, 20 cents; one month, 30 cents; three months, 80 cents; one year, $3.20,

MINING AND LEGAL ADVERTISEMENTS will be inserted at special rates—less than one-half the cost of daily publication.

Particular attention will be given to preparing engravings, inserting advertisements in conspicuous, novel and attractive form. We will otherwise assist advertisers in getting up their notices, when desired.

☞ All advertisements in the PRESS appear in both the
☞the MONTHLY AND QUARTERLY SERIES of the SCIEN-
☞TIFIC PRESS, which (by special arrangement) are
☞placed for FREE READING in the principal hotels,
☞steamboat and steamship saloons, depots, and pub-
☞lic reading rooms and libraries in San Francisco and
☞Pacific States. Many volumes are also bound, thus
☞affording permanent advertising.

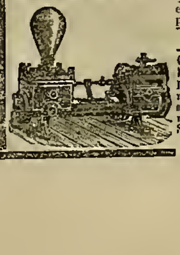
The PRESS now receives the largest and best advertising patronage of ANY WEEKLY PAPER west of the Rocky Mountains.

In regard to the value of advertising in our journal, we refer with pleasure to those who can speak from experience—*our advertisers*. Better referees, or more reliable names, cannot be found in the advertising columns of any newspaper in the world.

DEWEY & CO.,
Publishers and Patent Agents.
No. 414 Clay street, San Francisco. Jan. 1, 1870.

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO $500

Blake's Patent. THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's



Patent Steam PUMP

It is SIMPLE, COMPACT and POWERFUL, needs no expert to run it, and will start at any point. Is warranted POSITIVE under all circumstances. Send for a circular.

BERRY & PLACE, 112 and 114 California st., San Francisco.

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.

BARTLING & KIMBALL,

BOOKBINDERS,

Paper Rulers and Blank Book Manufacturers.

505 Clay street, (southwest cor. Sansome),

15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,

Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry,

S. E. Corner of Mission and Fremont sts.,

6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,

Manufacturers of Boxes,

Market Street, bet. Beale and Main.

For sale—Mahogany, Spanish Cedar, and other Woods.
24v18 1m

J. J. JONES,

CARPENTER and BUILDER,

No. 324 Jackson street, between Sansome and Battery,

Stores and Offices fitted up with neatness and dispatch.
7v18tf

W. C. CAMPBELL,

PATTERN AND MODEL MAKER,

No. 20 Fremont street, over Phœnix Iron Works, San Francisco.

Particular attention given to MODELS for the Patent Office Brands and Pattern Letters Cut. 4v18mtf

OSCAR LEWIS. J. H. CULVER.

LEWIS & CULVER,

Pattern and Model Makers

20 Fremont street, over Phœnix Iron Works.

Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

J. F. PAGES,

SEAL ENGRAVER,

AND LETTER CUTTER,

Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

SAN FRANCISCO CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,
26 611 and 613 Front street.

THEODORE KALLENBERG,

Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

EVENING DRAWING SCHOOL

— BY —

N. P. LANGLAND,

(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 536 MARKET STREET, over Occidental Market. ☞School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3v20-3m

STEAM FIRE-PROOF SAFES

SANBORN'S PATENT.

Perfectly Dry in Use.

ACTUALLY FIRE-PROOF.

GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

☞Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by

ROSS, DEMPSTER & CO.,
105, 107 and 109 California street,
San Francisco.

5v20-3m

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 6v20-1y

Metallurgy.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at

No. 36 FREMONT STREET,

And WORKS at H. J. BOOTH & CO'S FOUNDRY, northeast corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.

Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.

By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public.

☞ Mines Examined and Reports made.

REFERENCES.—William Bosworth, Thomas Varney, Egbert Judson, E. T. Steen, Wm. Bellshaw, P. Reichling, W. O. Sleeper, J. L. N. Shepard, Norbert Landry.

CHAS. PLETZ & CO.

CHAS. PLETZ, Analytical Chemist.
FRED. MORRIS, Amalgamator and Millman. 25v19-3m

G. W. STRONG,

ASSAYER AND WORKER OF ORES,

No. 10 Stevenson street, near First, San Francisco.

Highest price paid for choice lots of Ores, Sulphurets, Assay Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14v15qr.

H. W. GRAY. J. ROSEBERRY. D. K. LOOMIS.

Ores of all Kinds Crushed and Sampled.

H. W. GRAY & CO.,

YOLO MILLS,

Corner Market and Beale Sts., San Francisco

24v19-3m

$1. Postage Paid. $1.

A CHEAP AND HANDY BOOK

— FOR —

Mechanics, Inventors and Students.

SCIENTIFIC PRESS

NEW EDITION

— OF —

507 MECHANICAL MOVEMENTS.

PUBLISHED BY

DEWEY & CO.

LIST OF CONTENTS.

Æolipile.

Balance, Compensation: Barometer; Blower, Fan; Brake, Friction.

Cams; Capstans; Centrolinead; Clutches; Chasers; Clamps, bench and screw; Cock, four-way; Column, oscillating; Compasses, proportion; Counters of revolutions; Coupling, union; Crank—substitute for the, variable; Cranks, bell and compound; Cyclograph.

Differential Movements; Drag-link; Drill—Fiddle and Persian; Drills, Cramp; Drop; Drum and Rope; Driver, Pile; Dynamometers.

Eccentrics; Ejectors, Bilge; Ellipsograph. Engine, Disk; Engines—Rotary, Steam, Valve Gear for; Epicyclic Trains; Escapements.

Fountain, Hiero's: Fusees.

Gasometers; Gauge, Bisecting; Gauges, Pressure; Gear, Steering; Gearing—Bevel, Brush, Capstan, Conical, Crown, Eccentric, Elliptical, Face, Friction, Internal, Irregular, Multiple, Mutilated, Scroll, Sector, Spur, Step, Stud, Sun and Planet; Gearing—Variable, Worm; Governors; Guides; Gyroscope.

Hammers—Atmospheric, Bell, Compressed Air, Trip, Steam; Helicograph; Hook—Boat-detaching, Releasing; Hooks, Centrifugal Check; Hyperbolas, Instrument for Drawing.

Intermittent Movements.

Jack—Hydrostatic, Lifting; Joint—Ball and Socket, Bayonet, Universal.

Ladder—Folding, Self-Adjusting; Lazy-tongs; Level, Self-recording; Lever—Bell-crank or Elbow, Knee; Lewis; Link. Detachable Chain.

Machine—Bohnenberger's, Drilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; Meter—Gas (wet and dry), Water: Mill—Barker's, Crushing, Tread, Wind; Miscellaneous Movements; Motion—Alternating Traverse, Rocking, Self-reversing, Shuttle; Motions—Feed, Link, Parallel, Pump, Traverse, Variable Traverse.

Pantograph; Parabolas, Instrument for Drawing; Paradox, Mechanical; Pendulum, Conical; Pendulums, Compensation; Pinion—Lantern, Mutilated, Slotted, Two-toothed; Power, Horse; Presses, Hydrostatic; Propeller, Screw; Pulley—Expanding, Friction: Pulleys—Anti-friction Bearing for, Chain; Pump—Air, Balance, Bellows, Chain, Diaphragm, Steam-siphon; Pumps—Double-acting, Force, Lift, Rotary; Punching Machine.

Rack—Mangle, Mutilated; Racks and Pinions; Ram, Montgolfier's Water; Ratchets and Pawls; Regulator—Gas, Watch, Reversing Motion, Self; Revolver; Rollers, Oblique; Rolls—Anti-friction, Drawing, Feed; Rulers, Parallel.

Saw—Endless Band, Gig, Pendulum; Screw, Archimedes, Differential, Double Reversed, Micrometer; Screws—Endless, Right-and-left Hand; Sectors; Seesaw; Shears; Stamps; Stand, Mirror; Stop—for Hoisting Apparatus, for Lantern Wheels, for Ratchet Wheels, for Spur Gear; Stops for Winding Watches.

Test, Friction; Throttle, Spinning; Toggle-joint; Tongs, Lifting; Trap, Steam; Treadles.

Water, Machines for Raising: Weir, Self-acting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Paddle, Water; Windlass—Chinese, Friction; Windmills; Wipers.

This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.

A liberal discount made to the trade. Single copies, $1—sent postage free. Address orders,

DEWEY & CO.,
Patent Agents, San Francisco.

Reading for the Hour.

Alaska.

The reports made by different persons concerning our newly acquired Territory vary very considerably, some representing the resources and prospects in glowing colors, others giving a rather gloomy picture. The weight of authority, however, seems to lie principally on the side of those who give the less promising views, and unless we have better authenticated reports on the other side, we must follow these opinions. That is to say, while not believing that the place is worthless, we incline to the idea that it will not result as a *very* valuable acquisition, but one which will cause us considerable trouble and expense. H. H. Mc Intire, late special agent of the Treasury Department for Alaska, gives the following with regard to the cost and value in his report which has just been sent to the Senate:

The price paid, namely $7,200,000, is only a small item of its cost to the United States. Assuming that the public debt will not be paid within twenty-five years, the interest on that sum will be $24,000,000, additional; to which must be added the expense of the military and naval establishments—say $500,000 per annum, or twelve and a half million in twenty-five years; resulting in a grand total cost, on this basis, of $43,000,000. In return for this expenditure we may hope to derive from the seal fisheries, if properly conducted, from $75,000 to $100,000 annually, and from customs $5,000 to $10,000 per annum, nor can we look for any material increase of revenue for many years, except in the event of extraordinary circumstances, such as the discovery of deposits of valuable minerals sufficiently large to induce an influx of population.

Others claim that the revenue from the seal skins and the fisheries will much more than repay the purchase-money; but this is rather an indefinite statement, which does not cover the whole ground. We wish to know if Alaska will not only pay back the money invested with interest, but also support itself hereafter without costing the Government large sums. It seems as if there was great danger of the discontinuance, at no very distant time, of these revenues, while the Government expenses will still continue. And, outside of the seal trade and the fisheries, there seem to be very few inducements to cause people to settle in the land. Very high bids have been made, it is said, for the monopoly of the fisheries and the lease of the fur-seal islands. But under such leases, unless proper restrictions—which would diminish greatly the value of the bids—are made, there is danger of the animals being all destroyed or driven off. We wait, however, for fuller information.

A telegram from New York reads thus: "A new disease, heretofore a stranger to this country, has broken out in this city. It is called the relapsing fever. It has been quite common in Europe. Though very violent in its symptoms, it is not attended with great mortality. Several cases have been detected in the hospitals." The only new part of the thing is the name. The disease itself is common enough everywhere. The symptoms are somewhat as follows: On getting up about noon, violent headache, feeling of uneasiness in the region of the stomach, general disinclination to any exertion, disgust with all the world, strong desire for cold water, redness of the eyes, grand determination not to take any more. Symptoms grow weaker in the afternoon; idea that a cocktail would be beneficial under the circumstances grows stronger and stronger until evening, when comes the relapse. We are very sorry that the hospital surgeons (according to the telegram) are suffering from this disease; it looks very bad. Army surgeons, we know from experience, are very liable to attacks.

How Matches are Made.

Cutting the Splints.

The planks or pieces of wood for making matches are cut into slips, four feet in length and two inches in thickness. These are taken to a machine to be cut into slabs the exact thickness of a match. Formerly fine circular saws were used to accomplish this work, but have been rejected in favor of the present machine, which splits off the slabs by a motion similar to the eccentric of a steam engine, or a pushing stroke. This is a saving of 40 per cent. in timber, there being no waste by sawdust. The slab is then ready for the machine which is to cut it into splints. The action of this is simply the revolution of a solid iron cylinder, about three inches in diameter, on which is a series of 18 minute knives exactly distant the width of a match. The slab is cut half through on one side and then on the other, and in fifteen seconds, eighteen splints, four feet in length, and capable of making twenty-four matches each, are turned out.

These splints are put in bundles of 1,400 each and then cut, without unbundling, and with one movement of a guillotine, worked with a treadle, into lengths of four inches, or twice the length of a match, this length being kept for the purpose of dipping both ends by one process. From this cutter they go to the hands of the tiny creatures who fit them into frames for dipping—children scarce large enough to reach the tables at which they work. The frames are simply two uprights, secured by a cross piece at the bottom, and having grooved slides which hold the matches just far enough apart to keep them from touching, and their ends protruding.

Dipping.

At each dipping-furnace are two workmen. These furnaces are kept at a high heat, and upon them stand, first, an iron plate with nothing upon it; second, a pan of melted sulphur; third, another iron plate on which is the phosphoric composition which produces the light, which is kept always at the consistency of thick cream. The dipper takes the frame and puts it for a second or two upon the first hot plate, and then reverses it. This is done that any lingering moisture which may be in the wood shall be dried out. Then, by one dexterous movement, it is dipped in the sulphur, which hardens immediately, reversed as before, and then dipped in the phosphoric composition. The frame goes into a rack for drying, and in about two hours, unless the weather is very heavy and damp, the matches are ready to be taken out.

Boxing and Packing.

The matches, being taken from the frames, are transported to the packing room. Here they are taken in charge by girls, who show a wonderful dexterity in the manipulation. One, whom we watched, took up the loose matches—it being understood that they are yet double—cut them into two by means of a treadle cutter, and put them into their boxes, putting on the lids, at the rate of four hundred boxes an hour. In taking up these matches, such was the accuracy of touch that she never took more nor less than exactly the number required to fill the box, without leaving room for even one more. These boxes are then packed in packages of one and a half dozen boxes, or eight packages to a gross. The gross sells for $2.50. The boxes are retailed at the rate of 2¼ cents each.

Health of Workmen.

Each and all, workmen and children, declared themselves in perfect health. The dippers had good color, undoubtedly from the heat of the furnace; their muscles were as firm as in the generality of men who do not work at heavy labor; the tongue was somewhat furred, and the eyes bloodshot, but whether from phosphorus or something in a more liquid condition, we will not say. One had been three years dipping; the other, one. Those physicians who have looked into the matter in Europe declare that, after a year in this service, the workman is subject to a disease of the jaw—a crumbling of the bone, which defies all attempts to stop it until the jaw drops off. To avert this, manufacturers have undertaken to introduce a new kind of phosphorus, denominated by chemists, amorphous or allotropic, but, so far, the effort has been unsuccessful.—*Lippincott.*

The Cardiff Giant.—The Chicago *Tribune* gives what purports to be the history of the statue, showing that it was made in that city by a German workman, who executed the job in twenty days.

Impressions of California.

We picked up a book—an old acquaintance—the other day, and were amused at reading again the descriptions of California in the pioneer times. The book was Gerstaecker's *Journey Round the World;* and as it is quite the custom now to write a book on one's impressions on seeing San Francisco, we copy the author's account of the impressions of some of the "new-comers" in '49 in landing from the ship:

The astonished, on the other hand—and the landing swarms with them—are those who find themselves suddenly obliged to work here because no one will do it for them, while a simple errand costs as much as they paid for a month's service in the old country. They have read about such a state of things existing in California as they really find it; but believed it with a face, as if they were going to say, "Oh, you're only joking," and now find themselves, to their utter dismay, in a scrape, and don't know exactly how to get out of it. They stand upon the shore of this most singular country, with their trunks, boxes, chests and other things around them, and nobody seems to care the least in the world about them or about their trunks. As other boats are pressing in, and want room on the landing for their baggage, they must move, and at it they go at last, to toil up the steep banks in the sweat of their brow. They do not pull off their coats; for they would be ashamed to show themselves in the streets in shirt sleeves, and every twenty yards, or as soon as they meet any body, they set down whatever they are carrying, wipe their red-hot faces, and ask the man, who looks to them very much like a laborer, to take their baggage to a hotel, looking with great astonishment after the "free and independent individual," who, most likely, told them to "do it themselves, if they wanted it done." They have torn their dress coats, and knocked their silk hats into all manner of shapes; and these are the men who stop at last on the top of the bank, setting on their own trunk which they have carried up here, and wiping their faces, perhaps, with an embroidered handkerchief, murmur reproachfully—"and this is California."

The Vacuum Method for Making Ice.—An ice-producing machine has been invented, the action of which is based on the principle of producing cold by the expansion of atmospheric air, which has been first condensed by means of mechanical power. The machine requires no chemicals, nothing being used in them but water and atmospheric air. They may be worked by steam, water, or wind, and they produce from 100 to 1,000 pounds of ice per hour, according to size, at a cost of from 5 to 10 cts. per 100 lbs., this difference resulting from the varying prices of fuel and the mode of working chosen. They may also be employed to cool rooms, cellars, theaters, hospitals, compartments of ships, etc. The principle of the operation of these machines is the same which often gives so much annoyance to miners who ventilate their mines by forcing in air through long pipes. The pressure under which this is often done leads to such an expansion at the outlet of the pipe that ice often accumulates so rapidly as to completely close up the outlet, or, at least, greatly impede the egress of the air.

A Gigantic Leaf.—A plant has lately been discovered in Nicaragua which produces but a solitary leaf; but this one, with its leaf stock, grows fourteen feet long. The fact of this wonderful plant having been discovered so near our own territory, and by an English botanist, should operate to stimulate the botanical societies of the United States to make some little exertion in finding out what there is on our continent worthy of notice. We have millions of dollars to squander upon things which are of no earthly use to our people, but not a cent to devote to science.

Live Quails are to be shipped from southern Illinois to Colorado, where it is thought they will thrive and increase for the benefit of sportsmen.

Hints and Recipes.

Claret Sauce.—Take cranberries or, when they cannot be obtained, dried apples, and stew till well cooked in a tin-lined or porcelain dish; stew also one teacup full of *dried* raspberries to one gallon of apples or cranberries; when done, mix and sweeten to the taste, and let the whole come to a boil. When the apples are cold and of a claret color, they have the flavor of the raspberry. Such a sauce will please even an epicure.

Earwigs Harmless.—It is an unfounded popular prejudice that ear-wigs get into the brain by creeping into the ear; for though, from being insects and disliking exposure to the light, they may, by chance attempt to take shelter in the ear, the disagreeable odor of the wax will soon drive them out; at all events, they could never get further than the drum, which completely shuts the passage to the brain. We have known, indeed, a small beetle to get into the ear, but it did no further injury than produce a tingling sensation by crawling about the drum, and soon made its exit. A little red insect (the harvest bug) sometimes gets into the ear in bed and produces wonderful commotion, but no real injury.

Headache.—Sulphide of carbon is said to be an excellent remedy against headache, especially when it is of the neuralgic or nervous character. It is used by placing a wad of cotton saturated with this liquid in a bottle, and applying its open mouth to the temple or part affected. The pricking sensation which is at first experienced is soon followed by relief from pain.

Deceived the Rats.—Milton Merrifield, of Providence, caught fifty-two rats in one night by exchanging a barrel of oats, that had been often visited by rats, for one of water, covering the surface with chaff. The "varmints" unsuspectingly pitched in, and met a watery grave. This is an old but excellent trap where these animals are plenty.

Cherry Bounce.—Stew your cherries and sweeten as for sauce; strain juice through a cloth, and for every quart of juice add half a pint of best Bourbon whisky; bottle and cork tight. This is excellent for family use. The cherries may be used for sauce, after the juice is extracted, as they are not pressed, but simply strained.

Bunches on Horses.—For all kinds of bunches on horses caused by bruises or injuries of any sort, a correspondent recommends the rubbing such with the tincture of arnica, diluting the same with water.

About Vinegar.—It was an observation made by Scheele, but the fact has recently been published as a new discovery, that ordinary brown vinegar will keep bright and clear for any length of time if heated to the boiling point for a few minutes.

Raw, mellow apples are digested in an hour and a half, while boiled cabbage requires five hours. The most healthful dessert that can be placed upon the table is a baked apple.

Religious Service in New Zealand.—A reverend gentleman gives the following description of a Hauhau service, which was simple, to say the least: The priest or leader put a bottle of rum before him. They then squatted on the ground, and the leader called on the names of Jehovah and of their king, repeating here and there a passage of Scripture, such as suited him. Sometimes there was offered praise to Jehovah and the king together. Then followed a chant and prayer. The whole lasted a quarter of an hour, when the rum bottle was opened.

The fearful increase of murders in New York has led, it is asserted, to the organization of a vigilance committee. A similar committee is also reported as existing in Chicago. In this city the number of criminal acts has been terribly large of late, but we hear of no committee, the authorities being believed to be capable of doing all that is possible.

The Grand Festival.—The choruses in the city are very busy rehearsing for Camilla Urso's festival. Next week and hereafter the grand chorus will practice three evenings weekly. It is to be hoped that associations elsewhere will work diligently that, when they meet in the city, all may be well prepared. The indications are that the affair will be a grand success.

A Word for Home Inventors.

Oakland, Cal., December 1, 1869.

Messrs. Dewey & Co.—Gentlemen: Permit us through your paper to return our earnest thanks for the prompt and successful manner in which you have conducted the various matters of business with the Patent Office committed to your care, more especially in securing for us our last valuable patent in the face of so many difficulties. Were it an ordinary case, in which you had simply secured us a patent, and for which services you had received a suitable equivalent, we should hardly consider you entitled to our thanks, however much we might feel gratified with your professional ability, uniform courtesy, or success. But this seems to be an exceptional case, and entitled to peculiar consideration. Without entering here into a detailed account of the legal complications and various discouraging circumstances you were obliged to contend with, suffice it to say, that your almost unhoped for success, securing, as you did, a full patent, despite all these obstacles, in so short a time, was scarcely less surprising than gratifying to us; and we feel it a pleasant duty to offer you this merited testimonial of our appreciation for the valuable services rendered, and to return you our sincere thanks for the same.

In closing, we would say to the public that this is entirely voluntary on our part, as Messrs. Dewey & Co. neither asked it at our hands, nor knew that we intended giving it. It is simply a free-will offering to professional skill and reliability, and a word of friendly counsel to others on this coast who may be possessed of valuable inventions on which they wish to secure patents. To all such our earnest advice is to place them at once in the hands of Dewey & Co., instead of being driven to it by a sad experience like our own.

Yours truly, Hubert Burgess,
James Stratton.

* * *

A Valuable Paper.—We place upon our list of exchanges the Scientific Press, a paper devoted to Mining, Farming and Mechanic Arts, published in San Francisco by Dewey & Co., every Saturday, at $4 per annum. It has just entered upon its twentieth volume.

Its mechanical execution is of the first quality, and its contents are of the first importance to every class of industry.

We commend the Scientific Press to the industrial public that want a good valuable paper.—*Pac. Observer.*

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

---

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Returned.—Dr. J. H. Paine, Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

---

Spectacles, their adaptation to the various conditions of sight, is C. Muller's specialty. His store is at 205 Montgomery street. *

Virginia, Nev., Jan. 27, 1870.

Messrs. Dewey & Co., *Patent Agents*—Dear Sirs:—I have your favor of the 24th inst., informing me that my application for patent of "Improved Roofing and Flooring" has been allowed, and I thank you for the attention and dispatch used in executing this business for me. Yours truly, Patrick N. Mackay.

New Mining Notices.

Alleghany Consolidated Gold Mining Company. Location of Works: Sierra County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the thirtieth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
W H Tompkins	34	1000	$500 00
A L Whitney	32	185	92 50
John J Rorhe	4	15	7 50
Chas Adams, Trustee	12	1000	500 00
I N Thorne	13	125	62 50

And in accordance with law and an order of the Board of Trustees, made on the thirtieth day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room 37 New Merchants' Exchange, on the twenty-eighth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.

Office, No. 37 New Merchants' Exchange, third floor, California street, San Francisco. feb5

Pilot Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-third day of November, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Morris Newton, Trustee	not issued	1500	$150 00
F L Castle	not issued	100	10 00
John Hewston Jr.	not issued	1600	160 00
Lewis A Garnett	not issued	1600	160 00
H H Blake	not issued	840	84 00
A F White	not issued	840	84 00
O W Smith	not issued	800	80 00
W B Swain	not issued	40	4 00
H E Green	not issued	2400	240 00
A J Pope	not issued	2400	240 00

And in accordance with law and an order of the Board of Trustees, made on the twenty-third day of November, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room No. 7, 428 California street, San Francisco, on Monday, the twenty-first day of February, 1870, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. M. HARRON, Secretary.

Office, Room No. 7, 428 California street, San Francisco, California. fe5

Mining Notices--Continued.

Arctic Silver Mining Company.—Location of Works: Cortez, Lander County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the seventeenth day of December, 1869, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B W Hathaway	unissued	75	$225 00
Louis Dionne	unissued	5	15 00
A H Emanuel	unissued	2	6 00
I E Brockow	unissued	3	9 00
A D Meacham	unissued	25	75 00
Robt Hawxhurst	unissued	25	75 00
J P Moore	unissued	50	150 00
Emma E Snyder	unissued	5	15 00
J D Wilson	unissued	10	30 00

An in accordance with law, and an order of the Board of Trustees, made on the 17th day of December, 1869, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the eighth day of February, 1870, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. N. VAN BRUNT, Secretary.

Office, 426 Montgomery street, San Francisco. ja22

Cassell Silver Mining Company.—Location of Works: Cortez, Lander County, Nevada.

Notice.—There are delinquent upon the followed described stock, on account of assessment levied on the seventeenth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B W Hathaway	unissued	75	$225 00
Robt Hawxhurst	unissued	10	30 00
A D Meacham	unissued	46	135 00
R Yseger	unissued	6	18 00
Emma E Snyder	unissued	5	15 00
S L Goulding	unissued	5	15 00

And in accordance with law, and an order of the Board of Trustees, made on the seventeenth day of December, 1869, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the eighth day of February, 1870, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessments thereon, together with costs of advertising and expenses of sale.

R. N. VAN BRUNT, Secretary.

Office 426 Montgomery street, San Francisco. ja22

Idaho Silver Mining Company.—Location of Works: Cortez, Lander County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the seventeenth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A D Meacham	unissued	50	$150 00
J Spruance	unissued	75	225 00

And in accordance with law and an order of the Board of Trustees, made on the seventeenth day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the salesroom of Maurice Dore & Co., 327 Montgomery street, San Francisco, on the eighth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. N. VAN BRUNT. Sec etary.

Office, 426 Montgomery street, San Francisc a22

Imperial Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifth day of January, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable within thirty days, in United States gold and silver coin, to the Secretary, No. 319 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the tenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eight day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. E. MOODY, Secretary.

Offics, 319 California street, San Francisco. jan15

Latawana Mining Company.---Location: Hamilton City, White Pine, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-second day of December, 1809, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
D M Hosmer	1	100	$10 00
D M Hosmer	2	100	10 00
D M Hosmer	3	50	5 00
D M Hosmer	4	50	5 00
D M Hosmer	5	50	5 00
D M Hosmer	6	20	2 00
D M Hosmer	7	20	2 00
D M Hosmer	8	20	2 00
D M Hosmer	9	20	2 00
D M Hosmer	10	20	2 00
D M Hosmer	11	10	1 00
D M Hosmer	12	10	1 00
D M Hosmer	14	10	1 00
D M Hosmer	15	10	1 00
Richard Savage	16	100	10 00
Richard Savage	17	100	10 00
Richard Savago	19	60	5 00
Richard Savage	20	50	5 00
Richard Savage	21	20	2 00
Richard Savsge	22	20	2 00
Richard Savago	23	20	2 00
Richard Savage	24	20	2 00
Richard Savage	25	20	2 00
Richard Savage	26	10	1 00
Richard Savage	27	10	1 00
Richard Savage	28	10	1 00
Richard Savage	29	10	1 00
Richard Savage	30	10	1 00
Richard Savage	38	20	2 00
Richard Savage	39	20	2 00
Richard Savage	40	20	2 00
Richard Savage	41	20	2 00
Richard Savsgo	42	20	2 00
Richard Savage	45	5	50
Richard Savage	46	5	50
Richard Savage	47	5	50
Richard Savage	48	20	2 00
Richard Savsge	49	20	2 00
Richard Savage	60	20	2 00
Richard Savage	52	20	2 00
Richard Savage	90	1000	100 00
Richard Savage	91	500	50 00
Richard Savage	92	100	10 00
Richard Savage	93	100	10 00
Richard Savage	94	100	10 00
Richard Savage	95	100	10 00
Richard Savage	96	20	2 00
Richard Savage	97	20	2 00
Richard Savage	98	20	2 00
Richard Savage	99	10	1 00
S A Post	33	10	1 00
S A Post	34	10	1 00
S A Post	35	10	1 00
S A Post	36	10	1 00
S A Post	37	10	1 00
[$1 received on account. Balance due, $4.]			
L A Brown, Trustee	70	100	10 00
L A Brown, Trustee	71	100	10 00
L A Brown, Trustee	72	100	10 00
L A Brown, Trustee	73	100	10 00
L A Brown, Trustee	74	100	10 00
L A Brown, Trustee	75	100	10 00
L A Brown, Trustee	76	100	10 00
L A Brown, Trustee	77	100	10 00
O T Ames	78	100	10 00
O T Ames	79	100	10 00
O T Ames	80	100	10 00
O T Ames	81	100	10 00
O T Ames	82	100	10 00
O T Ames	83	100	10 00
O T Ames	84	100	10 00
O T Ames	85	100	10 00
O T Ames	86	100	10 00
O T Ames	87	188	18 80
S E Holcomb	112	768	76 80
Richard H Savage	115	10	1 00
S Hilton	119	20	2 00
Wm M Grant	120	354	35 40
Francis S Bowen	123	10	1 00
Wm Carrison	121	4248	424 80
P Conklin	59	2	20
P Conklin	60	3	30
P Conklin	61	5	50
P Conklin	62	5	50
P Conklin	63	5	50
P Conklin	64	5	50
P Conklin	65	5	50
P Conklin	66	5	50
P Conklin	67	5	50
P Conklin	68	5	50
P Conklin	69	5	50
P Conklin	104	400	40 00
P Conklin	105	5	50
P Conklin	106	3	30

[The sum of $26 has been paid on account of these 458 shares. Balance due on them, $19.80.]

And in accordance with law and an order of the Board of Trustees, made on the twenty-second day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at No. 526 California street, between Montgomery and Kearny streets, San Francisco, on Saturday, the nineteenth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. jan29

Pinto Mining Company.—Location of Works: Silverado, Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of January, 1870, an assessment of fifteen (15) cents per share was levied upon the capital stock of said Company, payable on the fifth day of January, 1870, in United States gold coin, to the Secretary, No. 426 Montgomery street, San Francisco, Cal., or to Homer S. King, Esq., Agent of Wells, Fargo & Co., Hamilton, Nevada.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the seventh day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street, San Francisco. jan8

Taylor Mill and Mining Company.—Location of Works: Georgetown District, El Dorado Co., State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifth day of January, 1870, an assessment of sixty cents per share was levied upon each and every share of the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 520 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventh day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of February, 1870, to pay the delinquent assessment, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

SAM'L S. MURFEY, Secretary.

Office, No. 520 Montgomery street, over Sather's Bank, San Francisco, Cal. jan8

U. S. Grant Mining Company.—Location of Works: Carlisle, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of January, 1870, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 226 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the twelfth day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ENOS TAYLOR, Secretary.

Office, 226 Clay street, San Francisco. ja29

For Miners, Millmen and Metallurgists.

KUSTEL'S NEW WORK,

CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS,

For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price, - - - - $7.50

A liberal discount to the Trade. For sale by the Booksellers Sent to any part of the United States, postage paid, on receipt of the price. Address,

DEWEY & CO., Publishers,

Office of the Scientific Press, 414 Clay street,

1v16tf AN FRANCISCO, 1868.

New Advertisements.

SILVER AND LEAD ORES

Of every description purchased or worked at

The Oreana Smelting and Refining Works'

JOSEPH MOSHEIMER,
Oreana, Humboldt County, Nevada.
Office in San Francisco, 328 Montgomery street. 6v20

SACRAMENTO

BOILER WORKS,

I Street, between Front and Second.

Boilers of all classes, Wrought Iron Tanks, Girders, Gasometers, and all classes of Sheet Iron Work, made to order. Full satisfaction given, or no pay. Millmen and Grain Thrashers are cautioned to look to the safety of their boilers. Repairing and overhauling done carefully and warranted, and at low prices.

J. V. HALL,
6v20-3m Practical Boiler Maker, Proprietor.

Save your Boi'ers!

Save your Fuel!;

Save your Temper!

BY USING

CHRISTOFFEL & BOOTH'S

PATENT

Boiler Scraper and Tube Cleaner.

The Most Complete and Perfect Instrument of the kind Invented.

SIZES TO SUIT ALL TUBULAR BOILERS.

They cost but a trifle, and are handy as well as economical. For further particulars, or for the purchase of Scrapers, address or call on

McAFFEE, SPIERS & CO.,
6v20 Howard street, near Fremont, San Francisco

Our Home Physician.

By GEO. M. BEARD, A. M., M. D., of New York. Its superior merits are endorsed by the Scientific American, Rural New-Yorker, leading medical journals and physicians of established reputation at the East and on the Pacific coast. Copyrighted 1869. The only complete Family Medical Book written since 1860. Send for circular containing extracts from author's introductory, testimonials, etc. Address, WESTERN PUBLISHING AGENCY, 411 Kearny street, San Francisco. Agents wanted also for Dr. Dadd's Reformed Horse Book. 6v20-3m

Free Information for Inventors and Patentees.

Our Patent Office Circular, relating to U. S. and Foreign Patents, Caveats, Patent Laws, Rights of Inventors, Valuable Hints, Illustrated Mechanical Movements, etc., comprises 48 pamphlet pages, embracing the following

List of Contents:

Advancing Cases; Advantages, Important; Assignments, Forms, Cost, etc.; Caveats—of what they Consist, Form of, Cost, how Filed effectively; Cost of Obtaining Patents; Confidential Advice; Copies of Patents Assignments, etc.; Copyrights; Dangers of Delay; Designs, Patents for; Engravings and Illustrations; Engine, Condensing-Beam—Illustrated; Extension of Patents; Foreign Patents—all Countries; Forign Inventors; Hints to Inventors; Government Fees, List of; Home Counsel; How to Obtain Patents—Steps Necessary; Hydrostatic Press—Illustrated; Interferences; Influence at Washington; Laws (U. S.) and Decisions Relating to Patents; Lathe, Engine—Illustrated; Letters Patent—of what they Consist; Library, Reports, Law Books; Locomotive Engine—Illustrated; Medicines or Compounds, Patent for; Mechanical Movements—Illustrated; Mining and Scientific Press Office; Processes, Patents for; Record of Pacific Coast Patents; Re-issues; Rejections—Cause and Remedy; Reports of Patent Office; Rights and Privileges of Inventors and Patentees; Saving of Time; Self-evident Facts; Selling Patent Rights; Springs, Various Kinds—Illustrated; Stamp Battery, Quartz—Illustrated; Telegraph, Patent Business by; Unsuccessful Applicants; Who can Obtain Letters Patents; What Claims can be Patented; Worthless Patents, Candid Reasoning.

This pamphlet will be furnished free on receipt of postage stamp. Confidential advice given, and every legitimate branch of Patent Soliciting business promptly and faithfully executed by

DEWEY & CO.,
U. S. and Foreign Patent Agents, Scientific Press Office, 414 Clay street, San Francisco.

RICE'S PATENT

SELF-ADJUSTING

UNIFORM STAMP LIFT.

A Model of this valuable invention can be seen at the MINERS' FOUNDRY CO-OPERATIVE, 236 to 245 First sreet, San Francisco. 4v20-1m

---

A Valuable Book for Inventors and Artisans.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Press office, postpaid, for $1.—*New Age.*

To all who may wish to obtain a thorough knowledge of the industrial resources of the Pacific Coast, the Press will be found a valuable paper.—*Oakland Transcript.*

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

GLASGOW
Iron and Metal Importing Company,

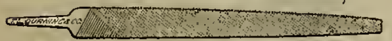
Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.

2v17-3m **T. G. DURNING & CO**

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

J. P. GALLAGHER. J. H. WEED V. KINGWELL.
9v13-1y

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.]

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of Housesmith Work; Bridge, Prison,

FORGING AND MACHINE WORK,

FIRE AND BURGLAR-PROOF SAFES,

BANK VAULTS,

Improved Monitor Safes,

Constructed of Welded Steel and Iron, fastened with conical steel bolts.

Safes Let by the Month.

Manufacturer of the

Duplex and Excelsior Combination Bank Locks.

Agent for the ISHAM KEY REGISTER BANK LOCK.

1v17-tf

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco.

10v14qr

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY[

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam-Engines, and Mill Work Generally.

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

THE RISDON
Iron and Locomotive Works.

INCORPORATED................................APRIL 30, 1858.
CAPITAL................................$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	James Pollock,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON................................President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD................................Secretary.

21v17-qy

SAN FRANCISCO.
Pioneer Screen Works.

JOHN W. QUICK,

203 Fremont street, near Howard, San Francisco.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at greatly reduced rates.

ORDERS SOLICITED AND PROMPTLY ATTENDED TO.

I would call special attention to my slot cut and slot punched Screens which are attracting much attention and giving universal satisfaction, both as regards their efficiency and durability. This is the only establishment on the coast devoted entirely to the manufacture of Screens. It has furnished screens for the principal mills and firms on the coast for many years. 10v19tf

---

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

NEW FILES OF EVERY DESCRIPTION

ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended to. 9v19 qy

---

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

SAN FRANCISCO
Gold and Silver Plating Works.

ATTENTION.

Quartz Mill Men,

MINERS,

HOTEL KEEPERS,

— AND —

OTHERS.

ATTENTION.

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

E. G. DENNISTON, Proprietor,

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

FOUNDRY FACINGS.

BENJAMIN ELLIOT,

No. 483 Brannan street......................San Francisco,

Manufactures Foundry Facings constantly, from choice coals. Bituminous, packed in tight sacks. Anthracite and Charcoal ground together or separate, packed in barrels. Black Lead, Coke and Soapstone ground to order. ☞ Foundrymen located far from choice material, can rely on having superior Facings forwarded to order.

10v18qr

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-1f **414 Front street,** San Francisco.

The Perfection of Prepared Cocoa.

MARAVILLA COCOA.

Sole Proprietors—TAYLOR BROTHERS, London.

The Cocoa (or Cacao) of Maravilla is the true Theobroma of Linnæus. Cocoa is indigenous to South America, of which Maravilla is a favored portion. TAYLOR BROTHERS having secured the exclusive supply of this unrivalled Cocoa have, by the skillful application of their soluble principle and elaborate machinery, produced what is so undeniably the perfection of Prepared Cocoa, that it has not only secured the preference of homœopaths and cocoa-drinkers generally, but many who had hitherto not found any preparation to suit them, have, after one trial, adopted the Maravilla Cocoa as their constant beverage for breakfast, luncheon, etc.

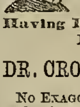
"A SUCCESS UNPRECEDENTED."

[See following extract from the Globe of May 14, 1868.]

"Various importers and manufacturers have attempted to attain a perfection for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage."

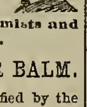
Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills, Brick Lane, London.

8v19 6m



WONDERFUL

Scientific Discovery.



THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly,

John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

---

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.

DIVIDED INTO 1,200,000 SHARES OF

TEN DOLLARS EACH,

FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President..........................SAMUEL MERRITT.
Vice-President..........................MICHAEL REESE.
Treasurer..........................J. SELIGMAN & CO.
Secretary and General Agent.........W. K. VAN ALEN.

Board of Trustees—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm. H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, seven miles in length by four thousand feet in width, embracing five thousand and twenty acres.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of all mines discovered by the Tunnel.

4th—A royalty forever of two dollars on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of his great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast,

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
Secretary and General Agent,
625 Montgomery street,
Opp. Montgomery Block,

3v20-3m

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

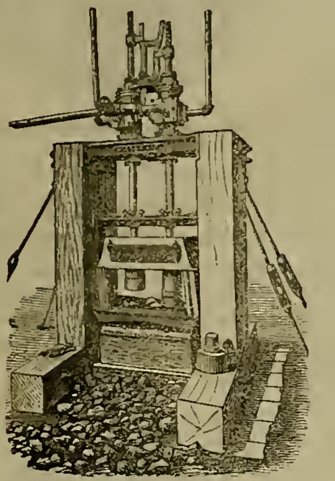
FRIDAY, February 3d, 1870.

IRON.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 lbs.; Bar, 1@1¼c ℔ lb; Sheet, polished, 3c ℔ lb; common, 1¼@1¼c ℔ lb; Plate, 1½c ℔ lb; Pipe, 1½c ℔ lb; Galvanized, 2½c ℔ lb.		
Scotch and Eng. Pig Iron, ℔ ton	$28 00	@$30 00
White Pig, ℔ ton	28 00	@ — —
Refined Bar, bad assortment, ℔ lb	— 03	@ — —
Refined Bar, good assortment, ℔ lb	— 04	@ — —
Boiler, No. 1 to 4	— 04¼	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 01½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
COPPER.—Duty: Sheathing, 3½c ℔ lb; Pig and Bar, 2½c ℔ lb.		
Sheathing, ℔ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
TIN PLATES.—Duty: 25 ℔ cent. ad valorem.		
Plates, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℔ lb	— —	@ — 42
STEEL.—English Cast Steel, ℔ lb	— —	@ — 15
QUICKSILVER.—℔ lb	— 55	@ — 60
LEAD.—Pig, ℔ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
ZINC.—Sheets, ℔ lb	— 10½	@ — 11
BORAX.—California, ℔ lb	— —	@ — 45

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

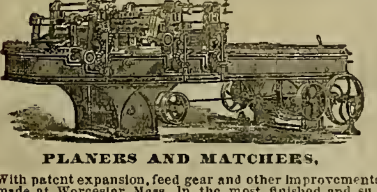
A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

Woodworth Planers,



PLANERS AND MATCHERS,

With patent expansion, feed gear and other improvements made at Worcester, Mass., in the most finished and substantial manner; also every description of Richardson Meriam & Co's, Smith's and Wood's celebrated

Wood Working Machinery.

Embracing Mortising, Sash and Moulding, Smith's Stickers, Slat and Door Tenoning, Boring, Shaping, Scroll Sawing, Planing, Rod and Dowell making and Re-sawing Machines, Wood and Engine Lathes, etc., for sale at Eastern prices, at the Machinery Depot of

BERRY & PLACE,
112 and 114 California st., San Francisco.

☞Agents for Blake's Patent Steam Pump, (warranted the best in the market); Davis & Furber's Woolen Machinery, etc. Being the selling agents for most first class Eastern builders, millmen and others in want of Machinery can save money by giving us a call. Illustrated Catalogues sent free.

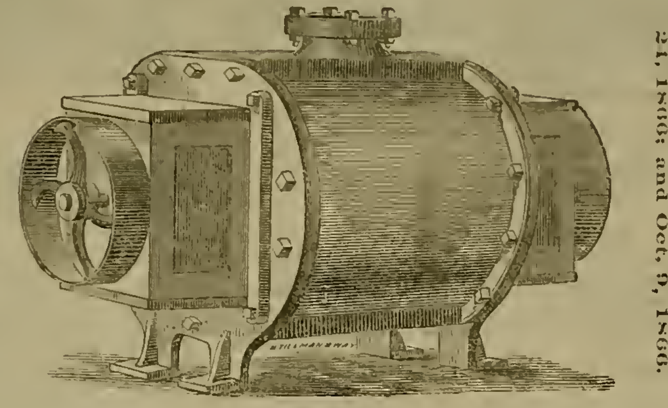
SEND FORMER ADDRESS when you wish your paper directed to a new place.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER

MANUFACTURED BY KEEP & BARGION,

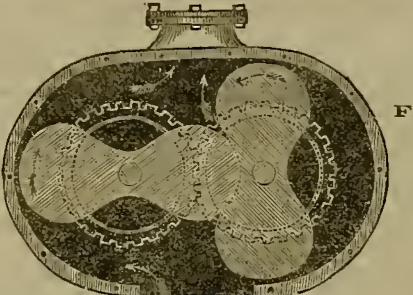
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 21, 1866; and Oct. 9, 1866.

ADAPTED FOR
Smelting,
Foundry,
Mining
and
Steamships.



REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
Now in use.

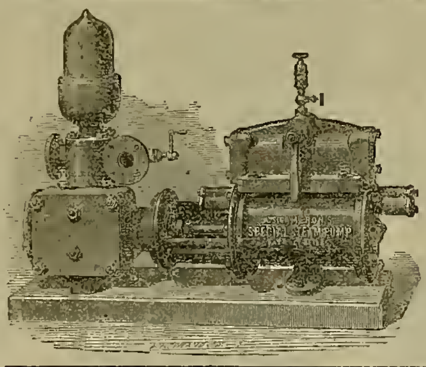
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

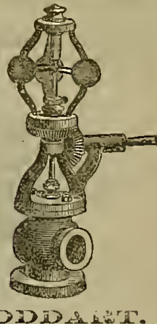
Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m Globe Iron Works, Stockton, Cal.

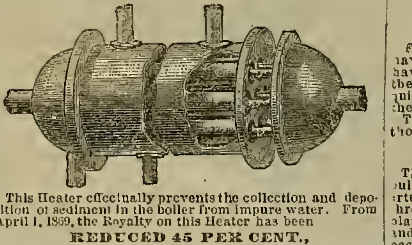


CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
MARINE
ENGINES.
SURFACE
CONDENSERS.



DAVID STODDART,
114 BEALE STREET.

CROSS' COMBINED
Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
3v18 1y Stove Store, No. 1 Clay Street, below Davis.

THE GIANT

POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 25v16

VARNEY'S
PATENT AMALGAMATOR.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

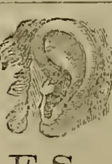
The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlors for themselves, at the office, 229 Fremont street,

1v1 San Francisco.

EYE
AND
EAR



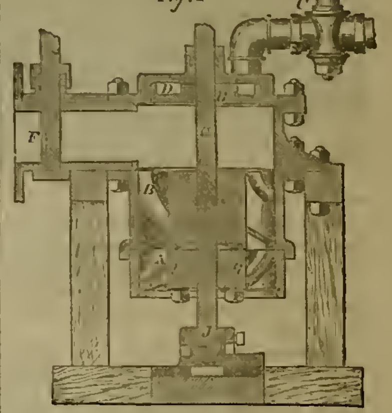
DISEASES.

DR. ABORN'S
CONSULTING AND OPERATING APARTMENTS,
NO. 22 KEARNY STREET,

For the most modern and scientific treatment of the diseases of the EYE, EAR, HEAD, THROAT and LUNGS.
16v19-3m

Lind's Improved Water Wheel

Fig. 1



Has given the highest satisfaction to parties using it. We are now prepared to sell it at reduced prices. Will also contract for all kinds of Machinery—Flour, Saw and Quartz Mill. All our work guaranteed. We will send competent men to put up our Wheels and Machinery. We contract for or do it ourselves. Our extensive acquaintance with millwrights on this coast enables us to furnish millmen with the best of workmen at short notice. Drawings for contracts furnished gratis. Send for circular.

A. LIND, Millwright,
Pacific Iron Works, San Francisco.

Refer to John Simo and J. J. Haley. 19v19

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods CHEAPLY, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies: mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent. off to the trade. Address,

HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

Ayer's Cherry Pectoral,

For Diseases of the Throat and Lungs, such as Coughs, Colds, Whooping Cough, Bronchitis, Asthma, and Consumption.

Probably never before in the whole history of medicine, has anything won so widely and so deeply upon the confidence of mankind, as this excellent remedy for pulmonary complaints. Through a long series of years, and among most of the races of men it has risen higher and higher in their estimation, as it has become better known. Its uniform character and power to cure the various affections of the lungs and throat, have made it known as a reliable protector against them. While adapted to milder forms of disease and to young children, it is at the same time the most effectual remedy that can be given for incipient consumption, and the dangerous affections of the throat and lungs. As a provision against sudden attacks of *Croup*, it should be kept on hand in every family, and indeed as all are sometimes subject to colds and coughs, all should be provided with this antidote for them.

Although settled *Consumption* is thought incurable, still great numbers of cases where the disease seemed settled, have been completely cured, and the patient restored to sound health by the *Cherry Pectoral*. So complete is its mastery over the disorders of the Lungs and Throat, that the most obstinate of them yield to it. When nothing else could reach them, under the *Cherry Pectoral* they subside and disappear.

Singers and Public Speakers find great protection from it.

Asthma is always relieved and often wholly cured by it.

Bronchitis is generally cured by taking the *Cherry Pectoral* in small and frequent doses.

So generally are its virtues known that we need not publish the certificates of them here, or do more than assure the public that its qualities are fully maintained.

Ayer's Ague Cure,

For Fever and Ague, Intermittent Fever, Chill Fever, Remittent Fever, Dumb Ague, Periodical or Bilious Fever, &c., and indeed all the affections which arise from malarious, marsh, or miasmatic poisons.

As its name implies, it does *Cure*, and does not fail. Containing neither Arsenic, Quinine, Bismuth, Zinc, nor any other mineral or poisonous substance whatever, it in nowise injures any patient. The number and importance of its cures in the ague districts, are literally beyond account, and we believe without a parallel in the history of Ague medicine. Our pride is gratified by the acknowledgments we receive of the radical cures effected in obstinate cases, and where other remedies had wholly failed.

Unacclimated persons, either resident in, or travelling through miasmatic localities, will be protected by taking the *AGUE CURE* daily.

For *Liver Complaints*, arising from torpidity of the Liver, it is an excellent remedy, stimulating the Liver into healthy activity.

For Bilious Disorders and Liver Complaints, it is an excellent remedy, producing many truly remarkable cures, where other medicines had failed.

Prepared by DR. J. C. AYER & Co., Practical and Analytical Chemists, Lowell, Mass., and sold all round the world.

PRICE, $1.00 PER BOTTLE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 15v19eow-4m

New Incorporations.

The following have filed articles of incorporation with the County Clerk, S. F.:

California Street Sweeping Co.—Jan. 27th. Capital, $30,000. Trustees: D. C. Woods, E. A. Rowe, J. McCombe, H. Still and C. J. Pillsbury.

G. A. R. Cemetery Association.—Jan. 28th. Trustees: C. E. Lancaster, F. A. Montell, A. H. W. Creigh, C. W. Nystrom, C. P. Kelly, J. C. Sargent, W. H. Aiken and James O'Brien.

The following have been recorded in the Secretary of State's office, Sacramento:

Colusa Railroad.—To run from Colusa *via* Marysville to Nevada. Capital, $2,000,000, in $100 shares. Business office at Marysville.

Stockton and Ione R. R. Co.—Feb. 2d. Object to construct a road from a point ten miles east of Stockton, and using Copperopolis Railroad, to end near Ione City, Amador. Capital, $1,500,000. Directors: John Wilson, Geo. Gray, A. Clark, H. E. Hall, E. R. Stockwell, J. H. O'Brien, J. K. Doak, R. K. Reid and E. S. Holden.

Mission San Jose Water Co.—Feb. 2d. Capital, $3,000. Trustees: E. L. Beard, H. S. Ellsworth and J. L. Beard. Place of business, Mission San José.

◆

The Darien Canal.—A dispatch of the 31st of January announces the organization of a new company for constructing the Darien canal. Four French bankers and a dozen American capitalists are at the head of the company. The importance of the work is very great. The distance of sailing between San Francisco and New York will be reduced about one-third. The company await the report of the United States Exploring Expedition before commencing work.

Volunteer Compliments.

From an endless series of appreciative testimonials and frank acknowledgements, we give the following:

"Tidal Wave" Office, Silver City,
Idaho Territory, July 27th, 1869.

Messrs. Dewey & Co.—Gentlemen:—Allow me to express my high appreciation of the ability and business management of the Mining and Scientific Press Patent Agency, and to say that our business relations have been marked with the utmost promptitude upon your part and with entire satisfaction upon mine.
Yours, etc., Jno. S. Butler.

San Francisco, May 5, 1869.—Messrs. Dewey & Co. Gentlemen:—Allow me to express to you many thanks for services rendered me in procuring my patent, which has just come to hand. I would also say that your work has been faithfully done, and your advice and representations have in all cases been honest and truthful.
Respectfully, Geo. Inwood.

San Francisco, April 19, 1869.

Messrs. Dewey & Co., Patent Agents.—*Gentlemen:*—Allow me herewith to tender you my sincere thanks for the efficient assistance you have rendered me in securing my patent, and other papers, as well as the promptness and energy displayed by you in our business transactions. Very respectfully yours, C. E. Jaycox.

Grass Valley, Dec. 2, 1868—*Messrs. Dewey & Co.*—Having received the patent for Symons & Co's Tossing and Refining Concentrator, through your Agency, we return our sincere thanks to you for your unrivalled success. Yours, respectfully, Symons & Harry.

Mayfield, Cal., June 26, 1869.

Dewey & Co., *Patent Solicitors, San Francisco*—Gentlemen:—In acknowledging the receipt of my Letters Patent, allow me to express my thanks for the skillful and trustworthy manner in which you have conducted my business before the Department at Washington. I am perfectly satisfied with the high degree of ability and integrity displayed in the management of my case, and I know of no similar agency in which I could place corresponding trust. Yours truly, J. M. Johnson.

Stockton, April 8th, 1869.

Messrs. Dewey & Co.:—Your favor of the 6th inst., accompanying patent for improvement in horse shoes, is received. I beg you will accept the earnest assurance of my gratitude for your kind assistance and valuable services. Very truly yours, W. R. Watson.

Somersville, Cal., August 25th, 1869.

Messrs. Dewey & Co.—Dear Sirs: Allow me to return you my thanks for the very able manner in which you have conducted the business entrusted to your care. You will please forward the document (British Patent) by Bamber's Express to this place. Yours, respectfully,
Geo. Hawxhurst.

Jamestown, Cal., July 6th, 1869.

Messrs. Dewey & Co.—Gentlemen:—The Patent for our Ore Washer and Concentrator was duly received by express. We return you our thanks for the promptness and successful manner which have attended your efforts in our behalf. Yours, Wm. G. Heslep.

Santa Cruz, December 30, 1869.

Messrs. Dewey & Co.—*Gentlemen:*—Yours of the 24th December, inclosing my patent for construction of earthquake-proof wall, was duly received last night. I am highly pleased with the way in which the business has been done. The ability which carried it through, and the scrupulous care bestowed on its preparation, are above praise; and I will gladly intrust to your hands any further business I may have to do, which will soon take place on a very useful and important invention.
Very truly yours, A. McPherson.

Nevada City, Nov. 3d, 1868.

Messrs. Dewey & Co.—Gentlemen:—Your favor of the 30th ult., is just received, informing me of the successfull prosecution of my application for a patent on my "Hair Cutting Shears." Please accept my sincere thanks for the speedy and successful manner in which you have conducted the case, and believe me, as ever,
Very truly yours, Lee D. Craig.

We have had frequent occasion to have business relations with the patent agency connected with this establishment, and have had nothing left to desire in regard to it. Fidelity, promptness and courtesy, soon arranged everything for us to our complete satisfaction. Having had frequent delays at Washington while in that city, we have been surprised at the promptitude with which some of our friends obtained their patents through the agency of Messrs. Dewey & Co.—*S. F. Spiritual Light.*

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

Illustrate your Inventions

In the Scientific Press,

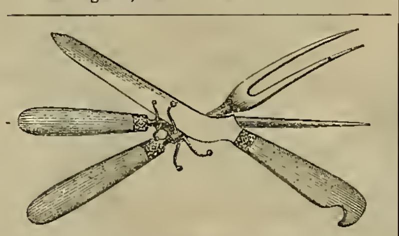
An illustrated journal of Mining, Farming, Mechanic Arts and Industries on the Pacific Coast. It costs no more for a superior engraving by our experienced artists than is usually charged for a less perfect picture. If you wish to introduce a new invention properly before the public, the first steps in so doing are important ones. A full description and correct representation in the Press will go further and prove more quickly effective than any other means.

The fact that an illustration is admitted into our columns, guarantees the invention important consideration in the minds of thousands of the most intelligent readers—at home and abroad—who would not notice it so favorably or so thoroughly, if at all, when presented through an unreliable medium or indifferent source.

The model of an invention sent to us is sufficient for making a good engraving, Sometimes a photographic view is sufficient; but it is always best accompanied with drawings or a copy of the patent, A first-class illustration has proved to be one of the best and cheapest means of obtaining purchasers for a good machine or a valuable patent.

Cuts ordered for illustration are the property of the inventor who pays for them, and can generally be used for circulars, pamphlets, books, or other newspapers. The engravings to be seen in each issue of the Scientific Press are a fair sample of the work of the artists who can always be found in our office.

DEWEY & CO.,
Publishers Scientific Press, American and Foreign Patent Agents, San Francisco.



M. PRICE, Maker,
No. 415 KEARNY STREET,
Between Pine and California, San Francisco.
20v19-3m

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

STEEN & CUSHING,

AGENTS FOR THE
PURCHASE AND SALE
—OF—
Patent Rights, Engines, Boilers,
—AND—
MACHINERY OF ALL KINDS.
NO. 9 FIRST STREET, SAN FRANCISCO.

WE HAVE ON HAND IN GREAT VARIETY,

- Engines and Boilers,
- Steam and Hand Pumps,
- Pipe,
- Presses,
- Shafting,
- Pulleys,
- Boxes,
- Mill Stones,
- Portable Mills,
- Malt Rolls,
- Injectors,
- Lathes and Planers,
- Governors,
- Steam Gauges,
- Quicksilver,
- Gas Stocks and Dies,
- Belting,
- Water-tanks, etc.,

Which we will sell at a discount of 25 to 75 per cent. on cost of new, in this city. Parties having any kind of machinery for sale, may meet with customers by consigning to us. Purchases made on Commission, and prices guaranteed as low or lower than parties can make themselves.

STEEN & CUSHING,
No. 9 First street, San Francisco.

DEWEY & Co.

American and Foreign
Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint. San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs A. S. Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adns, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differs special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology, and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven. Conn. 13v6-1y16n

---

GEO. E. ROGERS,

(Successor to O. W. Bell.)

ASSAYER,

512 California st., San Francisco.

J. A. MARS, Assayer.

Ores carefully Assayed. Gold and Silver Ores worked
23v16-qr10pnr

W. T. GARRATT,
CITY
Brass and Bell Founder,

Corner Mission and Fremont Streets,
MANUFACTURER OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

---

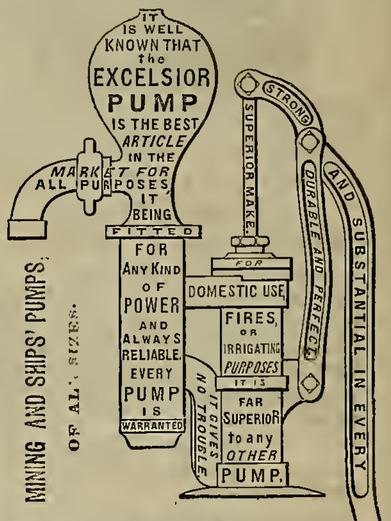
N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.


IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES, IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
SUPERIOR MAKE.
STRONG
DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT.
FOR DOMESTIC USE
FIRES, OR IRRIGATING PURPOSES
IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street
SAN FRANCISCO.

To Solicitors.

AGENTS WANTED.

One or two active and reliable Agents can obtain permanent and profitable employment by addressing or calling at this office,

---

MANUFACTURING
Room to Let.

We have a large room, about 18 by 36 feet, in second story at 414 Clay street, near Sansome, which we will rent very low, suitable for printing or manufacturing purposes

DEWEY & CO.,
Publishers Scientific Press, 414 Clay st

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, February 12, 1870.

VOLUME XX.
Number 7.

Grapes on the High Sierras.

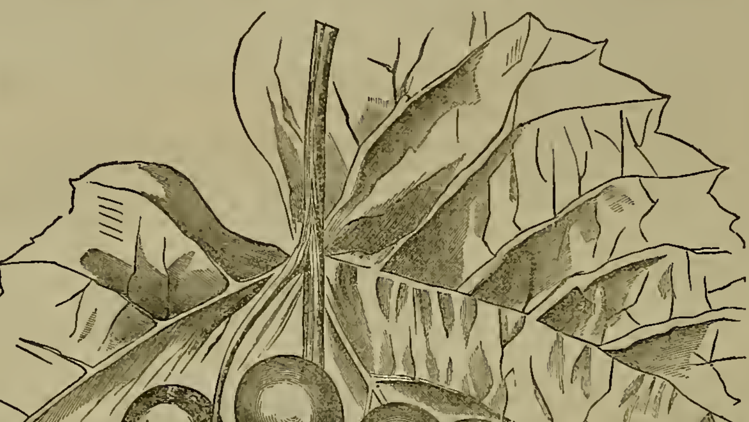
There is a large area of elevated, good agricultural land, on the Pacific slope, from four to six thousand feet above the level of the sea, occupied by a hardy and industrious class of people who have settled upon it as agriculturists. The chief portion of this land consists of a chain of beautiful mountain valleys, commencing with Sierra Valley—the one first north of the lakes which form the source of the Truckee river—and embracing, in succession, the American, Indian, Honey Lake, Mountain Velley, etc.; the chain running far north into Oregon. These valleys constitute gems of green meadows nestled within the snow-clad peaks of the Sierras, everywhere fringed with noble evergreens and covered with rich natural grasses.

Within these valleys are located some of the finest dairies and stock ranches in the State, and the golden grain here and there waves in the cultivated fields. Nearly all sorts of vegetables are also grown there, upon ground covered by snow in winter and where the frost retards the early approach of spring. Many of the hardier sorts of fruits have also been found to do well there; and some, once thought quite too sensitive to cold and frost, have rewarded the venturesome hand.

Quite too little attention has been paid to the agricultural resources and possibilities of our high agricultural lands. A few experiments which have been made, have shown that even in the sterile State of Nevada, where blighting winds hold dominion over sage-brush, hill and plain, where snow and frost bind up the earth for more than half the year many places prove fertile to the farmer's art, and produce grain, vegetables, and some fruits, and are even made to "blossom as the rose." But, as far as we have observed, none of these mountain places have been tried with the luscious grape, that makes the lower hills and valleys purple in the sun. From experience in other culture there can be no doubt but the hardier sort of grapes, such as are grown in the Northern States, would thrive equally well or better in all the places mentioned, and would surely reward the enterprise that might introduce them.

We might mention many varieties that are held in high esteem, which would be likely to flourish in such localities—the Diana, the Catawba, the Concord, the Delaware, the Isabella and Muscadine among others—all of which should be tried by our mountain friends. Many a miner, even, in his high mountain home, might plant a vine to bless and refresh either himself or some future wanderer on his track.

We have herewith figured the first of the varieties named, an excellent grape and one very extensively cultivated in the Northern States. The bunches are of medium size, but very compact. The berries are rather larger in size, round, and of a pale red color. The skin is thick, which renders it well suited for transportation, while for keeping it has no superior. Its flesh is tender pulpy, very sweet and juicy. It colors its fruit as early as the Concord; but does not mature much earlier than the Catawba. The thickness of its skin allows of its being left on the vine until pretty severe frosts come. In fact, light frosts seem to improve its flavor. A dry and gravelly soil suits it best; for on deep rich soil it is inclined to make too much wood.



A MOUNTAIN GRAPE—"THE DIANA."

We figure the Diana as a fair representative of the variety of grape suited to cold latitudes.

Origin.—This grape was a seedling grown from seed of the Catawba by Mrs. Diana Crehore, of Milton, near Boston, Massachusetts. Hence its name.

We hope our mountain readers—those who dwell in the higher portions of the Sierras, and residents of the elevated table regions of the State of Nevada—will deem these remarks of sufficient importance to act upon the suggestions, and move at once for the introduction into the localities referred to of the more hardy varieties of the grape.

As some little evidence, of the practicability of what we suggest, we would state that at Crystal Peak, on the Truckee, there is growing a grape vine of the Mission variety, which was planted several years ago by a clergyman named Heckle. This vine has produced grapes for three successive years. Mr. Tolles, near Reno, Nevada, has also produced fine Catawba grapes. The only reason that grapes are not growing all over the mountain regions and the table lands beyond, is the simple one that they *have never been planted*. That the more hardy varieties will succeed in such localities is a positive certainty.

In planting grapes in elevated regions, or where early frosts may be expected, it is always advisable, when it can be done, to set them out by the side of large rocks, and train them over or near them, instead of upon stakes, as is practiced in the valleys. The reason for this is self-evident. The rocks absorb a large amount of heat by day, which they are constantly giving out by night. So much is thus given off from a large rock or boulder that a vine in immediate contact or near proximity thereto will be entirely untouched by the frost, when much hardier plants, in the open field a little distance, will be killed.

A New Pile-Driver.

The Pacific Railroad Company are building, at Oakland Point, one of Bolen & Craine's machines for driving piles by the direct action of steam. As this is the first machine of the kind ever built on this coast, its completion and operation is looked for with some interest.

The frame differs from the ordinary pile-drivers in appearance, by having one upright, which looks very much like the mast of a vessel. This mast is the guide to the steam hammer, which, with its cylinder and casing, weighs about three tons, and may be individualized as separate from the other works. It stands upon the pile to be driven, and strikes eighty blows per minute. The hammer is attached to the piston, and is raised by the direct action of the steam in the cylinder above it. The full stroke is forty-two inches, but may be regulated to any degree less by the engineer. The top of the pile is champered to receive a beveled ring one foot square. The casing in which the hammer works sockets onto the beveled ring, thus securing a firm rest, and by its own weight assisting in the work. Another engine, on the scow, handles the piles, and raises the hammer-engine to the elevation at which it is to be placed upon the top of the pile to commence its work.

On general principles we are inclined to think the weight of the blow should *always exceed* the amount of resistance to be overcome; otherwise the pile will suffer the effect of the shock. Our experience in driving nails, pegs and posts leads us to the opinion that a few heavy blows are more efficient than many light ones, and with less damage to the thing driven. If this machine combines sufficient force with rapid blows, it will be a sure success.

DESTRUCTIVE FIRE AT THE GOLDEN STATE IRON WORKS.—Early last Saturday morning these works and the St. Charles Hotel, adjoining them, were discovered to be on fire, and before the engines were able to get at work the upper part of the foundry building was wholly destroyed and the lower part badly damaged. A large quantity of patterns was destroyed, and much of the machinery very badly damaged. Mr. Palmer estimates the loss at about $40,000, the heaviest loss being in patterns. The establishment was owned by Palmer, Knox & Co., and was insured for $9,500. The cause is as yet unknown. We hope that the proprietors may be able to repair the damage, and that the works may soon be again in operation. They are men who have the full confidence and esteem of the community.

Communications.

Clothing Appropriate for the Pacific Coast.

[Written for the Scientific Press.]

Editors Press:—I have been induced, from the appearance in the Scientific Press of an article respecting the importation, by Messrs. Butterfield & Co., of a considerable number of Cashmere goats, and other articles in the *Morning Call* relative to the silk manufacture, to append a few observations, closely allied to the economic use of wool, as associated with other agricultural industries. The daily climatic variations observed on the coast of California are well known to us, while in the interior these changes are more equally divided into seasonal, in place of daily occurrence. Excepting at very great elevations, the latter variations are by no means so severe as on the Atlantic coast, within the same latitudes.

So far as the coast line is concerned, I am prepared, by personal experience, to testify that no textile is so efficient for possessing the opposite qualities of mitigating, to the wearer, the effects of cold, and also that of extreme heat, as exterior clothing composed of cloth formed by the combination of silk and the fur of animals, such as that of the beaver, hare, rabbit, and next wool and animal fur, and lastly, linen or cotton used jointly with the same product. About twenty years ago, textiles of the character named were manufactured in England, under the name of "Astoria cloth," and were used to some extent, generally, for ladies' cloaks, but never become thoroughly fashionable, chiefly, I believe, because the fur was not susceptible of taking such brilliant tints as silk, wool, etc. As combining warmth with extreme lightness, the textile named stands unrivalled. Next to this variety of cloth, for the qualities named, is the mixture of wool with silk; then flax with wool, and lastly, cotton with wool (winceys). the last, however, rather trashy, for either men's or woman's wear; but flax and wool (the true old linsey-woolseys) are admirable for both.

From the preceding sketch it will be easily understood that, possessing as we do on this coast, not only practically unlimited resources for the production of the raw materials, fur (much now thrown away), silk, flax and wool, as well as a climate which is peculiarly suitable for the consumption of mixed fabrics, composed of those materials, accompanied also by the advantages of possessing, if economically husbanded, of a more than sufficient amount of water-power for their manufacture into commercial materials, form combined advantages rarely met with. If health and comfort by our people are studied, fabrics, such as are now recommended, would at once become the general wear on this coast, for both male and female, whenever the articles are brought into market, especially if of home production.

Provided some of the raw materials, such as silk, could not be obtained as the product of the State in adequate quantities in the first instance, any quantity can be imported from Japan and China; the trade in which from those countries to New York now passes through San Francisco; while by manufacturing it here, not only would two freights be saved, so far as our local consumption is concerned, but at the same time would distribute in wages a large amount of money amongst industriously-disposed females.

It is sincerely to be hoped, therefore, that both Mr. Newman's enterprise, as well as another of a similar kind which is now under consideration by some gentlemen who have had practical experience in some important branches of the silk manufacture at the East, will meet with adequate encouragement by our citizens.

Thomas Rowlandson.

San Francisco, Feb. 7th, 1870.

◆

An Opinion.—The *Scientific American* says that many practical and scientific men believe we are on the eve of new discoveries which will render the navigation of the air practicable, notwithstanding the failures which have hitherto attended experiments in this field. Whether the problem is solved or not, it will never lose its fascinations.

Heating Saline Solutions by Steam.

[Written for the Scientific Press.]

Editors Press:—The fact noticed by you in your issue of January 15th, that the temperature of a saline solution can be raised above 212° by steam of that temperature, must have long been practically familiar to many. In fact, I have been accustomed to regard it as self-evident, though, on further consideration, I find it less so than I had supposed.

As you do not offer any explanation of the phenomenon, I beg to suggest one, which, however, may not be correct.

I suppose it to be due to the solubility of steam in water of the same temperature as itself, by which it becomes amenable to the effect of saline matter, also in solution, in raising the point of vaporization, in consequence of which the steam is reduced to water, and imparts its latent heat of vaporization to the saline fluid, till the latter is raised to its boiling point.

If this view is correct, it would be easy to determine the quantity of steam at 212° which would be required to heat a given weight of a saline solution of known density to its boiling point, the specific heat of the solution being previously determined, with, of course, due allowance for the progressive depreciation of its density by condensation of steam.

It will also follow that a liquid in which steam is not soluble, such as mercury, could not be heated above 212° by steam of that temperature.

Perhaps some of your correspondents can give a better explanation; but the practical point to which I would call attention is, the advantage which, with several others, is thus gained by injecting steam directly into the pulp, in amalgamation, instead of heating it by means of a steam chamber, with open discharge pipe, beneath the pan—that is, when a high degree of heat is desired, the pulp being, as is usual, a saline solution, the boiling point of which is above that of simple water. The object could certainly be attained by means of a *closed* steam chamber, in which considerable pressure could be maintained; but the direct injection offers considerable advantage in point of economy, though some object to it on account of thinning the pulp—a point, however, to which I think too much importance has been attached.

C. H. A.

Benton, Mono Co., Jan. 20, 1870.

◆

Making Ice.

[Written for the Scientific Press]

Editors Press:—In your last issue I noticed an alleged new method (inappropriately termed "vacuum method") for making ice by the expansion of compressed air in contact with water. This is one of those inventions which every few years make the rounds of the newspapers as technological novelties. Some fifteen or twenty years ago I remember having found in an old English print the same invention credited to Sir Isaac Newton, and since then it has several times been brought forward as something new. Sir Isaac's mode of operation was stated to have been somewhat as follows: He had an old cylindrical vessel of iron, like a steam boiler, buried 20 feet under ground. From this vessel two pipes extended to the surface. To one of them was attached a compression pump; and the other, which could be closed by a cock, opened into a vessel containing water. By means of the pump, air was forced into the vessel until the pressure amounted to several atmospheres. After sufficient time had elapsed to allow the heat caused by the compression to be conducted off, the cock inserted in the other pipe was opened, permitting the air to stream into the water. The air by its expansion was compelled to bind latent heat which it had to take from the water, and the latter was of consequence converted into ice.

A. F. W. P.

◆

Dissolving Notes.—A man can give his neighbor a promissory note moistened by a fluid lately invented by a French chemist, and in a month afterwards the holder will have nothing to show for it but a little dust. If this fact becomes generally known short credits will become the rule, in order that the debtor may be compelled to come down with the dust before his note does.

Early Fire Extinguishers.

We take the following from an article in the *Scientific American*: "Syringes were in use in London till far into the seventeenth century. They were of brass, and the largest of them held no more than a gallon. Three men were required to work one of them—two to hold the instrument and one to work the piston. Supposing one of the syringes could be filled and discharged four times in a minute, four gallons only could be applied in that time by one instrument. A steam fire engine can throw twelve hundred gallons per minute a distance of two hundred and ten feet. Even supposing—a supposition manifestly absurd—that the syringe could throw water the same distance, it would require nine hundred men to do the work now done by one or two. All things being considered, fifty thousand syringes would not be as serviceable as one steam fire engine.

In the sixteenth century syringes were made which differed from those previously in use only in being larger and being placed on wheels. A picture of one of these is preserved in Besson's "Theater," and looks, for all the world, like an immense sausage stuffer, capable of holding about a barrel of water. It had no hose (the ox's gut contrivance had been lost during the middle ages), and consequently the direction of the stream of water could not be easily changed, had the contrivance been placed simply on wheels. To avoid this difficulty, the syringe swung on pivots, and thus could be elevated and depressed, but when motion from side to side was required, the whole machine had to be turned."

The destruction of timber in the United States is and has been one of the most prominent of our national vandalisms. Forests have been swept away with as little consideration as a farmer bestows upon the thistle he wishes destroyed. This destruction has to a great extent been inexcusable because unnecessary. To clear land enough for farming is necessary, as also the cutting of ship timber and lumber for the purposes of society. But the waste and wanton destruction of fine timber for mere temporary convenience or amusement, or carelessness, or through a mere spirit of recklessness, ought to meet with public and private condemnation. One of the exhibitions of this spirit is seen in the too common destruction of timber on the public lands. Not alone on lands the title of which still remains in the Federal Government, but lands that have been donated to the State for special purposes. The sixteenth and thirty-sixth sections belong to the schools of the country. On these, trespassers have been busy in many cases where the lands were well wooded. In many cases the timber constitutes their chief value. This timber is being continually stolen and wasted. A stop should be put to this, and therefore we are glad that Mr. Hager has introduced a bill providing for the protection of this timber, and for the punishment of trespassers. The bill should become a law.—*S. F. Call.*

Oxygen for Public use.—Oxygen gas is now produced on a large scale commercially in Paris. Carts with metal reservoirs containing gas may be seen in the streets for the supply of consumers. The Gaieté Theatre is one of the largest consumers, the outside being illuminated every night by the oxy-hydrogen light, cylinders of magnesia or zirconia taking the place of those of lime, as ordinarily used for this purpose. The light is interspersed among the gas jets with good effect. In the interior, the scenes owe many of their beautiful effects to the use of this light. The oxy-hydrogen light is also used largely for the production of the illuminated advertisements now so common in the Boulevards and other places. These are produced by a magic lantern and screen on the second floors, and the parties undertaking the display of these advertisements are large consumers of the oxygen gas.

Tea in Tennessee.—James Campbell, who resides on the banks of the French Broad river, near Knoxville, Tenn., has tea plants, received from the Patent Office, ten years ago, and now standing from five to six feet high. The tea which they produce is said to be excellent. The soil on which these plants are growing is a rich, ferruginous soil; probably very similar to that in the foot-hill valleys of this State. Mr. Campbell has no doubt of the possibility of the successful cultivation of tea in this country.

Siamese Paper.

A German publication gives the following account of how paper is made in Siam: "The material employed is the root of a tree called the *ton koy*, four or five feet in length, and sold in bundles of 10,000 pieces for twenty-five cents. The roots are first soaked in fresh water and then transferred to tanks with lime water, where they are left for several days. They are then boiled in peculiarly constructed pans, the lower part of which, exposed to the fire, is made of sheet iron, while the upper part is of basket work. After being well steamed in these vessels, it is taken out in small quantities and thoroughly hammered on a table. After this process a bundle of the fiber is thoroughly agitated in water until small feathery clumps swim about in the tub. The contents of the tub are poured through a sieve and the fiber caught on the meshes in tolerably uniform thickness. This uniformity is further aided by rolling bamboo over it, and the sieve is then exposed to the sun until the mass is thoroughly dry. The sheets of paper prepared in this way depend in size upon the sieves. They are sometimes ½ yard wide and 2½ yards long. Two workmen can make twenty sheets in a day. No sizing is used, as the gelatine of the root is sufficient for that purpose. A better sort of paper is sold in sheets 10 to 12 inches long, and four to five inches wide. Writing is done with charcoal or with pencils prepared of coal and lime."

Alaskan Sledge Dogs.—The *American Naturalist* has an article by H. M. Bannister upon "the Esquimeux Dog," from which we copy the following: "The Alasken Esquimaux sled is a rather heavy looking affair, nine or ten feet in length by two in breadth, with thick, strong runners, often shod with pieces of solid whalebone. To the front is attached a strong rawhide rope, eleven or twelve feet in length, to which the dogs are fastened by a harness, consisting of a breast band and another strip passing over the back, and underneath the dog immediately behind his fore legs. The continuation, of the breast band, passing backward on each side, join over the back, and from this junction is continued a short trace, by which the dog is fastened to the rope, in equal numbers on each side, and one at the end. By this arrangement a great deal of the strength of the dog is wasted in side draft; notwithstanding this, it is probably the best that can be made, since it allows of no such snarling of the lines as would inevitably result were any more complicated arrangement adopted. A team of dogs will frequently stop when under full headway to engage in a general fight; and on being brought to order by an energetic use of the whip, both lash and stock, will jump to their places and proceed as before, without any confusion or entanglement whatever."

Improvement in Railway Sleepers.—The *American Railway Times* thus describes a late invention: "Mr. F. H. Whitman, of Portland, Maine, cuts across the upper face of the sleeper, just under the rails, two recesses, twelve inches long, and two deep, and into this puts a section of oak plank, nicely fitted, upon which the rails are laid. The recesses are cut by a portable machine, worked by power, and the oak is put in with the grain of the wood running in the same direction as that of the sleeper. As wood does not perceptibly contract or shrink in the direction of the grain, a permanent fit is made. This oak cap gives a very durable bearing for the rail, and as the spike holes are bored in it, there is little danger of its checking. Any of the softer sap woods that are used for cross-ties are strong enough to hold the rails in gauge. The machine for cutting the recesses cuts at both ends of the sleeper at once, and can be adjusted to any gauge.

The Rumford Medals.—In July, 1796, Count Rumford requested the American Academy of Arts and Sciences to accept five thousand dollars in United States stock, the interest to be applied to premiums, to be given to the authors of the most important discoveries or useful improvements which shall be made in America, on heat or light. To be given in two medals, one of gold and one of silver, together of the value of three hundred dollars. At a meeting of the Academy in Boston on January 11th, these medals were presented to George H. Corliss, of Providence, R. I., for his improvements in the steam engine.—*Artisan.*

Mechanical Progress.

The Year's Advance in Mechanical Economies.

From an article in *Engineering* noting the progress for 1869, we give here a few condensed paragraphs: The tendency is still to make heavier and more powerful machines. The fact is becoming generally recognized that they are a source of undoubted economy. A tool that will clear off in a single cut a quantity of metal that could only be removed by two or three successive cuts in a lighter machine, not only effects an important saving in time and attendance, but it enables a larger amount of work to be got through in a given area of shop room, and renders, to a great extent unnecessary precise and consequently expensive forgings. There are a vast number of cases in which it is cheaper to bring a rough forging to shape in a lathe or planing machine than it is to forge it more nearly to form under the hammer.

With the increased employment of heavy tools, the plan of driving each machine by a separate engine is gradually becoming more extensively adopted, and this is particularly the case with punching and shearing machines.

Another feature which has received considerable development during the past year, is the construction of machines adapted to special classes of work. This is as it should be, and we expect during the next few years to find that these special tools will, to a great extent, supplant machine tools of the ordinary standard forms. Another matter in which some progress has been made, is the adoption for many classes of work, of the copying principle. Of course the principle can only be economically adopted where large numbers of articles have to be turned out to one pattern, but even with this restriction there are vast fields for its employment. With the more extensive adoption of the copying principle must come the increased employment of the milling tools or revolving cutters so extensively used in America, and yet so comparatively little used here; while the increased employment of milling tools again will lead to the manufacture of new machines for making them."

ANVILS.—A Sheffield inventor has patented an improved method of making anvils, which, it is believed, will secure a uniform hardness in the steel face,—a desideratum often incompletely answered by the old plan of welding it to the butt. The *Mechanics' Magazine* thus describes the process of manufacture: "He first prepares a model of the size and shape of the anvil to be produced, places it in a box, covers it with composition, and fills up the box with sand in the ordinary manner. After the model is removed and the sand perfectly dry (this being done the usual way), he first pours in the molten steel to form the face or table, then through the same aperture (after the steel on the table is sufficiently cool), he pours in a very mild molten steel, which flows over the table and gives the requisite toughness and solidity to the steel beck. After a proper time has elapsed, he pours through another opening the iron or metal, which also runs upon the steel and forms the lower part or butt of the anvil, and a perfect amalgamation takes place between the iron and steel."

NEW MODE OF SETTING BOILERS.—The Sheffield (Eng.) *Independent* describes a re-recently patented plan as follows: "By a simple arrangement of fire-clay plates, so managed as not to contract the capacity of the flue at any single point, the gases, after being thoroughly intermixed, are at four successive stages in their progress through the flue, thrown, in thin streams, against the surface of the boiler. No part of the gases can escape this repeated forcible contact with the boiler, and in the process the heat they contain is so thoroughly extracted and absorbed that the result obtained, as proved by careful tests, is the evaporation of nearly twelve pounds of water for every single pound of fuel, common boiler slack being used. This gives a large saving of fuel as compared with the best modes of setting previously in use."

A NEW SAFETY VALVE.—A recent English invention for this purpose is so contrived, that the steam that passes the valve, either from low water or over-pressure, is conveyed to the furnace and blown directly upon the fire; thus reducing both the steam pressure, and the steam generation at the same time.

Slate Pencils.

In 1850, a Yankee boy discovered a quarry of stone near Castleton Vt., which was especially suited for slate pencils. After manufacturing for a while with his jackknife, he bought the land and quarry for one hundred dollars. The same, with the machinery since erected, is now owned by a joint stock company, and valued at three hundred thousand dollars. The process of manufacture is thus described by the *Scientific American*: "After the stone is quarried it is sawn into rectangular blocks five inches by seven, and split by hand into slabs. These pass through a machine which shaves them all to the uniform thickness of a quarter of an inch. Iron plates, fastened to an endless chain which passes over rollers at either end, each receive a slab, and as it passes from one roller to the other the pencils are cut and rounded half way to completion by semi-circular knives. The slabs are then turned over and passed back through another machine exactly similar, and a perfect pencil is the product. They are counted out by children and packed one hundred in a box. The pencils are sold at fifty cents a box, or ten times the cost of slate pencils in Germany. Being made from a superior article of stone, they are used throughout the United States in preference to those imported.

The stone from which the pencils are made contains upwards of thirty per cent. of alumina. The company are putting up buildings and will soon be manufacturing alum on a large scale.

ELASTIC STEEL WHEELS.—Col. Clark, Supt. of the carriage department of the Royal Arsenal, has invented an elastic wheel, which is illustrated in the *Engineer*, and is thus described: "It consists mainly in the employment of tempered steel spokes, made of the description and dimensions of steel used in the manufacture of cart and wagon springs, and tempered in the same way. They are fitted in pairs, each pair strutting apart as far as the nave will admit at the center, and meeting at the Tee rim or felloe, to the web of which they are secured by the same bolt. It is evident the load, which is supported at the nave, will have a tendency to bow out the lower spokes, while the upper ones will be extended in tension; a sufficient number of spokes are employed, and likewise a sufficiently strong rim, to prevent objectionable or weakening distortion, and yet there is a sensible yield, which insures easy draught, great endurance, and an immunity from excessive weight. A pair of 5-foot wheels on this principle, are now under trial by the Royal Artillery."

COATING STEEL INSTRUMENTS WITH QUICKSILVER.—This,—says the *Iron Age*,—may be easily accomplished by cleaning the iron first with hydrochloric acid, and then immersing it in a diluted solution of blue vitriol mixed with a little hydrochloric acid, by means of which it becomes covered with a slightly adherent layer of copper, from which it must be freed by brushing, or rubbing with sand-paper and washing. It is then to be brought into a diluted solution of mercurial sublimate, mixed with a few drops of hydrochloric acid. The article will now be covered with a layer of mercury, which cannot be removed even by hard rubbing. This layer of quicksilver protects the iron from rust, especially if it be washed with spirits of sal-ammoniac after the amalgamation. Articles for the laboratory, and for other purposes, coated with quicksilver in this way, and allowed to be exposed with similar articles not so protected, retain their luster perfectly, while the others become covered with rust.

TELEGRAPHIC LIGHTNING DISCHARGER.—M. Bertsch, a Paris electrician, has contrived an apparatus by means of which a current of atmospheric electricity, arriving by the line wire at the telegraph instrument, passes away into the earth without doing any damage, while a current of voltaic electricity, arriving by the same route, is not permitted in any degree to escape. Thus one of the drawbacks to the successful working of the wires in a thunder storm is removed, and the danger to the operator nullified.

WIENER KALK.—This substance, Vienna chalk, is generally used instead of crocus, by European watchmakers, for polishing metals. It is used with oil.

Scientific Progress.

Principles of Molecular and Cosmical Physics.

Prof. W. A. Norton contributes an article under this title to *Silliman's Journal* for January. His theory is, that the principle of universal gravitation, as well as the doctrine of the molecular forces which he has in a previous paper set forth, may be directly reduced from "*a single force of repulsion exerted by every primary atom upon every other atom.*" We have not space for the very interesting course of reasoning which he adopts. We can now only quote briefly from a single paragraph:

"The Molecular Forces, so called, consist of a force called the attraction of cohesion, and one or more forces of mutual repulsion. The force of heat is recognized as one force of repulsion, and has generally been regarded as the only repulsion in operation. But this notion must certainly be disregarded by all physicists who maintain that the heat-repulsion is due to the vibrations of the atoms of bodies; since such vibrations can only be maintained by the operation of existing antagonistic forces of attraction (or virtual attraction) and repulsion. * * We must then conclude that there is a primary force of molecular repulsion, in addition to that of heat. We might perhaps ascribe this force to the repulsion of the ethereal molecular atmospheres when brought into contact; but to what can we ascribe the heat-repulsion? It has come to be generally believed that it must consist in some mode of motion of the atoms, or molecules of bodies, as a whole; either of vibration, revolution, or rotation. But it might be almost demonstrated, did space permit, that this cannot be the true nature or origin of heat. I will only allude here to one or two arguments in support of this statement, which may be briefly given. It is well known that when any body is by collision with another body, or in any other way, permanently compressed, heat is given out. Now the fact that a force of pressure, or percussion, produces a permanent compression, increasing with its intensity, leads to the almost inevitable inference that in the act of compression the atoms, or molecules, experience some change of physical condition, by reason of which the molecular attraction is augmented, and the condensation maintained, and that this change must be proportionate to the degree of condensation, and so to the amount of heat evolved. Can such a change proportionate to the heat evolved, be connected by any admissible supposition with the augmented velocities of vibration, revolution, or rotation of ordinary atoms, in which the increase of heat is conceived to consist? In fact the entire phenomena of inelastic, as well as of elastic reaction, point to the conclusion that they are attended with changes in the physical condition of the atoms, ordinarily so called, and that the evolution or absorption of heat that takes place is the direct result of these changes.

Again it is not conceivable that the phenomena of electricity can be ascribed to any imagined motion of ordinary atoms, or molecules, whether these are surrounded with ethereal atmospheres or not. We are accordingly constrained to look in some other direction for the origin of the molecular forces and agencies; and it appears to me that it is to be found in the general conception of an electric ether less subtile than the luminiferous, and gravitating like this toward the atoms of ordinary matter, so as to form envelopes to these atoms, permeated and underlaid by the condensed luminiferous ether. Each atom would thus be surrounded by an ethereo-electric atmosphere. The atoms of electric ether may be conceived to be masses of condensed luminiferous ether, but far more minute than those of ordinary matter."

COLORING MATTERS OF FLOWERS.—M. Morat, who has been investigating the subject, finds these to consist—1st, of a blue substance, which he calls cyanine; 2d, a rose-colored or pink material, really identical with the first, and only altered by the acidity of the juice; and 3d, two yellow-colored matters, one in solution in water, called xanthine, and the other insoluble called xanatheine. Reducing agents will decolorize cyanine, and oxygen restores the color. A red coloring matter, found only in young wines, is called œnoline by Morat, but is generally believed to be identical in composition with cyanine.

First Formation of Common Salt.

Prof. C. A. Goessmann, of the Massachusetts Agricultural College, read a paper before the National Academy of Science at the Northampton meeting, upon the "Chemistry of Common Salt." We find it in the *American Journal of Science and Arts*, and quote the following:

"Accepting the theory that our earth has gradually passed from a gaseous to a solid condition, we may assume that the formation of chlorid of sodium took place mainly during the last stages of its consolidation, at a period when the more volatile elements reacted upon each other, in consequence of the diminution of temperature; that subsequently water caused the oxydation of numerous chlorids and sulphids, the acids of sulphur and of chlorine which thence resulted acting upon the solidified surface of the new planet; and that, finally, these more or less violent physical and chemical revolutions resulted in the formation of the primitive ocean. * * The mineral acids became neutralized by degrees, and ceased to react upon the newly-exposed rock; and as the temperature diminished, a new disintegrating agent, carbonic acid, became active. This acid, then so abundant in the atmosphere, aided by water and oxygen, and later by vegetable and animal life, though a slower, is a powerful agent in affecting the decomposition of exposed rocks. Carbonates and silicates of alkalies and alkaline earths were in this way introduced into the oceanic waters; and thus a gradual removal of metallic and earthy oxyds, and in some cases of those of the alkaline earths also, was affected. The sulphuric acid, exchanging the oxyds of the earths and the metals for lime, formed a less soluble sulphate, so that the amount present became dependent upon concentration and temperature. The chlorine changed from its combinations with earths and metals only to the equally soluble compounds of the alkalies and alkaline earths. Taking the chlorid of calcium, for example, which thus far has been noticed in every salt deposit of ante-tertiary date, and which must have been therefore one of the original constituents of the ocean from which the salt originated, we find it necessary to believe that the chlorids must have always exceeded the sulphates; since an excess of any sulphate, except sulphate of lime, would have caused the decomposition of the chlorid of calcium. An increase of the chlorids of the alkaline earths, as of calcium and magnesium, and of the alkalies, particularly of sodium, if we may judge from the present composition of the ocean, was the final result of the changes now indicated."

ANOTHER BATTERY.—*Engineering* illustrates a new galvanic battery designed by Mr. Faure, of London, and thus describes it: "It consists of an outer jar containing a solution of common salt, there being immersed in this solution the zinc cylinder or positive element. Within this zinc cylinder, and separated from it by an india-rubber ring, is the porous jar or bottle, which is made of graphite, and which forms the negative element, containing nitric acid. The mouth of the jar is closed by a gutta-percha stopper, and thus, as the nitrous acid vapor is liberated from the nitric acid, it accumulates in the bottle, creating a certain pressure, and forcing the nitric acid through the walls of the jar. By this arrangement the escape of the nitrous acid vapors into the air is avoided, and the constant depolarization of the couple is effected by the continuous exosmosis of the nitric acid from the bottle containing it. Mr. Faure states that his battery gives twice the quantity of electricity of a Grove or Bunsen battery of the same dimensions, and that it also works much longer with the same charge of acid. Mr. Faure's battery also possesses greater constancy and electro-motive force than the nitric acid batteries now in use; and by fitting it with a syphon arrangement for maintaining the supply of nitric acid under pressure, and providing for the removal of the exhausted solution of salt, it may be worked for long periods together. For short experiments, on the other hand, the bottle may be filled with coarse silicious sand to reduce the charge of acid. In conclusion we may state that one of these batteries, rated by Mr. Faure as 'No. 4,' and having a porous jar two and three-fourths inches in diameter by five inches high, will keep three-fourth inch of fine platinum wire red hot for from twelve to fifteen hours."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Globe.—*Miner*, Jan. 29th: The new drift is now 144 feet long, and running in the white country rock, such as the Tarshish deposit is in, on the opposite side of the creek.

Good Ore.—Two assays were made yesterday of ore from a mine in Alpine. The first, from selected ore, went between $900 and $1,000 per ton. The second, $300.

Good Running.—The first fourteen shifts' work on the Wide West made 18 feet of tunnel of the large double-track size.

M. C.—The No. 3 tunnel of this company is going ahead at a satisfactory rate.

Leviathan.—*Chronicle*, 29th: The lower tunnel is 140 feet, with indications of copper. A few days ago some fine ore—24 per cent. copper—was discovered on the croppings, 400 feet above the mouth of the lower tunnel.

Capt. Chalmers, Manager of the Exchequer Co's mine,—Buckeye No. 2,—is expected about the 7th of February. In the meantime, work at the mine is progressing.

AMADOR COUNTY.

Dunning.—*Ledger*, Feb. 5th: Some few days ago, Billy Boxall and Mr. Dougherty commenced work on the north end of the Dunning & Little mine, in the old cut, and found good pay rock. They are having a hundred tons crushed at the Kearsing mill.

Hinkley.—This mine is being worked by Mr. Averill and his partner, they having leased it. Last week they had 30 tons crushed, which paid $13.50 per ton.

Mining Items.—*Dispatch*, 5th: We learn that the Gwin mine, Lower Rich Gulch, four miles from Jackson, cleaned up over $5,000 the other day, after a run of two weeks. The Casco, two miles from the above, has lately produced rock that inspired fresh courage. A lot of rock from the Hinkley, last week, produced $13 per ton; and a lot from the Dunning is now being crushed. There are a number of other mines that prospect well, but are lying idle for the want of capital. Coney mill is idle, waiting for the company to get through playing "freeze out."

CALAVERAS COUNTY.

Railroad Flat.—*Chronicle*, 5th: Last week John Kendall and partners found a vein over two feet wide. The rock horns out excellent prospects when ground fine. ....The huge boiler at the Petticoat is in position. Sinking in the main shaft will be resumed as soon as the engine can be made ready. At the mill, the outside plates accumulate "cream" rapidly, indicating a yield exceeding expectations.....Chapman & Co., who crushed a large lot of rock at the Hepburn mill, upon cleaning up, found that considerable quicksilver had been lost, including a large percentage of the expected gold.....The Bald Eagle folks are still adding rich ore to their dump....Doe & Freeman Bros., owners of the Essex, are running a tunnel on the vein. The pay ore is five feet wide in places, and is valued at $15 per ton. They have 90 tons at the mouth of the tunnel....Sanderson & Co., after running the lower level to a point under the north shaft, resumed sinking to connect with the level....Jo. Lafoy, near Pennsylvania gulch, upon a lead formerly worked by Mulloy & Co., is to sink 130 ft. before drifting....Wibler & Clark are thundering away at New York Hill with a hydraulic of 300 feet pressure.

Rich Strike at Whiskey Slide.—Edward Wallace has found the extension of the old gravel lead. The ground prospects a dollar and upwards to the pan. The lead when formerly worked above and below, paid enormously. Nuggets were often found weighing from one ounce to fifty.

EL DORADO COUNTY.

Our Mines.—Placerville *Democrat*, Feb. 5th: The South Fork Co. are running the full capacity of their canal, yet there is not sufficient water for but a small portion of the claims that have been proven good, let alone the vast amount of ground which has not been disturbed at all. Ready sale could be had for ten thousand inches of water within a circuit of a few miles of this city. All those who have water are at work and doing well. There is activity in quartz.

Melton & Morey, of Grizzly Flat, from a run of 4½ days last week cleaned up $400.

NEVADA COUNTY.

Mining Items.—Grass Valley *Union*, Feb. 1st: The McClellan's first crushing will take place at Stiles' mill, in Nevada. The miners are down 167 feet and have drifted 40 feet each way. The ledge is from one to three feet in thickness. The first crushing will be 25 tons....Yesterday was the pay day and clean up day of the Idaho. The average is maintained.

Eureka Shipment.—Same of 2d: Yesterday the Eureka mine sent to San Francisco gold to the amount of $25,000. Of this, $4,000 came from sulphurets, and the balance from a two week's run of the mill.

Badger.—Frank Morse has leased the Badger Co's claims, and will commence to take out rock at an early day.

Items.—Same of 3d: Fair Play mine shows good rock and has a ledge from four to ten feet in thickness. The company will commence a tunnel, which will have to go about 200 feet. The ground is favorable. The McClellan rock is being hauled to the mill as it comes out. The crushing commences to-morrow. Fifty tons will be milled. The Blue National Gravel Co. near Greenhorn creek, have a tunnel in 460 feet, and appearances indicate they are near the channel. The bed-rock is pitching. The claims are 300 feet above the mouth of Greenhorn Co's mine. There is no doubt the late reports of the Greenhorn are exaggerated; but no one doubts that it is very rich.

Items.—Same of 6th: The Union Hill mine yesterday sent in $15,000 for its four weeks' run. The Buckham ledge, 15 miles southwest of Grass Valley, is worked by Jones & Co., who have sunk 60 feet. On Friday, a test by mill process, was cleaned up, and gave $25 to the load. The Greenhorn continues to yield rich rock. The tunnel is 175 feet in length and the ledge three feet. The eight-stamp mill is running night and day, and will be cleaned up the first of March. The mill crushes 15 tons every 24 hours. The Town Talk Gravel Co., on the south bank of Little Deer creek, crush their cement, using an eight-stamp battery run by water power. At Finley's, we were shown dust from these claims worth $3,000. It is reported that a rich ledge has been discovered north of the Greenhorn.

Badger Hill.—*National*, Feb. 1st: E. F. Morse has leased the mine for two years, and will have hoisting works in operation within a short time. The Badger has remained idle for three or four years. The ore has paid all the way from $30 to $110 per ton. Work to a depth of 240 feet has been done.

Wm. Penn.—Same of 3d: The shaft is down 200 feet and a drift has been run southerly on the ledge 220 feet. About 40 feet from the bottom of the shaft the ledge is a foot to 18 inches in thickness.

Pittsburg.—*Gazette*, Feb. 2d. The owners have 85 men, and work is pushed with energy. They are taking out rock from four levels, and hoisting from both shafts. The south drift has been completed, and the vein proves 20 inches in width, yielding $40 a ton. They are hoisting 20 tons of rock every 24 hours, enough to keep their 10-stamp mill in constant operation. A $5,000 brick was shipped on Monday, the result of a week's crushing.

The Mills.—Same of 3d: The custom mills have reduced the price of crushing ore to three dollars a ton. Stiles' mill has custom rock enough on hand to last it several weeks. Other mills on Deer creek are having a good supply of ore. The prospects ahead in the quartz line are favorable.

Scotch Flat.—The hydraulic mines are worked on an extensive scale. Ashburn & Co. are using 200 inches of water, and have a medium-sized globe nozzle. Cobb & Co., on the opposite side of the creek, are using a four-inch nozzle, running 250 inches of water, and piping down a bank 100 feet high, of which from 50 to 60 feet is gravel. These claims last year yielded over $4,000 in four months work. The American claims, owned by Jacobs and the ditch company, are running night and day with 200 inches of water. In one run of 10 days they took out $800. Work has been started on the Holmes claims, near Coulson ravine, the ground prospecting well. The Pecktal claims, on the north side of the creek, not worked since 1863, are being fitted up.

Quaker Hill.—Mining operations have been brought nearly to a stand-still on account of failure of water. Jacobs & Co. have fitted up four hydraulic claims, calculating to use 1,200 inches; but it has run down to barely enough for one hydraulic. The claims of the Dutch Boys, and those of Erskine & Co., are worked vigorously.

Union Hill.—7th: The Pacific G. and S. M. Co. (formerly of Union Hill) cleaned up on Saturday $15,100, after 26 days' run. This company now employ 100 men in the mill and mine.

Good.—The Eureka cleaned up on Saturday 1,800 ounces of amalgam worth $6.50 an ounce—the result of 6 days' crushing.

The Season.—*Transcript*, 3d: Up to the present time the total rain fall has been 23.27 inches. One of Tennent's gauges used, the same as in San Francisco, where the fall this season has been about 10 inches. Except in a few places water is plenty, and the loss where it is deficient is more than made up by the continual working of the mines in places where work has to be suspended almost every year on account of the cold. This season we have had few days that were too cold for hydraulic mining in any part of the county, and some of our leading gravel mines, which are suspended during the dry season, are being worked constantly.

The Bloomfield Co.—Six weeks' work is yet to be done at the head of the ditch, before connection is complete between Big and Little Cañon creek. They have everything ready on the ground, and will finish up as soon as the weather allows.

Columbia Hill.—Marks & Co. are running a large flume and cut with sufficient fall to work the Weighel & Co's ground 50 feet deeper. As they need water, work is suspended for rain. The Union Gravel Co. is ready. Woods, Groves and Richardson and the Eureka Lake claims are resting for want of water. Several of these made a run of about two weeks this season. At Grizzly Hill the Jones' and Ohio claims are doing well.

The Strike at Eureka.—6th: For three or four years the Mayhaake Co. have been running their tunnel whenever they had funds, and working for wages when they had not. In the vicinity rich gravel claims had been worked on the surface, but no channel had been found until they struck it. As soon as the news was brought to Eureka, a rush was made, and claims were located all along the extension of the channel on both sides. The gravel is of the finest "wash," and every pan of dirt taken out prospects from 10 to 20 cents.

PLACER COUNTY.

The Good Friday Claim.—The Auburn *Herald*, of Feb. 5th, thus speaks of the mine in which the immense strike, chronicled by us last week, occurred: The claim has been lying idle for months. A short time ago Jacob Cowan, of Auburn, leased the ground for one year, agreeing to pay over to the Ophir Co. twenty per cent. of all the mineral he would take out for one year. He erected hoisting works and commenced pumping out and sinking on the lead. On Saturday last, in a drift sixty feet below the surface, he struck a prospect. On Sunday he kept the pump running, and on Monday, Tuesday and up to Wednesday noon, he had taken out, in specimen gold, what is estimated to be near $20,000. We are informed that the workmen in the drift can see as much gold in the rock before them as they did before this large sum was removed. Considerable excitement has been created in this section of the strike."

Another Strike.—We learn that the purchasers of Edward Walsh's quartz mill, on Baltimore ravine, just below town, have struck rich quartz in the old Crœsus ledge, on the northern extension.

PLUMAS COUNTY.

Mining.—Quincy *National*, Jan. 29th: The late rain storms have furnished sufficient water for some of the miners to commence operations, but should the present fair weather continue, it will not last long.

SHASTA COUNTY.

Paying.—*Courier*, Feb. 5th: We understand that three hydraulic claims now in operation on Roaring river are paying from $5 to $8 per day to the hand. Water is plenty.

SISKIYOU COUNTY.

Good Yield.—Yreka *Union*, Jan. 28th: A Portugese claim near Hawkinsville cleaned up $904 last Friday, as the result of two weeks' sluicing with five hands. An old claim on Greenhorn, which has been worked over half a dozen times, gave a dividend of four dollars per day to the hand for five days' run, last week. Activity now pervades every mining camp in the county, for there is an abundance of water in all the ditches.

TUOLUMNE COUNTY.

The Confidence Mine.—Sonora *Democrat*, Feb. 5th: The ore now being taken out increases in richness. Ten stamps have been added to the mill, making a total of thirty. The yield for the week was 368 ounces of nearly $7,000 value.

Arizona.

Big Bug.—Prescott *Miner*, Jan. 22d: Things are prosperous. The mill stopped for a few days, when larger plates and sluices were put in. A flume was erected, to convey more water to the batteries. The mines are yielding rich ore.

Sale of "Feet."—A. B. Smith sold to Geo. W. Curtis, 600 feet in the Lion lode, for $1,200 cash. The Lion is not far from Noyes & Curtis' 10-stamp mill.

Walker's District.—C. Y. Shelton has dirt that pays eight cents to the pan. Had he a sluice head of water, he could average $10 per diem. The quartz miners were taking out plenty of ore, which they were piling up, in hopes of being able to work it soon. Shelton says he has some rock—a small lot—that will go $2,000.

Mohave County.—We learn that John Moss has succeeded in getting capitalists to work some copper mines not far from Hardyville. The ores are very rich in copper and silver—the former being dominant.

Black Canon.—The placer miners are making fair wages. Water is plenty.

England Gulch.—Seven men are now at work. Charley Williamson Thursday showed us two ounces of gold, which he had just rocked out. It was coarse.

Kirkland Valley.—P. McAteer brought up 40 cents worth of gold dust, the proceeds of two pans of dirt from one of the ravines. He says there is plenty more such in that vicinity, but water is scarce.

The New Bradshaw Placers,—A large party left on Monday with provisions and tools, determined to give a fair trial to the new diggings reported in the ravines that head in Bradshaw mountain. The excitement raised about the strike in Northern Arizona did not last long.

Colorado.

North Clear Creek.—Central City *Herald*, Jan. 26th: Mr. Lake's mill just above Black Hawk, is one of the most perfect in Colorado. The machinery is entirely new. The mill contains 20 500-pound stamps, and three large Bartola pans. At this time, ten stamps are crushing Prize ore, five Missouri ore, and the remaining five are on custom work.

Nevada District.—Four stamp mills are running in Nevada or Bald Mountain. These are Potters & Colley's, Sullivan's, Whitcomb's and Chatfield's. Work on the Hardesty mill goes slowly. Mining continues brisk. The Spark's Bros. have just got through the cap, and the crevice, already eight inches wide, is opening out finely. The ore looks well. Clarke & Co's shaft, the Hidden Treasure, on the California lode, has a very wide crevice, is 175 feet deep, and yields a good profit. The quartz is run in Black Hawk. Captain Phillips is working his claim on the Jones' lode, and is obtaining big returns. We are told he is selling the first quality of ore at $90 per ton to Hill. The second grade ore runs well in stamp mills. The crevice is wider than ever. Cornishmen are working the claim next east of Stalker's, on the California, on a lease. They are taking out a large quantity of ore, nine or ten ounces to the cord. B. C. Waterman and John Eldridge are getting out quartz from the Gardiner lode, and a good profit is realized. Several Cornishmen are doing well on the Ophir Co's claim, on the Kansas.

Idaho.

Chariot Mine.—*Tidal Wave*, Feb. 3d: The lower level is turning out an extraordinary quantity and quality of ore. We are told by competent judges that it shows better than ever before, native gold and sulphuretted silver being visible in almost every square foot for a hundred feet along the vein.

The mine formerly known as the Peck & Porter is giving evidence of permanence that places it by the side of the Elmore and Chariot in point of value. Dave Davis, who has been working on contract, a few days ago suddenly broke through the hard rock into a full two-foot face of soft, rich ore, that gives the mine a most healthy appearance.

Montana.

Unionville.—Helena *Gazette*, Jan. 27th: The new Whitlach 15-stamp steam mill started up on the 24th. Everything worked to a charm. On the Parkinson lode, belonging to the company, the vein is 14 feet wide and the rock of the richest quality. Thirty men are at work. On the claim of the Columbia Co., hoisting machinery and pumping works are going up which will cost $40,000. The 30-stamp mill will start up next week. The claims of the New York National Co. is now yielding ore that surpasses anything ever before taken out. The I. X. L. Co's claim turns out about $5,000 to the run of 10 days. The rock is coming from the 460-foot level. They have 1,000 ton out ahead. Seventy men are employed. The 20-stamp mill of the Hendrie Co. is constantly running.

Jefferson Gulch.—Spranbel & Co. are running a drain to a large flat; will strike bed-rock within two weeks. Ruhl & Co. are running a drain 1¼ miles below. Two men are running a tunnel into a quartz lode at the head of Mattison gulch, and taking out some nice quartz.

The Cedar Creek Mines.—John Ming gives us his experience. The weather encountered on his home trip was intensely cold, and the snow deep. Some of the stampeders had suffered with frozen feet. Oregon gulch is recorded for 15 miles, and no prospect has ever been found; no hole sunk to bed-rock. He recorded a claim as near as possible to discovery, and afterwards found it was 14 miles from that claim. The lower district will not be prospected for many months. There will be in the spring almost a river of water to contend with. In the upper district, he is satisfied there are some good mines. Good prospects have been obtained for six to eight miles. He failed to see any of the very large prospects. Some good miners have 'prospected the same ground. He had known 40 cents and $1.10 to the pan; others five and ten cents. Not a sluice or rocker has ever been run in the gulch, a remarkable fact, considering the mines have been known four months.

Nevada.

COPE DISTRICT.

Mountain City.—Cor. of Elko *Independent*, Feb. 5th: Owing to the storm little work is being done. The Atchison & Drew mill is running as regularly as it can, with a scarcity of wood. Canty's mill is ready for starting as soon as the quicksilver arrives. It is a perfect little beauty. Parties report the Mountain City mine looking better than ever. At the bottom of the shaft, 43 feet, the ledge is nearly seven feet, and the ore of a high grade.

Bullion.—Oppenheimer & Co. received, on Wednesday $2,000 worth of bullion from the Crescent mine,—the product of 24 tons of ore.

ESMERALDA.

Pine Grove.—*Enterprise*, Feb. 1st: A new lead has been discovered six miles southeast of the town, which is very rich. It is called the Dolores. A lot of 109 tons of rock produced 200 pounds of bullion, two-thirds gold. A town called Rockland has been laid out. The Wheeler mine paid during the month $25,000, $18,000 of which was clear profit. The Wilson is yielding an abundance of paying ore, and the mill is kept in constant operation. At the Salt River mine, six miles east, a water mill has been erected. The yield of the district from the 1st of January to the 18th, was $40,000. Capt. Cheevers is opening a portion of the south extension of the Wheeler, called the Cadmus.

HUMBOLDT.

Dun Glen.—Cor. of *Register*, 5th: I promised the result of the working of the first 20 tons of ore from the Alaska mine. The gold caught in the battery was 48½ ounces, worth $14 per ounce. The bullion from the pans is about 1,450 ounces. The Yosemite Co. have struck a new body of mineral, said to be very rich. The tunnel of the Tallalulah is progressing well. The old Natchez mine will start work in the spring.

Battle Mountain.—McLeran & Haskell have all the material on the road for erecting smelting works. The furnaces are the Haskell Patent Iron Furnace, water lined.

Railroad District.—Elko *Independent*, 5th: We hear favorable reports from Railroad. The Brown mine ore returned $95 per ton in silver, and 41 per cent. in copper. The Richmond assays $28 in silver, and 30 per cent. in copper, and is 25 feet wide. The Savage returned from the working of ore, $83 in silver per ton. Ore from the Mountain View assays as high as $250, and shows native silver. South Fork assays $200. A. D. Cope bought 100 feet of the Brown mine for $1,000 in coin.

REESE RIVER.

Bullion.—*Reveille*, Feb. 4th: Yesterday the Manhatten shipped overland six bars, valued at $10,461. This makes upwards of $30,000 shipped by that company during the last three days.

Month's Shipment.—For January, Wells, Fargo & Co. shipped from this city, bullion valued at $82,204.77.

Mineral Hill.—The *Reveille* has seen a certificate of assay of ore from a new discovery, the figures of which were $1,962.42 silver per ton. The holder assured us that the ore assayed "was a fair sample of the entire mass."

WASHOE.

Kentook.—Gold Hill *News*, Feb. 5th: The present daily yield is 60 tons of rather low grade ore, principally from the old upper workings of the west ledge.

Yellow Jacket.—The sinking of the south shaft 100 feet deeper, is being prosecuted with vigor. The mine is yielding 250 tons of ore per day, of high and low grade.

Virginia Consolidated.—Ross & Co. commenced Saturday on a new contract to run a drift west from the shaft, at the 500-foot level to the ledge.

Gould & Curry.—A very encouraging body of quartz, was struck two or three days since in the northwest drift from the 7th level. It is nearly 10 feet in width. The old upper workings yield 45 tons of ore per day; average assays, $37.

Crown Point.—Preparations are being made to get out the low-grade ore from the old upper workings of the west ledge, and ship it to mills on the Carson river.

Chollar-Potosi.—Present daily yield, 145 tons; average assays, $44. The mine shows a general improvement during the week.

Daney.—The shaft is again clear of water and the pump recovered. A promising ledge, 15 feet in thickness, has been struck in the prospect shaft, of which six feet assays well in free gold.

Hale & Norcross.—Daily yield 220 tons. Sinking 100 feet below the lowest or 1,100-foot level, is to be commenced shortly.

Belcher.—Improvement manifest in increased quantity of ore extracted. The Rhode Island mill, so long idle, will be started up on ore from this mine about the 10th inst.

Caledonia.—Large amount of ore on dump. The Gold Hill mill is running on ore from this mine.

Ophir.—The water in the new shaft is reduced to about 75 feet, and is draining from the old mine at a rapid rate.

Overman.—The ore body at the 500-foot level shows improvement in quantity. Present yield 120 tons per day.

WHITE PINE.

Weekly Mining Review.—*Empire*, 6th: Nearly all the mills have been kept employed in reducing ores hauled last fall. In many instances, however, this supply is exhausted. Now that an opportunity is offered to do custom work, we learn of a number of mines preparing to supply the mills. The base metal mines are producing largely. Many new smelting furnaces are being erected, and work started up on a number of mines which have been idle.

Bullion.—The amount of bullion shipped from the office of Wells, Fargo & Co. in this city for January was $105,434.77. The amount shipped the past week was $27,343.04.

Mills and Furnaces.—*Empire:* Alsop works at Shermantown fired up on the first. ....Van Wyck's furnace is being relined, and will resume smelting on Monday.....White Pine Smelting Co. are making a splendid run....The smelting works near the Three-Mile House have passed into the hands of J. E. Magary, of San Francisco, and a consolidation with the Marion Co. has been effected....*News:* Swensey mill shut down for repairs on the 4th....White Pine works just turned out 70 tons of base bullion for two weeks' run.

Items.—*Empire:* Silver Wedge shaft down 59 feet. Struck the ledge at 48, and is still in ore. We saw pieces containing rich chloride and wire silver....Eberhardt ships 22 tons daily....Aurora Consolidated ships 16 tons....Superior ore from Mazeppa....Oswego tunnel is in 60 feet....Manhattan taking out good ore....Blackfoot shaft, on Blue Hill, 70 feet down. Thirty tons of good ore on dump....Work in Hidden Treasure tunnel goes on under contract....The New York Co. owning the Bowers claim has bought the Oregon, and consolidated the two....The Alta mine, lately purchased for the Alsop Co., lowers its ore to the road by a device called the "Telegraph."

South Aurora.—A Hamilton telegram of Feb. 2d says: The month's yield of bullion from the South Aurora mine for January was $64,052.24, principally from the Stanford mill.

Outside District.—*News:* There is a speck of war in Ely. The Pioche mine has been jumped. There came 175 Mormons and jumped the ranches in the neighborhood....Samuel Ferguson of the Roderick Dhu mill, Silver Park, reports everything flourishing....We learn that a mass of horn silver was struck in the Mollie Ruter mine, Cooper District, last week, which surpasses anything of the kind ever seen. The metal is so pure that it cannot be blasted, and the boys were gouging away at it with picks....The *Empire* says that some of the assays of Ely ore have gone above $10,000 to the ton. It also says that a stage load of men with Henry rifles started for that district on the 2d inst.

San Francisco Mining Stock Market.

The mining share market took a somewhat active turn the past week, and very considerable sales of leading stocks were effected, prices for the most part exhibiting a downward tendency. A more than usual number of the various descriptions of stocks were upon the market, and altogether more life prevails among dealers. With regard to the White Pine District, we clip the following from the *News* of the 7th inst.: "Since our last review, bullion shipments aggregate $44,350 72, of which $30,534 81 went East, and $13,715 91 to San Francisco. During the month of January ultimo, Wells, Fargo & Co. forwarded to the East $95,727 13, and to the West, $9,707 64, making a total shipment for the month of $105,434 77 against $74,335 61 for a corresponding period of last year, being $31,099 16 excess. From the foregoing figures it is evident that our bullion is seeking the Eastern market. At present the bulk of the bullion shipments are from Hamilton, and we believe the figures given for January did not cover the shipments from Treasure City for that period. The shipment from this city for January, 1869, was $15,688 60, and for the corresponding period of this year the excess was $89,746 17, the amount being nearly six times as large. The mines show unusual activity, the past week, and some important developments have been made in localities hitherto noiseless. The ridge south of the Eberhardt, and the flat or slope west of the Hidden Treasure may be mentioned in this connection, while the base metal claims along the western base of Treasure Hill are exceeding all expectation. Some of the mills are now crushing ore for $12 per ton, and it is believed that all will come to these figures, or even less. This will enable mine-owners to work at a profit more than 100 mines that have heretofore been idle, and in the course of a few months will add immensely to the bullion yield of the district."

Chollar-Potosi—has been well maintained since our previous issue. During the week closing with February 4th, 1,075 tons of ore were extracted against 1,040 tons the previous week. We learn of nothing new from the old ore localities. At the new shaft the drift is in 62 feet, and is being driven ahead at the rate of 12 feet per day. The ore-slip of the 7th inst. shows that 182¼ tons were delivered to four different mills. The bullion returns for January foot up $115,263, against $76,184 in December. A dividend of $1 per share was paid on the 10th inst.

Savage—was in the market to about the usual extent, at quite a smart decline. The bullion yield for the month of January aggregates $25,560, against $31,670 in December. An assessment of $10 per share was levied on the 7th inst.

Belcher—met with considerable sales. In January, $34,106 27 in bullion was obtained from 1,479 tons, equal to $23 06 per ton.

Gould & Curry—was dull of sale. For the week ending February 7th, 237 tons of ore were extracted, against 312¼ the previous week. The old ore localities show little change. At the seventh station the north-west drift has quartz mixed with porphyry. The vein, thus far, has been drifted across for 39 feet, and no west clay has yet been reached. The tests made by assay with samples of material taken from this locality show no metal. In January the bullion product amounted to $18,238 75, against $28,048 in December.

Hale & Norcross—was more active than the previous week. The yield of ore for the week closing February 5th was as follows: upper mine—175-level, 153 tons; 300-level, 100; lower mine—fifth station level, 50¼; sixth, 1,098; total, 1,401¼ tons, against 1,533¾ tons the previous week. On hand, 6,534 tons, of which 2,485 tons is low grade. The bullion yield for January amounts to $188,334, against $127,162 in December. A dividend of $6 per share was paid on the 10th inst.——**Amador** (Cal.) shows a bullion yield of $63,884 for the month of January. A dividend of $10 per share was disbursed to stockholders on the 7th inst.

Overman—proved dull of sale during the period under review. For the week ending Februry 7th, 738 tons of ore were extracted; previous week, 730 tons. The bullion returns for January amounted to $49,229 25, being the yield of 2,850 tons of ore, equal to $17 27 per ton. ——**Kentuck** disbursed a dividend of $5 per share on the 10th inst.——**Eureka** (Cal.) paid a dividend of $7 50 per share on the 7th inst.—*Commercial Herald.*

MINING STOCK QUOTATIONS, FEB. 10, 1870.

	Bid.	Asked.		Bid.	Asked.
WASHOE.					
Alpha Con.	$ 10½	$ 11	Gold Hill Q M Co.	$ 15	$ —
American	—	—	Hale & Norcross	132	135
Belcher	17⅛	17¾	Imperial	27	29
Bullion	7	—	Justice	—	1
Crown Point	16⅛	16½	Julia	—	50c
Cole, Va.	—	—	Kentuck	80	—
Confidence	—	20	Lady Bryan	1	—
Chollar-Potosi	18¼	18¾	Occidental	12	12½
Con. Virginia	—	—	Ophir	11½	12
Daney	—	50c	Overman	68	68½
Empire	20	25	Savage	32½	33
Exchequer	6½	7	Sierra Nevada	7¼	7¾
Flowery	—	—	Seg. Belcher	6	6½
Gould & Curry	40	42	Yellow Jacket	50	—
WHITE PINE.					
	Bid.	Asked.		Bid.	Asked.
Aurora Con.	$ 4½	$ 5¾	Noonday	50c	—
Brodt	—	20c	Orig. Hidden Tr.	11½	11¾
Chloride Con.	—	1	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	—	Silver Wave	95c	—
Mammoth	85c	90c	Virginia	—	2½
CALIFORNIA.					
Amador	$320	$325	Eureka	$220	$230
IDAHO.					
Golden Char't.	$ 15	$ 16	Silver Cord	$ —	$ —
Rising Star	—	—			

◆

The **Stetefeldt furnace** seems to be doing well. The Reno *Crescent* says that "it works regularly and treats rebellious ores up to five per cent. of fire assay. On Thursday we saw Mr. Dunn pay over to Ward & Co., owners of the Silver Queen mine, Mineral Hill, Humboldt Co., $1,500, the net proceeds of five tons and 700 pounds of ore. We are satisfied that it is a magnificent success."

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, location, amount and date of assessment	Day delinquent.	Day of sale.
Alleghany, Sierra co., Dec. 30, 50c	Feb. 7	Feb. 28*
California, W. P., Jan. 18, 50c	Feb. 21	March 14
Cons. Chloride Flat, W. P., Dec. 14, $1	Jan. 29	Feb. 24
Crown Point, Storey co., Jan. 5, $7 50	Feb. 8	Feb. 28
Cons. Virginia, Storey co., Jan. 7, $2	Feb. 12	March 5
Columbia, Cope, Jan. 29, 50c	March 5	March 25
Daney, Lyon co., Feb. 9, $1	March 14	April 2
Empire M. & M., Storey co., Jan. 7, $10	Feb. 11	March 7
Glenwood, El Dorado, Feb. 4, 25c	March 7	March 28*
Gould & Curry, Jan. 12, $15	Feb. 16	March 9
Imperial, W. P., Jan. 5, 25c	Feb. 10	Feb. 28*
Julia, Storey co., Dec. 23, 50c	Jan. 25	Feb. 12
Kearsarge, Inyo co., Dec. 29, $5	Jan. 31	Feb. 19
Latawana, W. P., Nov. 22, 10c	Jan. 29	Feb. 19*
Lady Bryan, Storey co., Jan. 12, $2.50	Pay. immed'ly	
Mammoth, W. P., Jan. 4, 20c	Feb. 14	March 7
Meadow Valley, Jan. 29, 50c	March 3	March 22
Nevada L. & M., Feb. 8, 2½c	March 15	April 5*
N. Bloomfield, Nevada co., Jan. 15, $5	Feb. 12	Feb. 28
Noonday, W. P., Jan. 20, 30c	March 2	March 23
Ophir, Storey co., Jan. 8, $2	Feb. 11	March 2
Pilot, W. P., Nov. 23, 10c	Jan. 3	Feb. 21*
Piuto, W. P., Jan. 3, 15c	Jan. 15	March 7*
Savage, Storey co., Feb. 7, $10	March 14	April 2
Taylor, El Dorado co., Jan. 5, 60c	Feb. 7	Feb. 28*
O. S. Grant, Nev. co., Jan. 19, 50c	Feb. 21	March 12*

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable Feb 7, 1870
Chollar-Potosi, div., $1	Payable Feb. 10, 1870
Eureka, div., $7.50	Payable Feb. 7, 1870
Hale & Norcross, div., $6	Payable Feb. 10, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

Copper in Nevada City.

The Fox copper mine, near the mouth of the Greenhorn, in Nevada county, which was first discovered in 1866, but upon which work was soon suspended, bids fair to come again into prominent notice. This mine now belongs entirely to Mr. John Thorpe, who resumed operations on it last summer, and now at the depth of 230 feet, has developed what bids fair to be a very valuable mine, even in the present depressed condition of the copper market. The operation has been rather a heavy one for one man, with moderate means; but perseverance generally brings its reward.

The proprietors of the Last Chance copper mine, below Rough & Ready, are taking measures to secure a government title to the ground upon which their mine is located, with the view of recommencing work, and erecting machinery upon the same at an early day. Ten tons of this ore, shipped to Swansea, some three or four years since, turned out 28 per cent. copper. There is good reason to look for an early and profitable revival of the copper interest in this State.

New Incorporations.

The following have filed articles of incorporation with the County Clerk, S. F.:

Pioneer Ship-building Co.—Feb. 4. Capital stock, $500,000, in 1,000 shares of $500 each. Trustees: L. C. Watts, Chas. Goodall and Chas. J. Jansen.

Nevada Land and Mining Co.—Feb. 7. Capital stock, $2,200,000, in 22,000 shares. Trustees: R. P. Johnson, W. Meeks, H. C. Kibbe, W. H. Watson and J. Klopenstein.

Butte County Canal and Gravel M. Co.—Feb. 7. Capital stock, $150,000, divided into 15,000 shares. Trustees: S. L. Deury, James H. Fish and John H. Turney.

The following have been recorded in the Secretary of State's office, Sacramento:

Vallejo Savings, Loan and Trust Co.—Feb. 6. Capital stock, $50,000.

Omega Water and M. Co.—Omega, Nevada county. Feb. 7. Trustees: John Herids, Richard N. Tully, Jas. Whartenberry, Geo. W. Kidd and Charles Marsh.

South Yuba Canal Co.—Feb. 7. Capital stock, $600,000, divided into shares of $2,000 each. Trustees: James Whartenberry, Geo. W. Kidd, Charles Marsh, John Dunne and Jacob Rich.

California Coöperative Boot and Shoe Co.—San Francisco. Feb. 8. Capital stock, $100,000. Trustees: W. M. Farrell, Cornelius Sullivan, Ernest Bourguignon, Dennis McSweeney, Jacob Miller, Isedore Lasser and B. O. Donnovan.

◆

The **U. S. Branch Mint** at Dahlonega, Georgia, has been sold. The property, which consisted of a large brick building and ten acres of land, was sold for $1,325. The gold scales and apparatus brought $107. The original cost was about $200,000. The mint has not been used for many years.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Progressive Agriculture.

It has been well and truly said that "progressive agriculture carries a blessing to the future." The progressive farmer builds tasteful dwellings, and so arranges his house as to lighten the labors of his wife. He adorns his grounds with shrubs and flowers, and procures for himself and sons books and periodicals suited to their calling. He thereby makes his home happy, cheerful and pleasant, and ennobles his calling by making it an intellectual one. He is justly proud of his farm, loves it, and teaches his children to love it also. Whatever he does is done for a reason, and not simply in imitation of what his father or neighbors have done for generations before. He makes his fruits and soils a study—he adapts the one to the other; and where Nature has been deficient or slow, he assists her. If his soil is wet, he drains it; if it is light and sterile, he applies the proper manures and adds more tenacious soil—if too much sand prevails, he adds clay; if sour or cold, he corrects by adding lime.

When he puts his son to the plow, he teaches him not only *how* to plow, but why; he not only shows him how to apply such and such manures to such and such fields and crops, but tells him the reason why. He thus makes his pursuit a scientific study, and brings it up by the side of other intellectual pursuits and the professions.

The progressive farmer encourages in himself and family a love for books, and for the beautiful in both Nature and art. He teaches and practices politeness and refinement in his family. Boorishness, rusticity and ignorance, which, in generations past, have been almost synonomous with a farmer's home and life, have no lodgement in the home of the progressive farmer of the present day. *His* sons and daughters have no desire to break away from home and seek for more congenial intercourse and employment in the city.

This kind of farming, as we stated at the outset, is not confined in its beneficial influences to the present time; but to future generations also. It not only adds to the social enjoyment of those most immediately interested; but vastly increases the material interests of the entire people.

The importance of agricultural education to the country can scarcely be estimated. Take the wheat crop, for instance, in any single section. Scarcely one can be found where wheat has been raised for twenty years that has not fallen off *one-half* in its average product per acre! Who can tell the millions of dollars that have thus been lost to this nation in that one crop alone? About the same may be said of the cotton, corn and nearly all the other crops.

There is no reason, as we have frequently written, why American soil should not be made as permanently productive as the soils of Europe. We boast of our improvements in agricultural implements, and with good reason; but the European farmer almost invariably produces the largest crops of cereals, notwithstanding our virgin soil and improved machinery. This is because the English, French and Germans bestow more study and labor upon the use of fertilizers than we do. While we have called to our aid the genius of invention in improving our farming machines, they have paid a greater degree of attention to scientific research into the nature and application of fertilizers. The latter is equally as essential as the former, and it is important that the American farmers, as a class, should be educated up to this fact.

The almond trees in Santa Rosa are in full bloom.

Culture of the Poppy for Opium.

The peculiar adaptability of the soil and climate of California for the growth of the poppy, and the high price and large demand for opium, which is derived from that plant, should favor the production of this drug at home, instead of sending our money abroad for its purchase. Although most of the opium of commerce is obtained from Asia Minor and the region of the Ganges, the poppy grows luxuriantly in almost all parts of the Temperate Zone. It is indigenous almost everywhere within that limit, and flourishes especially in Northern Mexico, and could scarcely fail to grow luxuriantly in Central and Southern California.

It is Easily Cultivated.

This plant, the *Papaver somniferum* of the botanists, is easily and cheaply grown, requiring but little cultivation, while the process of collecting the narcotic juice and converting it into the opium of commerce, is as simple as the most ordinary process in common housewifery. Nearly all the work of planting, gathering and producing the drug can be done by children, male or female. It is a marvel that the Chinese have not long ere this turned their attention to cultivating, rather than smuggling opium. The average profits in the former case would be vastly greater, with no risk of failure. The plant matures very rapidly, and is harvested within 90 or 100 days from planting, and the drug may be ready for market within a few days after it is gathered. In California, by a judicious variation in planting, a continuous gathering might be kept up for three or four months; while in most countries, that labor is confined to the space of three or four weeks.

Leaf and Flower of the White Poppy.

One of the peculiarities of this crop is the fact that it is especially adapted to small farmers. It matters but little, in the rate of profits to the hand, whether a few rods or many acres of ground are cultivated. It must be gathered punctually at the proper time, but its after manipulation can be managed at leisure; for the product is neither perishable nor bulky. It is just the crop to afford employment for families where there are large numbers of children too young for field hands; and it fully answers the question which has been, of late, so frequently and so anxiously asked in this city—"What shall we do with our boys?" A very small tract of land might be made to give light and profitable employment to a large number of children during the entire summer, and furnish ample means to keep them in school through the winter.

The Mode of Culture.

The poppy should be planted in rows about thirty inches apart, and the seed dropped, so as to insure a growth of the plants about eight inches asunder in the rows. A light, loamy, sandy soil is best for its culture—one which can be readily and thoroughly pulverized. The soil should be well dressed with nitrogenous manures. The seed should be covered about one inch deep. The only after cultivation is to simply stir the ground two or three times during its growth with cultivator and hoe. The plant grows to a height of from two and a half to four feet. In very dry soils it is possible that some irrigation may be necessary; although experience *may* show to the contrary. If irrigation is needed at all, it will be just before the plants come into bloom. After blooming, and while the juice of the capsule is being formed, irrigation would no doubt be detrimental.

There are Several Varieties,

That chiefly cultivated at the East is known as the white poppy, so named from the whiteness of its seed. There is another variety known as the black, producing black seeds. The double-flowered white poppy is still another variety. The variety chiefly cultivated in Germany and France is known, from its large growth, as the "giant." Careful experiments in Germany have shown that better results are obtained from the giant than from either of the other varieties.

Different Modes of Obtaining the Juice.

There are two modes of obtaining the juice. The first is by cutting slits in the seed-head or capsule of the plant with the point of a sharp knife, and carefully gathering the juice which exudes.

Another process is to cut off the heads of the plant, grind them to a pomace in a cider mill, and press out the juice in the same manner as in making cider. The former is the process most generally employed and productive of the best results. It is also more simple, and unattended with any requirements for machinery.

Some employ both methods—first cutting slits in the capsules and gathering whatever juice may exude, and afterwards cutting off the capsules and mashing them in the mill. The two products thus obtained are mixed.

Saving and Utilizing the Seed.

The seed of the poppy, in addition to its use for replanting, (as the plant is an annual) is in large demand for the manufacture of table oil. When the capsule is cut off for grinding, as above noticed, it must be done before the seed has ripened or formed its oil; so that in that process the seed is lost. But in collecting the juice by incision, the capsule is not so badly injured but that it will still mature its seed. The seeds are worth, for oil, about one-half as much as the juice for opium. In saving seed for replanting, the plant should not be robbed of its juice, as it is all needed to form a perfectly healthy seed, such as is required for producing a vigorous plant. From what we have been able to learn, too little attention has been paid to this matter—the seed generally sown having been that which has matured in a wounded capsule. We presume the oil mill in this city would gladly purchase all the opium seed which will be likely to be raised in this State at present.

Importance of Bone Elements.—Dr. J. V. C. Smith, in a recent lecture in New York, noted, among other facts in relation to the structure of bones, that the more populous a country becomes, the shorter is the average stature of the people. This is due to the fact that the bone-producing elements of the soil in such countries are becoming gradually exhausted. The exceptional large stature of the natives of some of our Western States is universally attributed to the abundance of lime in the soil. The reverse may be expected where lime and phosphorus (the bone-producing elements) are wanting. This subject has an important agricultural as well as physiological bearing, and one to which too little attention is paid. Ought not lime to be more generally applied to our soil in other ways than in bones?

New Variety of Sweet Potato.—A new variety of the sweet potato has been recently introduced at the East, from South America. It is called the "Southern Queen." The tubers are large, very light colored, and said to be better keepers than any now cultivated in the United States. It is highly spoken of by the *American Horticultural Journal*, for its productiveness and other good qualities. Would it not be well to give the "Southern Queen" a place in our California fields?

"What I Know About Farming."

Mr. Greeley, in his series of articles on "What I Know About Farming," is making many suggestions well worth reading, and which have a very important bearing also, in a practical point of view. Although he is writing these articles mainly for the benefit of young people—young beginners in farming—there are many not so young who might read them with profit. In his fourth number he addresses his young friends as follows:

Our boys are in too great hurry to be men. They want to be bosses before they have qualified themselves to be efficient journeymen. I have personally known several instances of young men, fresh from school or from some city vocation, buying or hiring a farm and undertaking to work it; and I cannot now recall a single instance in which the attempt has succeeded; while speedy failure has been the usual result. The assumption that farming is a rude, simple matter, requiring little intellect and less experience, has buried many a well-meaning youth under debts which the best efforts of several subsequent years will barely enable him to pay off. In my opinion, half our farmers now living would say, if questioned, that they might better have waited longer before buying or hiring a farm. * * *

To every young man who has had no farming experience, or very little, yet who means to make farming his vocation, I say, Hire out, for the coming year, to the very best farmer who will give you anything like the value of your labor. Buy a very few choice books (if you have them not already) which treat of geology, chemistry, botany, and the application of their truths in practical agriculture; give to these the close and thoughtful attention of your few leisure hours; keep your eyes wide open, and set down in a note-book each night a minute of whatever has been done on the farm that day. At the year's end, hire again to the same or another good farmer and pursue the same course; and so do till you are twenty-four or twenty-five years of age, which is young enough to marry, and quite young enough to undertake the management of a farm. * * *

I have high regard for scientific attainments; I wish every young man was thoroughly instructed in the sciences which underlie the art of farming. But all the learning on earth, though it may powerfully help to make a good farmer, would not of itself make one. When a young man has learned all that seminaries and lectures, books and cabinets, can teach him, he still needs practice and experience to make him a good farmer. * * *

He who has already mastered the art of farming, and has adequate means, may of course buy a farm to-morrow, though he be barely or not quite of age. He has little to learn from me. Yet I think even such have often concluded, in after years, that they were too hasty in buying land—that they might profitably have waited, and deliberated, and garnered the treasures of experience, before they took the grave steps of buying their future homes, with regard to which, I shall make some suggestions in my next.

Effects of Cooling Milk.—Careful experiments have shown that there is a difference in the butter yield of milk of from 20 to 30 per cent., dependent upon the manner of setting and cooling it for obtaining the cream. The lowest percentage is obtained when the milk is put away upon wooden shelves in a moderately warm, unventilated room—the highest when it is placed on stone shelves in a cool, well-ventilated spring-house. Polished marble shelves, in a well-ventilated spring-house, with running water forming a cascade, with glass or finely glazed earthenware pans, are probably the best conditions for obtaining the largest yield and finest quality of butter, from any given quantity and quality of milk.

Germany Looking to America for Choice Small Fruit.—Catalogues are published in Germany in which many of the choice small fruits produced in America are advertised. This fact is noted as evidence that foreign countries are beginning to use our small fruits, and as looking to the possibility that America may, ere long, become fully as much an importer as exporter of such products.

Proper Cultivation for Our Climate.

[Written for the Scientific Press.]

Editors Press:—Many agricultural writers seem to have confused ideas in regard to the conditions most favorable to capillary action. This is not surprising, when we find in text books on philosophy conclusions so much at variance with the facts presented. According to Professor Leslie, the facts are these:

"If a soil of gravel contains pores the 100th part of an inch in diameter, water will ascend in it by capillary action something more than four inches, and supposing the particles of coarse sand to have interstices of the 500th part of an inch, the water would rise through a bed of sixteen inches; and if the pores were diminished to the 10,000th part of an inch, water would rise twenty-five feet and a half."

And here is his conclusion:

"Hence, in agriculture, are derived the advantages of deep and perfect tillage; since the more effectually a soil is pulverized, the better fitted it is to *raise* and retain moisture near the surface."

Quite the contrary, for according to his facts, deep and perfect tillage must destroy the condition in the surface soil most favorable to capillary action, and not only prevent the water from coming to the surface, but it at the same time prevents the heat of the sun penetrating the earth. Uncultivated soils, in this climate, are already packed as closely as their nature will permit, from the surface downward, and for this reason moisture is retained at the surface, by capillary action, to be evaporated by the heat and drying winds, until the supply is exhausted to a great depth, which must vary with the character of the soil. A fine clayey soil is capable of raising the moisture from a greater depth than one less compact.

In our climate, the unbroken subsoil should always be within reach of the roots of the growing plant, otherwise, when the heat of summer arrives, it might fail to mature for lack of moisture. Hence the depth of tillage should vary with the character of the crop and the period of its arriving at maturity.

The beneficial effects of subsoiling, chemically, are no doubt as great here as in other parts of the world, but mechanically, it must render the soil unfit for maturing such crops as do not root deeply, at least until the soil has had time to repack. For small grain, it may be doubted if the best average results can be obtained on ground recently subsoiled, unless the crop is to be cut for hay. It should be the aim of agriculturists to stir the soil deep enough for a mulching, for other field crops. For moist soils and situations, six or eight inches will be a sufficient depth. For such crops as mature early in the season, a less depth will answer. In most localities in California, where there is depth of soil to absorb all the annual fall of rain, were a system of cultivation adopted with the view of retaining the moisture as long as possible, the supply would be found sufficient for the maturity of any crop, if planted at the proper season. F. A. H.

Remarks.

The question of deep or shallow plowing has excited a large amount of discussion within the past year or two, and has been the subject of much careful experimentation for many years. The facts elicited seem to point to the circumstance that there are soils which, from peculiar character of subsoil, will do better with shallow than with deep plowing, while there are others that require deep plowing. If you have hard-pan under clay loam, and are expecting drouth, plow deep enough to loosen the top of your hard-pan, so that the roots of your crop may effect an entrance into the same for the moisture that they will fail to find in the loam. With a sandy soil and subsoil, there is not so much necessity for deep plowing, from the fact that the roots will find their way down to the moisture through the *naturally* loose subsoil. This question also depends much on the nature of the crop which it is proposed to raise—whether it is such as naturally sends roots down deep or otherwise. On this coast, early plowing, as a general thing, should be deep; later plowing may be shallower. There is one other advantage derivable from deep plowing, of much importance in California and all other countries that are divided into wet and dry seasons, which is more particularly referred to at the close of these remarks.

Many argue that three inches is deep enough for ordinary soils, especially for corn, which does not send down deep roots. The best practical experiments seem to show that the plow should never run less than six inches deep. No fixed law can be assumed for all cases. Individual experiments should be the guide, and every farmer *should* experiment.

There is one very important matter that seems to be too generally lost sight of in plowing—the aeration of the soil. Our correspondent, "F. A. H.," does not appear to take this matter into account in his communication. A proper aeration of the soil is a matter of vital importance, especially in the germination of seeds. Every increased inch in depth of a proper pulverization of the soil introduces an additional million and a half cubic inches of air to the acre, which, in a moist atmosphere, even without rain, adds a vast amount of moisture to the soil, on the general principle of the diffusion of gases—the moisture in the atmosphere being in the form of a gas. We propose, at an early day, to call particular attention to this matter by the aid of illustrated diagrams.

The remarks of our correspondent, with regard to the retention in the soil, so far as possible, in this country, of the rains of winter, instead of allowing them to flow rapidly away, is of more importance than is generally supposed. This might be greatly aided, in some localities, where natural facilities are offered, by the erection of dams and reservoirs. Deep plowing greatly aids in this matter, as by the loosening of the subsoil the rains are better able to penetrate deep into the ground, to be there held until the approach of the dry season, being then drawn up to the plant roots by capillary action.

Preservation of Apples.

The London *Gardener's Chronicle* says: "He covers the floor of his cellar with hurdles, two in thickness, and on these he puts a little straw, upon which the apples are placed without further care or attention, except removing all that seems to be faulty as he places them in the cellar, and he thinks it is unnecessary to use any particular care in this respect. He has at present a hundred and ten bushels of apples thus heaped up in his small cellar; two or three times a week he gives a good wetting with fresh water, as much as he thinks will wet the whole of them. This water drains off through the straw and hurdels into a well. In this way his apples keep well until the time he usually disposes of them; the best to make him a good return after Christmas. At present the apples look as well and as firm as if just gathered, and I understand that, during the last ten years, they have always kept just as well and as fresh as now.

How much less troublesome and easy of application for keeping large quantities of fruit, than storing them away in dried sand on shelves, or in boxes, or in any other of the ways highly recommended."

We could never see the philosophy of storing apples in a *dry* place, where the moisture must be rapidly taken out of them, leaving the fruit to shrivel up and lose its fresh and crispy taste. True, moisture generally induces decay; but the peculiar manner of its application, as described above, in connection with perfect drainage and ventilation, militates against the action of the spores of fungi, to which decay is generally due, and very probably may result as described by the *Chronicle*. Will not some of our orchardists give the above plan of preserving apples a trial, and report the result to the Scientific Press?

Small Fruit Cultivation and Other Matters in Alameda.

[Written for the Scientific Press.]

Gooseberries.

Editors Press:—Mr. P. F. Marston called my attention to 175 gooseberry plants, which he took charge of at three years from cutting. Thorough cultivation had previously been neglected. He gave them proper attention, and the first season the fruit netted him $50; the second $100; and the third—last year—$125. These plants are growing in an orchard between rows of apple trees, and probably did not produce over two-thirds what they would had they the entire ground to themselves.

Another gentlemen,—Mr. J. V. Webster,—gave me much information as to his system of cultivation. I venture the assertion that not one farmer in a hundred is so thoroughly systematical, economical and enterprising, as this gentleman. He showed me a lot of fine gooseberry bushes, growing in his orchard, which he had trained in different styles. His experience is, that it is better not to prune at all, excepting to remove old decaying wood. When pruned in tree form, the wood in the stock gets hard and brittle, and it is liable to get twisted or broken off, and the yield of fruit is not equal to the bush when naturally trained. A fine lot of bushes that he has not pruned for ten years, are certainly superior to any that I have seen. He assured me that 180 bushes, not pruned, yielded last year 1,500 pounds of fruit. He says they stand shipping better than any other fruit, and may be sent to the States with perfect safety, and that what with using green, with canning and sending East, the business of raising gooseberries cannot soon be overdone.

Currants.

Mr. Webster thinks that the only pruning necessary for currants, is to cut out the side branches that lay on the ground, and head in the leading upright stems. I will here give some minutes of the experience of Mr. Haile, of Alameda. Three years ago he set out 500 cherry-currant cuttings. The first year he picked fourteen pounds of currants; the second year, 380 pounds; the third—last year—they yielded 1,650 pounds. The land on which the currants and gooseberries were grown is, in every case, light alluvial soil, and thoroughly cultivated.

Blackberries.

Mr. Webster has four acres of the finest blackberries in the State. The plants stand 5x8 feet apart. He says they should be no closer than 5x10 feet. They are set on light, loamy soil. He does not plow among them, but runs the cultivator through about ten times during the year, and keeps the weeds hoed away from the vines. He allows from one to three shoots to grow in every hill, and don't let them get over three feet high. His vines are finely branched, and yield fruit that commands two cents per pound more, in the same market, than any other lot of blackberries. By keeping the weeds, and stirring the soil in the spring, his berries ripen two weeks earlier than in vineyards where such cultivation is neglected. Mr. W. cultivates the Lawton blackberry, and thinks the Kittertinny not so good. The second year he got 13,500 pounds from his four acres; this year he calculates to have not less than 30,000 pounds from the same piece.

A Grain Field—Benefits of Fallowing.

Mr. Webster cultivates a grain field which produces a better yield now than it did fifteen years ago. He seeds but half of it down every year, and gets more hay and grain from it, and at a less expense—besides keeping his ground "in heart"—than he could by sowing it all yearly.

His manner of fallowing is this: When the grass and weeds on the stubble field get a foot or two high—say in February or March—he plows the green crop under. Then he cross plows again in June. This leaves the land in excellent condition to receive the seed the following winter. Thus he alternately sows and fallows each half yearly.

Piscatorial, Etc.

Mr. Webster, of Alameda, has made preparations for a fish pond. Near his house there is quite a large circular bend in the creek running through Fruit Vale. He has made a sort of a "Dutch Gap Canal" cut-off by fluming through the narrow portion of this neck of land, and his dams are so arranged that he can supply or draw off the water at will. His pond is the old circular bed of the stream, with sloping banks and shady grove. He intends stocking the same with Lake Bigler trout. Another item worth noting is the fact that he has so arranged his flumes that he can catch a hundred loads of float gravel and sand every year, worth as many dollars.

It is certainly refreshing to meet now and then, and be entertained by gentlemen of intelligence and frankness,—of manly sense, free to impart and ready to receive, such ideas, thoughts and experience, as the light shines upon; especially when one meets in his travels with so many who shrug their shoulders, when questioned upon subjects which they profess to be acquainted—as much as to say, "I know this, but I am not fool enough to tell you." Such narrow-minded, selfish and conceited souls are welcome to all they do know, and to my liberal opinion of them besides. The world moves on—man moves it, and moves with it, or remains a dead weight on the wheels of time—a sordid, cumbrous passenger of fate.

Milk Dairy.

Calling at the ranch of William Kennedy, I found him milking thirty cows. The breed which he keeps is a cross between the Durham and Ayershire. He thinks this the best for milk stock; the cows are large, hearty eaters, and fine milkers. His cows yield 100 gallons of milk per day. This, he assures me, is one-third more than the average of "swill-fed" stock. He feeds only hay and grass in its season and vegetables—very seldom meal, and never slops. His cows are always healthy, and the milk is pure. He raises all his heifer calves, and selects his cows from them.

Beets and Carrots.

He cultivates what vegetables he uses. Sugar beets are not profitable, only twelve tons of them to the acre can be raised, where twenty tons of the mangle-wurtzel beets grow. The sugar beets have to be cut, and these sometimes choke the cows. The mangle-wurtzel can be fed whole, and without danger. He also cultivates the white Belgium carrot, which will yield fifteen tons, or twice as much as any other sort. This, like the stock beet, grows one-half above ground, and is easily gathered.

Poultry Business.

I was intending to make some jottings under this head, but will have to defer it until another time. H.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, February 10, 1870.

Flour, Extra, ℘ bbl	$5 00	@$5 50
Do. Superfine	4 50	@ 4 75
Corn Meal, ℘ 100 ℔s	2 00	@ 2 25
Wheat, ℘ 100 ℔s	1 30	@ 1 65
Oats, ℘ 100 ℔s	1 15	@ 1 65
Barley, ℘ 100 ℔s	1 15	@ 1 25
Beans, ℘ 100 ℔s	2 50	@ 3 50
Potatoes, ℘ 100 ℔s	75	@ 1 00
Hay, ℘ ton	11 00	@17 00
Live Oak Wood, ℘ cord	9 00	@14 00
Beef, extra, dressed, ℘ ℔	7	@ 12½
Sheep, on foot	2 50	@ 3
Hogs, on foot, ℘ ℔	5	@
Hogs, dressed, ℘ ℔	8	@ 8½

GROCERIES, ETC.

Sugar, crushed, ℘ ℔	13½	@ 14½
Do. Hawaiian	8	@ 11
Coffee, Costa Rica, ℘ ℔	18½	@ 19
Do. Rio	17½	@ 18
Tea, Japan, ℘ ℔	75	@ 90
Do. Oreon	60	@ 1 25
Hawaiian Rice, ℘ ℔	8	@ 9
China Rice, ℘ ℔	5½	@ 6
Coal Oil, ℘ gallon	42½	@ 45
Candles, ℘ ℔	16	@ 18
Overland Butter	25	@ 33
Ranch Butter, ℘ ℔	30	@ 35
Isthmus Butter, ℘ ℔	25	@ 33
Cheese, California, ℘ ℔	18	@ 22
Eggs, ℘ dozen	30	@ 32½
Lard, ℘ ℔	12½	@ 13
Ham and Bacon, ℘ ℔	16	@ 18
Shoulders, ℘ ℔	10	@ 12

Retail Prices.

Butter, California, fresh, ℘ ℔	45	@ 50
do. pickled, ℘ ℔	35	@ 40
do. Oregon, ℘ ℔	25	@ —
do. New York, ℘ ℔	40	@ —
Cheese, ℘ ℔	20	@ 25
Honey, ℘ ℔	25	@ 30
Eggs, ℘ dozen	45	@ 50
Lard, ℘ ℔	20	@ 2[illegible]
Hams and Bacon, ℘ ℔	22	@ 25
Cranberries, ℘ gallon	1 00	@ 1 25
Potatoes, ℘ ℔	2	@ 3
Potatoes, Sweet, ℘ ℔	—	@ 2
Tomatoes, ℘ ℔	2	@ 3
Onions, ℘ ℔	3	@ 5
Apples, No. 1, ℘ ℔	4	@ 5
Pears, Table, ℘ ℔	5	@
Plums, dried, ℘ ℔	10	@ 12
Peaches, dried, ℘ ℔	10	@ 15
Oranges, ℘ dozen	50	@ 75
Lemons, ℘ dozen	—	@ 1 00
Chickens, apiece	75	@ 1 00
Turkeys, ℘ ℔	—	@ 25
Soap, Pale and C. O.		@ 12
Soap, Castile, ℘ ℔		@ 20

Scientific Press.

W. B. EWER..............................Senior Editor.

A. T. DEWEY. W. B. EWER.

DEWEY & CO., Publishers.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance	$4 00
One copy, six months, in advance	2 50
Delivered by city carriers, per month	50

Rates of Advertising.

One square (ten lines agate), one week	$1 00
One square, one month	3 00
One column, one month	40 00
One column, one year	400 00

¶ Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, Feb. 12, 1870.

Table of Contents.

Grapes on the High Sierras—Illustrated.......... 97
The Loud-Cole Patent—Illustrated 104
Clothing for the Pacific Coast 98
Heating Saline Solutions 98
Making Ice.............. 98
Siamese Paper........... 98
Fire Extinguishers...... 98
The Flour Interest......105
Full List of Patents....104
New Incorporations. ... 101
To Correspondents......104
Legislative.............105
A New Pile-Driver...... 97
Artesian Well at Oakland112
Proposed Mining Incorporation Law...........105
The Fence Law.........104
Copper in Nevada City..101
S. F. Stock Market......101
Reading for the Hour.—Behavior in Church: Exhibition of Flying Machines, etc...........108
Farming and Gardening.—Progressive Agriculture; Culture of the Poppy for Opium; What I Know About Farming; Proper Cultivation for Climate: Preservation of Apples; Fruit Cultivation, etc.103
Mechanical Progress — The Year's Advance in Mechanical Economics; Anvils; Setting Boilers; Slate Pencils, etc..... 99
Scientific Progress — Principles of Molecular and Cosmical Physics; First Formation of Common Salt; Another Battery, etc........... 99
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Montana; New Mexico and Nev.100
S. F. Shareholders' Directory....................101

Notices to Correspondents.

J. D., Virginia, Nevada.—The ton of copper ore is reckoned at 2,352 pounds by English and American smelting works, being a custom which still survives from earlier times; but in shipping ores to England, a certain deduction is made for draftage. To obviate any difficulty in this respect, some agents here call a ton 2,376 pounds, which, after deducting draftage, amounts to 2,352 pounds. The silver is paid for extra, but there is no determined rate. One party pays for all silver over $50 per ton, another for all over $30, and the same party may pay differently at different times.

J. B., North Branch, Calaveras county.—If F's partnere gave him no notice of the meetinge (as you say) by publication or otherwise, they have not the right to sell his claim.

How the Coöperative Plan Operates in the Foundry and Machine Business.—Six months ago the Miners' Foundry commenced working on the coöperative plan, after the following manner: The workmen furnish all the material and do the work, paying to the shop a percentage on all the work done, the proprietors giving their time and influence in procuring and superintending the work. The working capital for paying for materials is arranged as follows: Each workman leaves his first month's labor as capital stock, and all they realize over the current wages remains to augment this. The total amount of original investment in this manner was $1,826, and in the first six months, after paying themselves the highest current wages and the percentage to the shop, they have added to their capital stock $1,763, nearly 100 per cent., which can be divided whenever the directors think advisable or remain as working capital.—*Bulletin.*

We are glad to hear that this experiment has succeeded so well. We are inclined to believe that the presence of one or two (if not more) of such associations will put an end to the evils arising from strikes, as thereby the pricee of wages will be regulated to a great extent, the workmen themselves seeing how much or how little they ought to receive in fairness to the interests of the proprietors. In such a work each man will be on the look-out to stir up the drones, and make all do their share of the labor. Thus also will be shown how much a fair day's work is. We believe that the benefits will extend in these ways also to other establishments.

◆

There is a rumor that work will soon be resumed at Mare Island.

The Fence Law.

The question of fence or no fence has lately been agitated in this State. As in all questions, there are two sides, each of which should be viewed with impartial eyes. Two important interests are concerned in the settlement of the question; on the one side that of the farmers, on the other that of the stock-raisers. The subject is to be brought before the Legislature, and there it must be decided whether it is more to the interest of the State to compel farmers to fence in their crops or the stock-raisers to have keepers for their cattle.

The expense of building fences and keeping them in repair is certainly a very heavy tax on farmers, and this especially so in those districts where timber is exceedingly scarce and the lumber must be transported long distances at a great expense. It is estimated that the annual cost of repairing the fences around the 18,000,000 acres of Ohio amounts to over $7,500,000, or between forty and fifty cents an acre. The original cost was over $6 per acre. The numbers for Ohio are much smaller than they are for our State. The tax is, then, enormous for the farmer; and, compared with this on the other hand, the expense to the stock-raiser for keeping his cattle within bounds is comparatively small. From this point of view the argument is greatly in favor of a "no-fence law."

There is, moreover, another point to this question. Is it right, morally or socially, to compel the farmer to build, at such an expense, a fence which he needs for no other purpose than to guard against the aggression of somebody else's cattle? or, in other words, is it right to compel the farmer to build the stock-raiser's fence? We can see no legal nor any moral reason for this, especially when we consider that the expense is greater for the former than it would be for the latter.

We confess that, to our eyes, all justice and reason seem to be against the fence law. The farmer is never the trespasser. His grain is immovable and cannot infringe on the property of the cattle-owner. To compel him to fence his crops, is to lay a tax on his land, which tax often amounts to many times the value of his farm. Is there any question as to whether the trespasser or the trespassed should be punished?

Hedges are practically impossible in the majority of cases, although it is strongly urged in some places. The osage orange seems to make the best hedge—that is to say, under proper conditions; but this requires considerable care and attention, must be trimmed and pruned, and requires, moreover, five to six years to make a proper fence. We do not believe that farmers can spare the time therefor, all their attention being needed for their crops. The cost of these, and the trouble of growing and maintaining them in most districts, put them out of the question.

We join, then, with the farmers, in calling for a repeal of the fence law, or at least in all counties where it is felt to be onerous. However proper or necessary such a law may have been in the earlier days of the country, it is no longer anything but a detriment to our State at present. The value of land is greatly diminished and immigration and settlement retarded thereby. The law should make the stock-owners liable in damages for any injury caused by their stocks. Perhaps the present state of things are the best for a few grazing districts, but in general legislation for the whole State, a change is imperatively demanded.

◆

Oil Cake.—We learn that the oil cake made at the Pacific Oil Works is continually increasing in demand. Milkmen are said to find it the most valuable food for their milch cows, by its use both the richness and the quantity of the milk being greatly increased.

The Loud-Cole Patent Case.

An interesting contest with regard to a patent of an improved propeller, has been going on for some time between Mr. A. C. Loud, a merchant of this city, and Senator Cole, in which decisions—by Chas. Everett, Examiner, by John M. Thacher, Examiner of Interferences, and by J. H. Hodges and S. C. Fessenden, Examiners-in-Chief—have been rendered in favor of Mr. Loud. We have just received word, however, that on the last appeal Mr. Cole has been successful. The case involves points of interest and importance to inventors, and we propose to go over a part of the contested ground.

Mr. Loud claims that in October, 1868, he left San Francisco, and went on to Washington to get a patent on an improved propeller, that he visited Senator Cole, who became much interested in the invention, and went with him to the Commissioner of Patents. The patent was allowed in the beginning of November. Afterwards the two went on to New York, (Loud having instructed his agent to have his models and papers remain in the secret archives at Washington), and there experiments were made with a small steamer. The wheel did not answer the purpose as well as was desired, and changes in the construction were found necessary. Winter came on, and the cold weather determined the parties to lay the boat up until spring. Business compelled Mr. Loud to return to California in December. While at New York, a verbal contract was made by the two parties to the effect that the Senator should pay the expenses of the experiments, etc., and should receive therefor a quarter interest in the invention. Various minor arrangements with regard to making improvements, etc., were also settled, and it was decided to take out a new American and foreign patents.

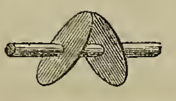


Fig. 1.—As Experimented With.

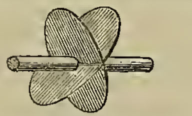


Fig. 2.—As Contested.

On the voyage home (by steamer) Mr. Loud, while thinking over the matter, decided that a different construction of the wheel which he had invented originally, and of which he had made a pasteboard model in or before September, 1868, would be an improvement, although he had before thought differently. He went back by rail within five days, to show the model to Mr. Cole, and ventilate the matter. On arriving at Washington, he found that the Senator had changed his mind with regard to the previous arrangement, had taken Mr. Loud's papers from the secret archives, paid the final fee, and made them public, contrary to instructions, and had himself taken out a patent for a new form, which was identical with the one Mr. Loud claimed as his original one. Mr. L. immediately applied for a new patent, Feb. 3, 1869, and in this an interference has been declared, with a similar application of Cornelius Cole.

Senator Cole does not contradict this statement, except as regards the priority of invention, and argues that even had Mr. Loud invented this form, he had forfeited his claim by not exercising reasonable diligence in adapting and perfecting the device.

We have before us the decisions referred to at the beginning of the article, which touch on these points on which alone the decision turns.

The Primary Examiner states that priority of invention is awarded to Mr. Loud, his assertions having been proved by witnesses. The Examiner of Interferences states the same, and says: "Any different conclusion must be accompanied by a decision that all the witnesses referred to are guilty of swearing to outrageous lies, thereby deliberately and shamefully committing perjury. Such a decision I cannot make in the absence of any proof to sustain the same, not a single contradiction as to the invention having been attempted, save in a single instance with Loud, which is based entirely upon his silence as to the said invention while in New York." The Examiners-in-Chief say "the conclusion is *unavoidable* that Loud had conceived it months before his antagonist."

In regard to forfeiture of claim by abandonment, the decisions are strong that there is no ground for this objection, and the Examiners-in-Chief say of the two forms of wheel, "the two forms were evidently regarded as modifications of the same invention by Loud, and *very justly.*"

Here, then, we have it affirmed in an emphatic manner by the Examiners that, by the mouths of competent witnesses, whose testimony is positive, clear and unimpeached, it is proved that Mr. Loud invented the contested article, and showed a model of it long before the Senator claimed to have thought of it; moreover, the new construction was identical in principle with the older form. We give sketches of both, that our readers may see the force of this:—"Both operate upon the principle of a scull, though the crossed disk have also the operations of buckets to some extent. They were so far cognate, that a man may well be considered as engaged in maturing the invention, while employed on either."—*Report of the Examiners-in-Chief.*

In the face of all this, we are at a loss to understand how a different conclusion can have been arrived at in the last appeal. We must delay remarking on the case definitely, until we have a full report of the decision; but we cannot refrain from expressing wonder in view of the positive testimony of Mr. Loud's witnesses, whose character have always been considered above suspicion.

◆

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending February 1st.

Composition for the Manufacture of Water, Gas and Drain Pipes.—William P. Kirkland, San Francisco.

Table Fork.—James Patterson, San Francisco. Antedated Jan. 29th, 1870.

Driven Well.—Isaac Trump, San Francisco.

Spark Arrester.—Edward Waud, Eugene City, Oregon.

Gang-Plow.—Samnel Welch, Belpassi, Oregon.

Pruning Knife.—Henry Alter, Lakeport, Cal.

Extension Bedstead.—Frederick Menzer, San Francisco.

Swivel Shackle.—William Williams, Vallejo, Cal., assignor to himself and Daniel Harrington, same place.

Paddle Wheel.—Adam Wingard, San Francisco.

Division A.—Needle for Sewing Machines.—Hannah G. Suplee, San Francisco.

Division B.—Needle for Sewing Machines.—Hannah G. Suplee, San Francisco.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

◆

Freezing Mixtures.—We have received a list of several freezing mixtures from Mr. Paul Schumacher, of this city, which, however, have previously appeared from time to time, in our columns. Mr. S. has paid considerable attention to this subject, and has invented several methods, some of which he has patented.

Proposed Mining Incorporation Law.

We published in full last week a bill with regard to mining incorporations (prepared by the Stock Board of San Francisco), which is to be presented to the State Legislature; and we proposed to comment on the bill this week, not having space in our last issue. The main points, it will be remembered, are these: 1st. Vesting corporate powers in the stockholders, and giving a majority of them the power to remove any officer of the company. 2d. Compelling the trustees to make a full statement of the financial condition of the company every three months. 3d. All rock crushed to be let out to public competition and contract, unless worked in a company's own mill. 4th. No contract to be let for a longer time than three months.

The object of the bill is to protect the stockholders of certain companies (particularly of some owning mines on the Comstock lode) against the pernicious power now held by the "rings," which manage the affairs of the companies entirely for their own pecuniary benefit, without any regard to justice or the rights of the "outsiders." For this purpose the law is to be amended so that quarterly statements must be made, thus enabling stockholders to know the actual situations of affairs (whereas, in many instances, no information can be obtained, except at the yearly meetings, under the existing state of things), and to prevent the letting of fat contracts to favorites at high prices, to the manifest injury of the interests of the company. The avowed object is most praiseworthy; and could the measure be enforced with regard to certain mines, and these only, it might be well. But there are fatal objections to making this a general law.

As other incorporations are required to make reports from time to time, showing their financial situation, it would seem but fair that mining companies should do the same. This of itself will do much towards preventing unjust and dishonorable management, without injuring those concerns which are properly conducted; and we have no objections against the section relating to this point. But the last sections, regarding contracts, are entirely inapplicable to a great majority of cases. Limiting all contracts to a duration of three months is absurd, because practically impossible. No one will take a contract for tunneling, or similar work, or for rock-crushing, for three months only when so liable to lose the job at the end of that time. And to compel all mines to advertise so often for new bids and to take the highest, no matter how satisfactorily the work has been done previously, is rendering them liable to considerable expense, delay, and often loss, which may be fatal in many cases, and which is entirely unnecessary in most.

It is preposterous to attempt to regulate all incorporations by specific measures, which may be necessary to control the dishonest officers of a few, especially when the latter object can be effected in other ways. If the brokers really desired to benefit the public, they might exclude from their Board all operations which evidently are unfairly conducted. The gentlemen perfectly well know how affairs have been and are managed by the cliques. Why, then, recognize them?

With regard to mining incorporations in general, the latter sections of the bill are exceedingly onerous and entirely useless. With regard to the few to which they are intended to apply, we do not believe they will accomplish anything. And if all loopholes of evasion are stopped up, and such a law vigorously enforced, the only result, we think, will be that the companies in question will migrate to Virginia City or elsewhere outside of the State, leaving the measures to apply only to those for whom it is not only unnecessary, but even useless and detrimental. We are in favor of anything which may put all mining on a footing of an honest and well-conducted industry. But with all due respect for the Stock Board, we cannot believe that those gentlemen—whose only connection with mines and mining companies is for the purpose of speculating in stocks—are exactly the persons best qualified to make laws which are to govern legitimate mining operations.

The great curse of the industry and the real *root* of evil from which such improper management has sprung, is speculation. It is this which has sapped our resources and undermined our credit, and which has produced similar results in all countries. No measures for cutting off the branches will be effectual while the root is permitted to exist. So long as people will indulge in indiscriminate stock gambling, so long must we hope in vain for the discontinuance of dishonesty and roguery. Shall we learn of ourselves to consider mining a *legitimate business*, or must we wait first for another grand crash to teach it us by its bitter experience?

Legislative.

It is proposed by Senator Betge that the State shall issue bonds to defray the expenses of carrying water from Lake Tahoe to San Francisco, to supply not only the city but also intermediate points with water for household, mining and agricultural purposes. The idea is not bad, but the sum of $10,000,000 is *rather* a large amount to be put into one bill.

Mr. Minis' bill for the encouragement of agriculture provides for a premium of $10,000 to be paid to any person or persons who shall within three years introduce into the State ten steam plows, each capable of plowing and seeding forty acres of land per day. For the introduction of forty of these plows in the next four years a premium of $100,000 is to be paid. The Board of Judges to award the premiums consists of the following persons: The Governor; President of the Mechanics' Institute, San Francisco; President of Agricultural, Horticultural and Mechanical Society of the Northern District, and the President of the San Joaquin Agricultural Society. We have previously expressed our ideas with regard to such a bill, in remarking on the excellent measure proposed by Mr. Perkins, which seems to us, in many respects, the more rational of the two.

The resolutions in the report of the Committe on grape culture (asking for modifications of the internal revenue exempting fruit distilleries from the operations of the provisions applying to malt and grape distillers) were adopted in the Senate.

Congressional.

In the National Congress, the House Committee on Public Lands reported in favor of allowing the claims of Messrs. Hutchings & Lamon in the Yosemite. The claim is laid out so as to extend from side to side of the valley, but nevertheless, if the gentlemen are right, they should receive full justice. The State Legislature should make every effort to purchase their claim.

Mr. Wilson introduced a bill to release Goat Island from Government reservation. The title to the island is claimed by three different parties. Mr. Cassorly offered an excellent resolution, which was adopted, instructing the Committee on Public Lands to consider the propriety of enacting a law for a general system respecting the public lands of the United States in California, and for distributing the same into different classes; the first to consist of agricultural lands of the first quality; the second class, of all other agricultural lands; the third class, of pasture lands; the fourth class, of timbered lands of the first quality; the fifth, of all other timbered lands; the sixth class, of lands bearing gold, silver and quicksilver; the seventh, of lands containing any other metals or minerals; and, if the said Committee shall find it proper, to report a bill accordingly.

We shall give an article next week with regard to the sale of ores and their crushing and sampling in this city.

Our Home Industries.

The Flour Interest.

The most extensive flour mills of California are situated in this city, and their brands have the best reputation, and have, to a very large extent, supplied the export trade. California wheat is so dry that flour made from it bears transportation to any place on the globe with safety; and as long as the California millers continue to use care in the production of a strictly good article, so long they may expect to lead other lands.

The principal flouring mills in San Francisco are the Capitol, Commercial, Genessee, Golden Age, Golden Gate, National, Pacific and Pioneer, all of which enjoy a high reputation. We inspected one of the largest, if not the largest—the Golden Gate—this week, and satisfied ourselves with regard to the care exercised by our city millers in preparing this important article of sustinence.

Cleansing the Wheat.

The wheat is brought in sacks to the mill, and the first step is to clean it of the various foreign substances, such as straw, sticks, strings, dust, etc., which add to the weight without improving the quality or supplying nutriment. For this purpose the wheat is passed over a variety of screens and subjected to the action of air-separators, in which last, by a properly regulated current of air, the lighter substances are carried off, while the heavier grains of wheat fall into proper receptacles. After undergoing these processes, which are varied and modified in different mills according to the ideas of the several proprietors—in order to clean the grains from any dust which may still adhere or from any smut, the grains are passed through the "smutter," which (at the Golden Gate) is a vertical cylinder of chilled iron, in which revolves a shaft, which is provided with wings or some similar arrangement, which revolve from four to six hundred times a minute. The wheat is introduced at the top, and, in falling through, is violently tossed about and thoroughly scoured. A draft of air passing upward carries off the fine impurities.

Grinding the Wheat.

The wheat now goes to the mill-stones. These form a very important part of a mill, and are made with great care. The best material known is the French Buhrstone, a silicious rock, found interstretified with the sands, marls and sand stones of the Paris basin, which is excellently adapted for the purpose on account of its regular cellular structure and extreme hardness. The lower stone is fixed, the upper revolves. These stones are not made of one piece, but of a number of parallelopipeds, which are nicely fitted together and held by cement and by iron bands. The face only is made of the expensive buhrstone, which is backed with plaster to give the whole the necessary weight. One of these stones weighs some 2,400 to 2,800 pounds. The faces are furrowed, the manner of which varies according to each miller's ideas. The stones vary in diameter from 3½ to 4¼ feet, and a pair of a 4-foot diameter cost about $300. In the case of the smaller millstones, the lower stone often revolves.

There is demanded very considerable skill in adjusting these stones so that they will revolve steadily and evenly, without dipping to one side or the other. So accurately are these adjusted, however, by experienced workmen, that it is almost impossible for one on entering a room where some are in rotation and others at rest to tell which are revolving and which not; and so evenly do they run that a knife blade may be inserted between the upper and lower stones, when just far enough apart for admitting this without touching both sides, and the blade will not be scratched.

When in use the stones are inclosed in a light cover, the grain is introduced into a hopper above, and fed by automatic feeders through the center of the upper stone. The centrifugal force, and the direction of the furrows, throws the ground meal out at the circumference.

Bolting, Packing, Etc.

After being ground, the meal goes to the bolters. These are hexagonal sieves, 28 to 40 inches in diameter, and 16 to 20 feet long. The bolting cloth is made of the finest silk, which is imported from Holland. The sieve lies nearly horizontal, with only such inclination as is necessary to make the substances which do not sift through the cloth gradually pass from one end to the other, where it is discharged, and is retreated in separate mill-stones to extract as much flour as possible. The bran is cleaned and sold for feeding cattle principally. The flour is packed in sacks and barrels for the market.

The microscope shows us that a grain of wheat is made up of several easily distinguished parts—the outer coat or bran, the middle coat, and the germ. Chemistry shows us that the bran contains iron and similar elements, that the next layer contains chiefly carbonates, and the germ, to a high degree, nitrates and phosphates. As bolting, however, gives us the carbonates, which supply fat to the human system principally, while it rejects the bran, useful as waste, and the nitrates and phosphates, which supply muscle and brain, doctors and other scientific men agree that unbolted meal ought to be taken as food, but people prefer the bolted, and there seems but little chance that the doctors will be obeyed.

At the mill in question, in handling and transporting the grain, meal and flour, mechanical means are used. There is an endless variety of bucket-elevators, screws and air channels, by means of which manual labor is rendered to a great degree unnecessary. For driving all the machinery there is a fine 200-horse power steam engine, made by Corliss, which has stood wonderfully well the wear and tear of manufacturing some 400,000 barrels of flour since it first started, about five years ago.

The Flour Market.

Besides the flour consumed in home use, large quantities are exported. The principal foreign markets are China and Japan, Mexico, Central and South America, the Pacific Islands, and even the East Indies. Large amounts are occasionally shipped to Australia, Great Britain and New York, but not at all regularly, these markets being open to us only when there is a failure in other crops. The high price of labor, the cost of coal, barrels, etc., and the comparatively low price of bran and mill feed in the State, are the drawbacks in competing with Eastern millers.

The production of the city mills is estimated at 405,568 barrels in 1867; 359,904 in 1868, and 375,231 in 1869. The total amount of flour sold here in these three years is given as 761,168, 693,180 and 696,539 barrels. The exports were 327,545 in 1866; 519,309 in 1867; 461,868 in 1868, and 427,497 in 1869. The average price per barrel for export flour was $5.80 in 1866 to '67, and $6.73 in 1867 to '68; in 1867 to '68 it fluctuated from $6 to $8 for choice family flour in the home market.

Drugs and Spices Ground.—It may not be generally known to druggists that they can have their drugs and spices properly ground in this city. The American Mills, Benn Bros. & M. Burke, proprietors, have recently been opened on California street, near Market, with the view of supplying a want of this kind. See their card.

Patents.—At White Pine and Austin the mine owners are reported to be very generally accepting the advantages of a good title to their mines, and are applying for patents.

A NEW VARIETY OF ASPARAGUS.—Mr. Conover, who cultivates a market garden near New York, and has a stall in Washington market, has recently prodnced a new and most extraordinary variety of asparagus, which has been named "Conover's Colossal." It has been but one year in market, and is said to be something quite extraordinary. Some accounts say the plant grows to twice the size of the common varieties. All agree in its being fully 50 per cent. larger than any heretofore prodnced, and that its flavor is equal to the best. It requires additional room for cnltivation, however, abont equal to its increased size, and mnst have plenty of mannre. Some of our California cultivators would do well to introduce it here.

* * *

THE CRICKET A THERMOMETER.—Mr. B. F. Cutter, of Pelham, gives some curious observations in regard to crickets. His theory is that the singing of the "merry cricket" is governed very largely by the temperatnre of the weather, and that the change of one degree, even, makes a corresponding change in its music. According to his experiments, when the temperatnre is at 74 degrees the cricket gives 154 "notes" in a minute; 72 degrees, 145; 70 degrees, 134; 67 degrees, 100; 48 degrees, 10.

NEW VOLUME.—The Scientific Press hss commenced a new volume. It has heen grestly improved in many ways. It is now a fins journal for the farming community as well as ths miner.—*Pajaronian.*

Our Agents.

OUR FRIENDS can do much in aid of our psper and ths cause of practicsl knowledge and science, hy sssisting Agents in their lahors of canvassing, hy lending their influence and encouraging favors. We intend to send nons but worthy men.

Traveling Agents.

WM. H. MURRAY, California and Nevada.
S. H. HERRING—California.

Resident Agents.

CENTERVILLE, Alsmeda Co., Cal.—L. G. Yaten.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—Thos. Starr.
CARSON CITY, Nev.—John G. Fox.
TREASURE CITY, Nev.—J. L. Robertson.
SHERMANTOWN, NEV.—P. C. Renfrew.
SILVER CITY AND IDAHO TER.—Sam. Hsidelberger.
SILVER CITY, Idaho—J. Caples.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orahood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Barkslow & Brothers.
LONDON—George Strset, 30 Cornhill, E. C.
HEDSON & MENET, 41 Park Row, New York.
A. O. KNOX, City Soliciting and Collecting Agent.

I. O. O. F.

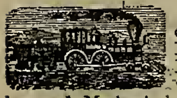
THE NEW AGE,

A WEEKLY JOURNAL OF SIXTEEN PAGES.

The "Official Org»n" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the oity, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

Free Information for Inventors and Patentees.



Our Patent Office Circular, relating to U. S. and Foreign Patents, Caveats, Patent Laws, Rights of Inventors, Valuable Hints, Illustrated Mechanical Movements, etc., comprises 48 pamphlet pages, embracing the following

List of Contents:

Advancing Cases; Advantages, Important; Assignments, Forms, Cost, etc.; Caveats of what they Consist, Form of, Cost, how Filed effectively; Cost of Ohtaining Patents; Confidentlal Advice; Copies of Patents Assignments, etc.; Copyrights; Dangers of Delay; Designs, Patents for: Engravings and Illustrations; Engine, Condensing-Beam—Illustrated; Extension of Patents; Foreign Patents—all Countries; Forign Inventors; Hints to Inventors; Government Fe s, List of; Home Counsel; How to Obtain Patents—Steps Necessary; Hydroststic Press—Illustrated; Interferences; Influence at Washington; Laws (U. S.) and Decisions Relating to Patents; Lathe, Engine—Illustrated; Letters Patent—of what they Consist; Lihrary, Reports, Law Books; Locomotivs Engine—Illustrated; Medicines or Oompounds, Patent for; Mechanical Movements—Illustrated; Mining and Scientific Press Office; Processes, Patents for; Record of Pacific Coast Patents; Re-issues; Rejections—Cause and Remedy; Reports of Patent Office; Rights and Privileges of Inventors and Patentees; Saving of Tims; Self-evident Facts; Selling Patent Rights; Springs, Various Kinds—Illustrated; Stamp Battery, Quartz—Illustrated; Telegraph, Patent Business by; Unsuccessful Applicents; Who can Obtain Letters Patents; What Claims can be Patented; Worthless Patents, Candid Reasoning.

This pamphlet will be furnished free on receipt of postage stamp. Confidential advice given, and every legitimate branch of Patent Soliciting business promptly and faithfully executed by

DEWEY & CO.,
U. S. and Foreign Patent Agents, Scientific Press Office, 414 Clay street, San Francisco.

SCIENTIFIC PRESS

BOOK AND JOB PRINTING OFFICE,

No. 414 Clay Street,

Below Sansome, - - - San Francisco.

SPAULDING & BARTO,

PROPRIETORS,

EVERY VARIETY OF

PRINTING,

FOR

Business Men, Corporations,

AND ALL

Branches of Industry,

EXECUTED IN THE

BEST MANNER,

AT REASONABLE PRICES.

Music Printing

Execnted correctly and with dispatch.

"Live and Let Live,"

Is a good old adage, and we shall adopt it as our own. We do not pretend to do work at "less than cost," as some people advertiss to do; but ws do claim to do sll kinds of printing as cheap as it can be dons on this Coast—and we helieve as cheap as it is DONE in Chicago. Customers, in the country or city, are invited to call in person at our offics, or send their orders by mail or express, and they will be fairly dsalt with.

SPAULDING & BARTO.
Scientific Press Offics,
414 Clay Street.

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

HIBBERD, SANBORN & CO.,

STAIR BUILDERS.

South Point Mills, Berry Street, Between Third and Fourth, Ssn Francisco. Orders from he country promptly attended to. All kinds of Stsir Msterial furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Ba'usters.

SPECIAL NOTICE.

TO DEALERS AND CONSUMERS

—OF THE—

H & L

AXLE GREASE.

Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possib e meet the market of our Chicago friends, we have made a great reduction in pricos, and from our long experience we will satisfy you that there is none BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,
144 Natoma Street.

Depot, 320 Jackson Street.

N. B.—We are prepared to furnish Bulk Psckagos to contractors on equally liberal terms.

SAN FRANCISCO
Gold and Silver Plating Works.

ATTENTION.
Quartz Mill Men,
MINERS,
HOTEL KEEPERS,
—AND—
OTHERS.
ATTENTION.

The SAN FRANCISCO PLATING WORKS ars prepared to furnish aud silver-plate Copper Amalgamating Plstes of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS aud GUNSMITHS. OLD GOODS of all kinds re-plated for hotels, restaurants, etc.

E. G. DENNISTON, Proprietor.
HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.
☞ All work done at the lowest prices. 1v20-3m

The Aerial Steam Navigation Company.

At a meeting of the stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cszneau, Henry F. Williams and Simon L. Jones were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars, said shares to be *unassessable.* The funds thus raised are to be devoted exclusively to the construction of the first aerial steam carriage, and to be deposited in ths Bank of British Columhia, to be dishursed upon requisition of Mr Georgs K. Glnyas, Engineer of Construction. Ths working drawings, etc., csn be seen at the office of Gen Thomas N. Cszneau, No. 321 California street, where subscriptions will he received. No invention for navigating the air has before received such positive indorsements from engineers of reputation, or so liberal encouragement from prominent capitalists as Marriott's Avitor, which now seems sure of being thoroughly tested on a largs scale. 2v20-my

$1. Postage Paid. $1.

A CHEAP AND HANDY BOOK

—FOR—

Mechanics, Inventors and Students.

SCIENTIFIC PRESS

NEW EDITION

—OF—

507 MECHANICAL MOVEMENTS.

PUBLISHED BY

DEWEY & CO.

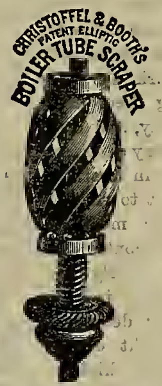
LIST OF CONTENTS.

Æolipils.
Balance, Compensation: Barometer; Blower, Fan; Brake, Friction.
Cams; Capstans; Centrolinesd; Clutches; Chssers; Clsmps, bench and screw; Cock, four-wsy; Column, oscillsting; Compssses, proportion; Counters of revolutions; Coupling, union; Crank—substitute for ths, variable; Cranks, hell and compound; Cyclograph.
Differential Movements; Drag-link; Drill—Fiddle and Persian; Drills, Crsmp; Drop; Drum and Rope; Driver, Pile; Dynamometers.
Eccentrics; Ejectors, Bilge; Ellipsograph. Engins, Disk; Engines—Rotary, Steam, Vslvs Gear for; Epicyclic Trains; Escapements.
Fountain, Hiero's: Fusees.
Gasometers; Gauge, Bisecting; Gauges, Pressurs; Gear, Steering; Gearing—Bevel, Brush, Capstan, Conical, Crown, Eccentric, Elliptical, Fsce, Friction, Internal, Irregular, Multiple, Mntilated, Scroll, Sector, Spur, Step, Stud, Sun and Planet; Gearing—Variable, Worm; Governors; Guides; Gyroscope.
Hammers—Atmospheric, Bell, Compressed Air, Trip, Steam; Helicograph; Hook—Boat-detaching, Releasing; Hooks, Centrifugsl Check; Hyperbolas, Instrument for Drawing.
Intermittent Movements.
Jack—Hydrostatic, Lifting; Joint—Ball and Socket, Bsyonet, Universal.
Ladder—Folding, Self-Adjusting; Lazy-tongs; Level, Self-recording; Lever—Bell-crank or Elbow, Knes; Lewis; Link. Detachsbls Chain.
Machine—Bohnenberger's, Drilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; Meter—Gas (wet and dry), Water; Mill—Barker's, Crushing, Tread, Wind; Miscellsneous Movements; Motion—Alternating Traverse, Rocking, Self-reversing, Shuttle; Motions—Feed, Link, Parallel, Pump, Traverse, Varisbls Traverse.
Pantograph; Parabolas, Instrument for Drawing; Paradox, Mechanicsl; Pendulum, Conical; Pendulums, Compensation; Pinion—Lantern, Mutilated, Slotted, Two-toothed; Power, Horse; Presses, Hydrostatic; Propeller, Screw; Pulley—Expanding, Friction: Pulleys—Anti-friction Bearing for, Chain; Pump—Air, Balance, Bellows, Chsin, Diaphragm, Steam-siphon; Pumps—Douhle-acting, Forcs, Lift, Rotary; Punching Machine.
Rack—Mangle, Mutilated; Rscks and Pinions; Ram, Montgolfier's Water; Ratchets and Pawls: Regulator—Gss, Watch, Reversing Motion, Self; Revolver; Rollers, Ohlique; Rolls—Anti-friction, Drawing, Feed; Rulers, Parallel.
Saw—Endless Band, Gig, Pendulum; Screw, Archimedes, Differential, Double Reversed, Micrometer; Screws—Endless, Right-and-left Hand; Sectors; Seesaw; Shesrs; Stamps; Stsnd, Mirror; Stop—for Hoisting Apparatus, for Lantern Wheels, for Rstchet Wheels, for Spur Gear; Stops for Winding Watches.
Test, Friction; Throttle, Spinning; Toggle-joint; Tongs, Lifting; Trap, Steam: Treadles.
Water, Mschines for Raising: Weir, Self-scting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Psddle, Water; Windlass—Chinese, Friction; Windmills; Wipers.

This book is bound in cloth, and smbraces 122 psges. The illustrations ars plain, and each figurs is clearly described on the page opposite to it. It is a low-priced book for its kind, and thers ars few persons who hsvs to do with machinery, or are interested in understanding ths science and principles of motion, who will not he benefitted and satisfied by its purchase.

A liberal discount made to ths trads. Single copies, $1—ssnt postage free. Address orders,

DEWEY & CO.,
Patent Agents, San Francisco.


CHRISTOFFEL & BOOTH'S PATENT ELLIPTIC BOILER TUBE SCRAPER

Save your Boilers!
Save your Fuel!
Save your Temper!

BY USING

CHRISTOFFEL & BOOTH'S

PATENT

Boiler Scraper and Tube Cleaner.

The Most Complete and Perfoot Instrumsnt of the kind Invented.

SIZES TO SUIT ALL TUBULAR BOILERS.

They cost but a trifle, and are handy as well as economical. For further particulars, or for the purchase of Scrapers, address or call on

McAFFEE, SPIERS & CO.,
6v20 Howard street, near Fremont, San Francisco.

OCCIDENTAL

Insurance Company,

OF SAN FRANCISCO.

Cash Capital, - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secreta 20v17

Business Cards.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.
4v16-3m

A. H. JORDAN,
Architect, Designer and Draughtsman,

No. 430 Montgomery Street,

SAN FRANCISCO. 16v19-qy

NATHANIEL GRAY. H. M. GRAY.

N. GRAY & CO.,
UNDERTAKERS,

641 Sacramento St., cor. Webb, San Francisco.

☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.

Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Paten Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v10-0m

M. M. COOK. B. N. COOK.

M. M. COOK & SON,
MANUFACTURERS OF

LEATHER HOSE,

Belting, and Horse Collars,

801 Battery street, Corner Broadway,

SAN FRANCISCO.

☞ Belt Leather for sale. 26v19-3m

H. S. CROCKER & CO.,

Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM

PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

California Steam Navigation COMPANY,

Steamer CAPITAL.................CAPT. E. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE.................— —
" CORNELIA.................CAPT. W. BROMLEY
" JULIA.....................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE, President
13v12

TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. C. ALLEN & CO., Augusta, Maine. 5y20-3m

Professional Cards.

JOHN GORMAN.
NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.

No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,

423 Washington street.......... ....San Francisc

(Having had 33 years' experience in Europe and America, supplies drawings and designs for Pumping, Hoisting, Crushing, Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

DR. KNOWLES, Dentist,

HAS REMOVED FROM MONTGOMERY to 231 Kearny street, west side, between Pine and Bush, San Francisco.
21v16-1y

JOHN ROACH, Optician,

Has removed from 522 Montgomery street to

540 Washington street,

East of Montgomery.

Surveying Instruments made, repaired and adjusted
22v17-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,

Court Block, 636 Clay Street

SAN FRANCISCO.
2v15-1qy

GILES H. GRAY. JAMES M. HAVEN.

GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,

In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,

27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,

Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

DR. R. R. ROBERTS,
The Great Magnetizer,

Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all curable Chronic Diseases by Animal Magnetism and the Swedish Movement Cure. 2v20-1y

Advertising and Subscription

Rates for the Scientific Press.

Subscriptions in Advance:—One year, $4; six months, $2.50; single copies, 10 cents; Monthly Series, $4.50 per annum; Quarterly Series (stiff paper binding) $5.

Lowest Rates for Advertising:

We shall adhere to the following rates (payable in gold coin) for advertising in the Scientific Press from this date:

	1 *week.*	1 *month.*	3 *months.*	1 *year.*
One sq. (10 lines agate)	$1 50	$ 3 00	$ 8 00	$ 32 00
Two squares	3 00	6 00	15 00	60 00
Three squares	4 50	0 00	20 00	76 00
One-fourth column	6 00	12 00	28 00	100 00
Half column	12 00	20 00	54 00	200 00
One column	20 00	40 00	100 00	400 00

RATES BY THE LINE.

Per line.—One week, 25 cents; one month, 80 cents; three months, $2; one year, $5.

Per line, ten lines or more.—One week, 20 cents; one month, 30 cents; three months, 80 cents; one year, $3.20.

Mining and Legal Advertisements will be inserted at special rates—less than one-half the cost of daily publication.

Particular attention will be given to preparing engravings, inserting advertisements in conspicuous, novel and attractive form. We will otherwise assist advertisers in getting up their notices, when desired.

☞ All advertisements in the Press appear in both the ☞ the Monthly and Quarterly Series of the SCIEN- ☞ TIFIC PRESS, which (by special arrangement) are ☞ placed for free reading in the principal hotels, ☞ steamboat and steamship saloons, depots, and pub- ☞ lic reading rooms and libraries in San Francisco and ☞ Pacific States. Many volumes are also bound, thus ☞ affording permanent advertising.

The Press now receives the largest and best advertising patronage of any weekly paper west of the Rocky Mountains.

In regard to the value of advertising in our journal, we refer with pleasure to those who can speak from experience—*our advertisers*. Better referees, or more reliable names, cannot be found in the advertising columns of any newspaper in the world.

DEWEY & CO.,
Publishers and Patent Agents.
No. 414 Clay street, San Francisco. Jan. 1, 1870.

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED **WEED** Machines work *easier, simpler, faster* and with more VARIETY. Buy the LATEST always. Call and see S. F. Horr, 329 Kearny St. S. F., Agt. TO $500

Blake's Patent.

THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's

Patent Steam PUMP

It is simple, compact and powerful, needs no expert to run it, and will start at any point. Is warranted positive under all circumstances. Send for a circular.

BERRY & PLACE, 112 and 114 California st., San Francisco.

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.

BARTLING & KIMBALL,
BOOKBINDERS,

Paper Rulers and Blank Book Manufacturers.

505 Clay street, (southwest cor. Sansome),

15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry,

S. E. Corner of Mission and Fremont sts.,

6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,
Manufacturers of Boxes,

Market Street, bet. Beale and Main.

For sale—Mahogany, Spanish Cedar, and other Woods.
24v18 1m

W. C. CAMPBELL,
PATTERN AND MODEL MAKER,

No. 20 Fremont street, over Phœnix Iron Works, San Francisco.

Particular attention given to MODELS for the Patent Office Brands and Pattern Letters Cut. 4v18mtf

OSCAR LEWIS. J. H. CULVER.

LEWIS & CULVER,
Pattern and Model Makers

20 Fremont street, over Phœnix Iron Works.

Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,

Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,
26 611 and 613 Front street.

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

EVENING DRAWING SCHOOL
— BY —
N. P. LANGLAND,

(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 536 Market Street, over Occidental Market. ☞ School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3v20-3m

STEAM
FIRE-PROOF
SAFES

SANBORN'S PATENT.

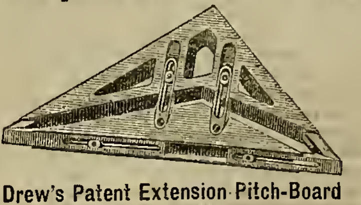
Perfectly Dry in Use.
ACTUALLY FIRE-PROOF.

GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

☞ Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by ROSS, DEMPSTER & CO.,
105, 107 and 109 California street,
6v20-3m San Francisco.

To Carpenters and Stair Builders.



Drew's Patent Extension Pitch-Board

Saves TIME, LABOR, and LUMBER, and secures exactness and perfect work. This is a very simple instrument, which is quickly and easily adjusted (as may be seen by the engraving), so as to give any desired pitch and tread for stair building. It is adjusted by a system of slides and screws. Full information may be obtained of the inventor, JOHN R. DREW,
5v20 Cor. Natoma and Fifth streets, S. F.

Metallurgy.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at

No. 36 FREMONT STREET,

And WORKS at H. J. BOOTH & CO'S FOUNDRY, northeast corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.

Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.

By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public. ☞ Mines Examined and Reports made.

References.—William Bosworth, Thomas Varney, Egbert Judson, E. T. Steen, Wm. Bellshaw, P. Reichling, W. O. Sleeper, J. L. N. Shepard, Norbert Landry.

CHAS. PLETZ & CO.

Chas. Pletz, Analytical Chemist.
Fred Morris, Amalgamator and Millman. 25v19-3m

G. W. STRONG,
ASSAYER AND WORKER OF ORES,

No. 10 Stevenson street, near First, San Francisco.

Highest price paid for choice lots of Ores, Sulphurets, Assay Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14v15qr.

H. W. GRAY. J. ROSEBERRY. D. S. LOOMIS.

Ores of all Kinds Crushed and Sampled.

H. W. GRAY & CO.,
YOLO MILLS.

Corner Market and Beale Sts., San Francisco
24v19-3m

SILVER AND LEAD ORES
Of every description purchased or worked at

The Oreana Smelting and Refining Works.

JOSEPH MOSHEIMER,
Oreana, Humboldt County, Nevada.
Office in San Francisco, 328 Montgomery street. 6v20

W. T. ATWOOD,
PURCHASER OF

COPPER ORES, BARS, MATT, Etc., Etc.,

505 Montgomery street, San Francisco.

The highest market price paid for ores assaying 10 per cent. and upwards 23v17qr

LEA & PERRINS'
CELEBRATED

Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good Sauce. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for Lea & Perrins' Sauce, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c.; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods cheaply, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent. off to the trade. Address,
HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

International Hotel,
JACKSON STREET,
BETWEEN MONTGOMERY AND KEARNY STS.,
SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.

Prices varying from $1 50 to $2 per day for Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

☞ Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House free of charge, and to any part of the city for 50 cents
21v12 F. E. WEYGANT, Proprietor.

Reading for the Hour.

Behavior in Church.

Henry Ward Beecher has started a new paper called the *Christian Union*. Here is a specimen of his articles, which is well worth reading:

We may classify the petty civilities of church life thus:

1. *Smells.*—Violent perfumes, especially those containing musk, are disagreeable to most persons, and to some positively distressing. There is no smell so universally pleasing as *no smell*. Never scent yourself when going into a crowded assembly. The same is true of the residuary smell of tobacco which hangs about the garments and afflicts the breath of those who habitually smoke. But tobacco almost invariably makes men self-indulgent and regardless of others' convenience. More brutal yet are they who go to church reeking, like a Dutchman's soup, with the smell of onions. There are scores of people who have lost all profit of a Sunday service by the sickening smells which surround them.

2. *Sound.*—Whispering in church during the service is an affront to politeness. Much of the coughing which goes on in church arises from the poisonous gases and personal effluvia which exist in unventilated churches. But the power of the will over the muscles which do the coughing is very great. A heedless person will cough twice as much as is needful—will cough at the worst time possible, will cough plump upon the necks of those before him, instead of embalming the sound in his handkerchief as, with a little skill and politeness, he might easily do. In all cases when it is a man's duty to sleep in church, it is his duty also to snore with the soft pedal down.

3. *Sight.*—Every one likes to see the minister. It cannot be done through your body. True, you cannot help being before somebody unless you are on the back seat. But, with a little thought, you may very much help those behind you. Any conduct which shall divert the attention of others from service, such as ostentatious playing with a watch, or opening and shutting it, reading books or papers, looking about inquisitively, is impolite.

Many churches have the Ten Commandments set up on the wall, in sight of the whole congregation; although not one of the sins reprobated therein is likely to be committed in church time. Would it not be well to have another tablet enumerating the sins which men are prone to commit in church time?

No postage is charged at the post-office at the southern extremity of America. A small barrel,—so they say,—has been fastened by an iron chain to the outermost rock of the mountains overhanging the Straits of Magellan, opposite Terra del Fuego. It is opened by every ship that passes through the straits, either to place letters in it or to take letters from it. This post-office, therefore, takes care of itself. It is confided to the protection of seafarers, and there is no example of any breach of this trust having occurred. Each ship undertakes the voluntary transmission of the contents of the barrel, if their destination is within the limits of its voyage.

Tahoe or Bigler?—Several suggestions have been made with regard to naming this lake, during the discussion in the State Legislature. One legislator proposed an amendment to the effect that the ends of justice would be subserved by changing the name of Lake Tahoe to John Bigler, and the name of John Bigler to John Tahoe, by which title and designation the gentleman should be known in all public documents hereafter. The Grass Valley *Union* suggests as a compromise, one of the four names, Biglertahoe, Tahoebigler, Tabiglerhoe, or Bigtaholer.

The Hon. Mrs. Theresa Yelverton, an English lady who has acquired much renown by the ability with which she successfully pleaded her own cause in a matrimonial suit in England, gave a reading entertainment to a select, but not large audience in the hall of the Mercantile Library on Thursday evening of last week.

Exhibition of Flying Machines in England in 1867.

It was a marvelously strange scene which met the visitor, as he entered the large halls rented by the Aerostatic Society, and great was his surprise as he beheld the result of all that the practical good sense of the English, their mechanical ingenuity and their scientific experience had been able to produce. The exhibitors seemed to have forgotten the very first principles of aerial dynamics; their efforts were almost altogether limited to an imitation of the flight of birds, quite unmindful of the fact, that even the first and most important balloon already surpassed the bird as much as reality surpasses dreams. There were all kinds of possible and impossible contrivances to be seen, from the manikin furnished with real swan's wings, fastened to immense frames, to the vessels shaped after the models of ships, which were to be filled with hydrogen, and to be steered through the air by the aid of a huge rudder. There was but a single balloon there which could be tested practically; a so-called Montgolfiére, which was to ascend, held by stout ropes to the ground. It was to be filled on the first day of the exhibition; but a gentle breeze, which would not have affected in the slightest degree a well-built balloon, caused it in an instant to sway so violently to and fro, that the silk folds fell upon the furnace over which it was held, when a slight blaze flashed up, and the Montgolfiére had ceased to exist. * * *

There was a cigar-ship, a tunnel-shaped balloon, within which a few hundred captive passengers were to turn a gigantic wheel, after the fashion of a squirrel's cage, to propel the monster through the air. Near by was a famous machine, covered with goldbeaters' skin, and working admirably as long as it was suspended by two good-sized ropes from the walls of the building. A curious noise was heard, and a flying-car started in the air, by the aid of a tiny steam engine heated with petroleum, and moving two screws at the rate of 600 turns in a minute. Then there was a superb collection of wings, some as small as a pigeon's, and others as large as a windmill's sails; with a tail and without one; moved by the muscles of the human body, or by powerful steam engines; only no wings among them all could raise the owner a foot from the ground without the aid of a rope, on which he was suspended. They were generally nothing more than copies of former experiments: of the noble "Butterfly," who, after the French revolution, threw himself boldly from a window of his house on the river, and astonished the washerwomen below by falling into their soapsuds; or of a poor musician, who, a hundred years before, attempted to fly down from one of the high terraces at St. Germain, and escaped with a broken leg.

Finally, there were machines without end which were to move in the air by their lightness. Here a round copper kettle, weighing only a few pounds, and made to be sent flying by continuous explosions of gun-cotton; there a huge air-tight basket, with a petroleum lamp, which was to be kept burning inside, but was happily never lighted; on one side an aluminum motor, by a Frenchman, in real motion, though cautiously remaining on the same spot; and on the other an apparatus (built, under instructions from the Duke of Argyle, for the study of the flight of birds) which hopped ungracefully from place to place. Nor were, on the other hand, and as if to contrast agreeably with these strictly scientific and very complicated contrivances, the simplest methods left unrepresented; kites were exhibited of all sizes and colors, from the triangular toy of the street boy, to the gigantic monster of the Japanese. But no one had been bold enough to offer to raise himself by the aid of one of the colossal kites which would have easily lifted a man up to the clouds.

By the side of the kite stood rockets. The power of this weapon (for only as such, unfortunately, does it appear as yet) to lift up a considerable weight is perfectly well known and easily ascertained by simple calculations. As long ago as 1830, an Italian *savant* fastened a sheep to the stick of a rocket, raised it to a great height, and saw it return, uninjured, to the ground. In times of war, it is also well known, lights are thrown up, by the same means, which burn steady for several minutes in the air, sustained by miniature parachutes, and thus enable one party to watch and examine the works of the other. A French author offered, in 1869, in the *Scientific Review*, to submit to the experiment of being fired off by means of a gigantic rocket, relying upon the well-established fact that the movements of this projectile are much gentler and less dangerous than those of a balloon suddenly rising to a great height. The offer seems, however, to have been utterly disregarded; or perhaps it was looked upon as an attempt to ridicule the unsuccessful efforts of aeronauts generally. The neglect of this mode of transportation in the air is to be regretted, as there is evidently a wide field open yet to the inventor.

No improvement was exhibited at the Crystal Palace, and no success seems to have been achieved in any direction. In vain had the company offered a handsome premium for the machine which should accomplish even the modest triumph of remaining but five minutes at the height of ten feet in the air. In vain had the Duke of Sutherland offered another premium for the apparatus—not a balloon—which should lift a man a hundred feet high. In vain had the Aeronautic Society even promised a considerable sum to the inventor of the lightest machine relatively to its power. All the liberality, all the zeal, had called forth no genius; and not a single premium, we believe, was awarded.—*W. de Tonvielle.*

Mono Lake.—With regard to this lake the following statements are made: The lake is eighteen miles in length, by thirteen in width. Its color in the center is a dark bottle-green; near the shore of an alkali color. On the western shore numerous streams enter into it. On the northern and northeastern shore innumerable springs boil up from the bottom. One of these springs is twenty-five feet in diameter, and comes to the surface with such force that it is impossible to keep a boat on the top of it. It is one-half mile from the shore, and in twenty-eight feet of water. On the shore of the lake, numerous columns of rock, resembling coral, rise from the water. They are from five to fifty feet in height, and supposed to have been formed by the fresh water springs, which, in almost every instance, burst from beneath them. They are of different diameters, and have been worn by the wind, and woven into the most fantastic shapes, then encrusted by the calcareous deposit of the water, which gives them the appearance of marble columns, or the ruins of some magnificent temple. Two or three miles back from the shores the same rock exists, proving that the lake has been at least one thousand feet higher than at present.

A Dog's Bed.—The best bed which can be made for a dog, consists of dry newly-made deal shavings; a sackful of these may be had for the asking at almost any carpenter's shop. The dog is delighted in tumbling about in them until he has made a bed to suit himself. Clean wood shavings will clean a dog as well as water, and fleas will never infest dogs that sleep upon fresh deal shavings. The turpentine and resin in new pine soon drive them away.

The following is given as the reason why a dog turns round and round, repeatedly, in lying down: The dog, in its wild state, prefers to make his bed in the grass. To form a bed in such a place, he makes the evolutions described in order to beat down and render the grass smooth. This original instinct has never left him.

California the Banner State.—California, with all her other claims of a singular superiority, is now in condition to claim the honor of being the Banner State of the Union. She is the first to manufacture silk in the Republic, having begun literally *ab ovo*, from the eggs, produced the cocoons and carried the usual processes to the completion of a beautiful texture, such as may stand a comparison with the silk of the Old Continent. Part of the California silk has been shaped into flags, one of which is to wave from the Capitol at Washington, and another from the dome of the State Capitol, to signalize one of those peaceful victories which are generally of more importance to a people than the victories of war.—*New York Times.*

Density of Population in Europe.—A German has given some statistics on this point, among which he has the following interesting computation: In France there is one dwelling-house to every 4.9 inhabitants; in England and Wales, 5.1; in Belgium, 5.2; in Ireland, 5.6; in Holland, 5.9; Italy, 5.9; Spain, 5,9; Bavaria, 6.2; Norway, 6.4; Austria, 6.6; Baden, 6.8; Hanover, 6.9; Switzerland, 7.2; Prussia, 8.9, and Saxony, 9.7. In cities one dwelling comes upon 6.2 inhabitants in Belgium; 8.4 in Hanover; 8.8 in Switzerland; 10.2 in Bavaria; 11.5 in Norway; 12.7 in Prussia; 13.1 in France; 14.2 in Saxony.

The Coming Young Lady.

She will vote, will be of some use in the world, will cook her own food, will earn her own living, and will not die an old maid. The coming girl will not wear the Grecian bend, dance the German, ignore all possibilities of knowing how to work; will not endeavor to break the heart of unsophisticated young men, will spell correctly, understand English before she affects French, will preside with equal grace at the piano or wash-tub, will spin more yarn for the house than for the street, will not despise her plainly-clad mother, her poor relations, or the hand of an honest worker; will wear a bonnet; speak good, plain, unlisping English; will darn her own stockings; will know how to make doughnuts, and will not read the New York *Ledger* oftener than she does her Bible.

The coming girl will walk five miles a day, if need be, to keep her cheeks in a glow; will mind her health, her physical development and her mother; will adopt a costume both sensible and conducive to comfort and health; will not confound hypocrisy with politeness; will not place trying to please above frankness; will not have courage to cut an unwelcome acquaintance; will not think refinement is French duplicity; that the assumed hospitality where hate dwells in the heart, is better than condemnation; will not confound grace of government with silly affection; will not regard the end of her being to have a beau.

The coming girl will not look to Paris, but to reason, for her fashions; will not aim to follow a foolish fashion because milliners and dress-makers decreed it; will not torture her body, shrivel her soul with puerilities, or ruin it with wine and pleasure. In short, the coming girl will seek to glorify her Maker, and to enjoy mentally His works. Duty will be her aim, and life, a living reality.—*New York Excelsior Magazine.*

Adulterations in Candy.—The New York *Herald* is doing good work in showing up the adulterations in candy manufacture. It finds that the largest ingredient into the adulterous process is *terra alba*, a species of chalky earth imported from Kentucky, thousands of hogsheads of which are used in New York every year. Its cost is a cent and a quarter a pound, and it is used in the place of sugar at fifteen cents a pound. It has a sweet taste, and in this regard is a very good substitute for sugar, but its effects upon the system is deleterious. Other substances are used, such as starch, glue, glucose and fecule. Verdigris is used for coloring green, and red is produced by the sublimate of mercury. In place of licorice lampblack is employed, and the Tonka bean—almost as bad as opium—is substituted for vanilla. To produce flavors of pineapple, raspberry, banana and other fruits, chemically prepared extracts are used, into which not a particle of the juice of these fruits enter, and which are so many poisons introduced into the human stomach.

Drunkenness in the Old Time.—A law to prevent drunkenness by prohibiting the public promiscuous sale of intoxicating drinks was by no means original in the State of Maine. The vice is as old as our race. Our ultimate ancestors, the Vikings, drank fire-water upon earth, and quaffed mead in Paradise; our more recent progenitors in Great Britain drank gin and grovelled. A gin shop in Southwark, London, one hundred and thirty years ago, had this alluring sign: "Drunk for a penny; dead drunk for tuppence; clean straw for nothing." What more could man, the image of his Maker, ask? People often died of drunkenness in the taverns; and there was a temperance party, even then, that demanded a prohibitory law, and they succeeded in carrying a bill through Parliament which laid upon liquor a tax so heavy that it became too costly for the poor, and which prohibited the sale of drams. Sir Robert Walpole, whose boozing orgies at Haughton are not unknown, finally acquiesced in the law.—*Harper's Magazine*

A Beautiful Idea.—There is a tree in Sumatra that puts forth its leaves and flowers, fraught with the richest fragrance, only in the night. Day sees it robbed of its breath and stripped of its blossoms and its green. So the darkness of adverse fate draws the brightest and sweetest virtues from the same soul that in the sunshine of prosperity shows but a scentless barrenness of good.—*Alfred B. Street.*

A countryman in Portland, after eating three dozen raw oysters, told the man to stop when he had opened ten cents' worth.

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the SCIENTIFIC PRESS and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the SCIENTIFIC PRESS office, postpaid, for $1.—*New Age.*

TREATMENT OF REBELLIOUS SILVER ORES, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. HOWLAND,

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v10-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

RETURNED.—Dr J. H. Paine, Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

SPECTACLES, their adaptation to the various conditions of sight, is C. Muller's specialty. His store is at 205 Montgomery street. *

VIRGINIA, NEV., Jan. 27, 1870.

MESSRS. DEWEY & Co., *Patent Agents*—Dear Sirs:—I have your favor of the 24th inst., informing me that my application for patent of "Improved Roofing and Flooring" has been allowed, and I thank you for the attention and dispatch used in executing this business for me. Yours truly, PATRICK N. MACKAY.

New Mining Notices.

Glenwood Mill and Mining Company.—

Location of Works: Greenwood, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the seventh day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D SQUIRE, Secretary.
Office, 418 California street, San Francisco. feb52

North San Francisco Homestead and

Railroad Association:—Location of Property: City and County of San Francisco, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Association, held on the ninth day of February, 1870, an assessment of seven dollars and fifty cents was levied upon the capital stock of said Association, payable immediately, in United States gold coin, to the Secretary, at his office, No. 415 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the ninth day of March, 1870, shall be declared forfeited, and duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the thirtieth day of March, 1870, to pay the delinquent assessment thereon, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

EDWARD C. LOVELL, Secretary.
Office, 415 Montgomery street, San Francisco. feb12

Nevada Land and Mining Company.—Location of Works:

Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of February, 1870, an assessment of two and one-half cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the fifteenth day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fifth day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5 No. 302 Montgomery street, San Francisco, California. feb12

Taylor Mill and Mining Company.—Location of Works:

Georgetown District, El Dorado Co., State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the fifth day of January, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bell, Josiah	16	1000	bal $300 00
Baily, D	20	900	bal. 297 00
Bishop, T B	18	600	300 00
Coy, Frank	12	1000	600 00
Gibbs, W T	1	1000	bal. 300 00
Kentfield, J	22	1000	bal. 300 00
Mastick, S L	23	2000	bal. 600 00
Mastick, L B	24	1000	bal. 300 00
Murfey, S S	19	1000	bal, 300 00
Murfey, S S	17	500	300 00
Creighton, F.. 2 to 11 inclus.		1000	bal. 300 00

And in accordance with law and an order of the Board of Trustees, made on the fifth day of January, 1870 so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of John Middleton & Son, No. 310 Montgomery street, San Francisco, on Monday, the twenty-eighth day of February, 1870, at the hour of two o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

SAM'L S. MURFEY, Secretary.
Office, No. 520 Montgomery street, over Sather's Bank, San Francisco, Cal. feb12

Mining Notices--Continued.

Alleghany Consolidated Gold Mining Company.

Location of Works: Sierra County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the thirtieth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
W H Tompkins	34	1000	$500 00
A L Whitney	32	185	92 50
John J Roche	4	15	7 50
Chas Adams, Trustee	12	1000	500 00
I N Thorne	13	125	62 50

And in accordance with law and an order of the Board of Trustees, made on the thirtieth day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room 37 New Merchants' Exchange, on the twenty-eighth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.
Office, No. 37 New Merchants' Exchange, third floor, California street, San Francisco. feb5

Imperial Mining Company.—Location of

Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifth day of January, 1870, an assessment of twenty-five (25) cents per share was levied upon the capital stock of said Company, payable within thirty days, in United States gold and silver coin, to the Secretary, No. 319 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the tenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eight day of February, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale, By order of the Board of Trustees,

WM. E. MOODY, Secretary.
Office, 310 California street, San Francisco. jan15

Latawana Mining Company,---Location:

Hamilton City, White Pine, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-second day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
D M Hosmer	1	100	$10 00
D M Hosmer	2	100	10 00
D M Hosmer	3	50	5 00
D M Hosmer	4	50	5 00
D M Hosmer	5	50	5 00
D M Hosmer	6	20	2 00
D M Hosmer	7	20	2 00
D M Hosmer	8	20	2 00
D M Hosmer	9	20	2 00
D M Hosmer	10	20	2 00
D M Hosmer	11	10	1 00
D M Hosmer	12	10	1 00
D M Hosmer	14	10	1 00
D M Hosmer	15	10	1 00
Richard Savage	16	100	10 00
Richard Savage	17	100	10 00
Richard Savage	19	50	5 00
Richard Savage	20	50	5 00
Richard Savage	21	20	2 00
Richard Savage	22	20	2 00
Richard Savage	23	20	2 00
Richard Savage	24	20	2 00
Richard Savage	25	20	2 00
Richard Savage	26	10	1 00
Richard Savage	27	10	1 00
Richard Savage	28	10	1 00
Richard Savage	20	10	1 00
Richard Savage	30	10	1 00
Richard Savage	38	20	2 00
Richard Savage	30	20	2 00
Richard Savage	40	20	2 00
Richard Savage	41	20	2 00
Richard Savage	42	20	2 00
Richard Savage	45	5	50
Richard Savage	46	5	50
Richard Savage	47	5	50
Richard Savage	48	20	2 00
Richard Savage	40	20	2 00
Richard Savage	50	20	2 00
Richard Savage	52	20	2 00
Richard Savage	90	1000	100 00
Richard Savage	91	500	50 00
Richard Savage	02	100	10 00
Richard Savage	03	100	10 00
Richard Savage	94	100	10 00
Richard Savage	95	100	10 00
Richard Savage	06	20	2 00
Richard Savage	97	20	2 00
Richard Savage	08	20	2 00
Richard Savage	99	10	1 00
S A Post	33	10	1 00
S A Post	34	10	1 00
S A Post	35	10	1 00
S A Post	36	10	1 00
S A Post	37	10	1 00
[$1 received on account.	Balance due, $4.]		
L A Brown, Trustee	70	100	10 00
L A Brown, Trustee	71	100	10 00
L A Brown, Trustee	72	100	10 00
L A Brown, Trustee	73	100	10 00
L A Brown, Trustee	74	100	10 00
L A Brown, Trustee	75	100	10 00
L A Brown, Trustee	76	100	10 00
L A Brown, Trustee	77	100	10 00
O T Ames	78	100	10 00
O T Ames	70	100	10 00
O T Ames	80	100	10 00
O T Ames	81	100	10 00
O T Ames	82	100	10 00
O T Ames	83	100	10 00
O T Ames	84	100	10 00
O T Ames	85	100	10 00
O T Ames	86	100	10 00
O T Ames	87	188	18 80
S E Holcomb	112	768	76 80
Richard H Savage	115	10	1 00
S Hilton	110	20	2 00
Wm M Grant	120	354	35 40
Francis S Bowen	123	10	1 00
Wm Carrison	124	4248	424 80
P Conklin	50	2	20
P Conklin	60		30
P Conklin	61	5	50
P Conklin	52	5	50
P Conklin	63	5	50
P Conklin	64	5	50
P Conklin	65	5	50
P Conklin	66	5	50
P Conklin	67	5	50
P Conklin	68	5	50
P Conklin	59	5	50
P Conklin	104	400	40 00
P Conklin	106	5	60
P Conklin	100	3	30

[The sum of $25 has been paid on account of these 458 shares. Balance due on them, $19.80.]

And in accordance with law and an order of the Board of Trustees, made on the twenty-second day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at No, 526 California street, between Montgomery and Kearny streets, San Francisco, on Saturday, the nineteenth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. MARTINON, Secretary.
Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. jan29

Pilot Mining Company.—Location of

Works: White Pine County, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-third day of November, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Morris Newton, Trustee..not issued		1500	$150 00
F L Castle	not issued	100	10 00
John Hewston Jr.	not issued	1600	160 00
Lewis A Garnett	not issued	1600	160 00
H H Blake	not issued	840	84 00
A F White	not issued	840	84 00
G W Smith	not issued	800	80 00
W B Swain	not issued	40	4 00
H E Green	not issued	2400	240 00
A J Pope	not issued	2400	240 00

And in accordance with law and an order of the Board of Trustees, made on the twenty-third day of November, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room No. 7, 428 California street, San Francisco, on Monday, the twenty-first day of February, 1870, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. M. HARRON, Secretary.
Office, Room No. 7, 428 California street, San Francisco, California. fe5

Pinto Mining Company.—Location of

Works: Silverado, Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of January, 1870, an assessment of fifteen (15) cents per share was levied upon the capital stock of said Company, payable on the fifth day of January, 1870, in United States gold coin, to the Secretary, No. 426 Montgomery street, San Francisco, Cal., or to HOMER S. KING, ESQ., Agent of Wells, Fargo & Co., Hamilton, Nevada.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the seventh day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.
Office, 426 Montgomery street, San Francisco. jan8

U. S. Grant Mining Company.—Location

of Works: Carlisle, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of January, 1870, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 226 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the twelfth day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ENOS TAYLOR, Secretary.
Office, 226 Clay street, San Francisco. ja29

Oil Cake Meal.

THE BEST FEED KNOWN

For Live Stock.

We desire to call attention to OIL CAKE MEAL, which we are now manufacturing. No description of feed so greatly promotes the health of animals as Oil Cake Meal, and we urgently request all engaged in the dairy business, raising and fattening stock, or wool-growing, to give it a trial, feeling confident that they will find it of very great value. By those who have used it thoroughly, ONE pound is pronounced to be equal to two pounds of Corn Meal; and in the U. S. Government Report of the Department of Agriculture for 1865 it stands in the following relation to other feeds as to the percentage of flesh produced from a hundred pounds of feed, viz: Indian Corn Meal, 11 pr ct.; Barley Meal, 13 pr ct.; Oat Meal, 18 pr ct.; Oil Cake Meal, 22 2-100 pr ct. For life-sustaining properties for all stock exposed to sudden changes of weather, or over-driving it has no equal.

FOR MILCH COWS it is particularly valuable, increasing the quantity of milk and improving its quality to a far greater extent than any other feed known. A suitable quantity for them at the commencement is one quart in the morning and one quart at night, either alone or mixed with any other food; generally mixed with the mash of bran, slops, roots, or cut feed of any kind. It will improve it to soak it for six or eight hours, the effect being to increase its bulk two or three times. The quantity can be increased gradually, according to the effect produced—ordinarily not exceeding three or four quarts per day.

FOR BEEF CATTLE it has fattening properties which cannot be found in any other feed—the beef always being more tender and juicy and of much finer quality than when fattened on any other feed; and no feed known will so quickly prepare animals for market as Oil Cake Meal.

FOR HORSES, a small quantity given daily promotes their health, and is especially valuable for them when chilled or injured from over-driving. It is one of the best remedies known for Horses subject to the Heaves or Rheumatism, and greatly increases the cleanliness, evenness and glossiness of the hair.

FOR SHEEP, there is no article of feed known that produces such fine mutton, or so promotes the growth of wool. A small quantity given to chilled Cattle or Sheep will keep them alive and greatly increase their warmth and vitality.

At present price ($28 per ton) it is the cheapest feed in market. It is now selling in New York at $42 per ton, gold; at $50 per ton in England, where it has been proven for a long time to be in every respect the most profitable feed known for stock of all kinds—one ton being fully equal to three tons of bran.

The increasing demand for this Meal from those on this coast by whom it has been thoroughly tested has induced us to increase our facilities for its manufacture, and we are now fully prepared to furnish it in quantities as may be desired. For sale by the Grain and Feed Dealers, and at the Manufactory, King street, near Third. All orders will receive prompt attention. Address—

Pacific Oil and Lead Works,

Nos. 3 and 5 Front street, San Francisco.
7v20-1am3m

New Advertisements.

J. VAN C. HORNER,

DENTIST,

COR. J AND THIRD STREETS, SACRAMENTO.

☞ All work warranted. 7v20-3m

Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, SACRAMENTO. COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

S. W. HOWLAND. J. W. THURMAN.

S. W. HOWLAND & CO.,

Crushers and Samplers

— OF —

GOLD, SILVER AND COPPER ORE,

Nos. 413 and 415 MISSION STREET,

Bet. First and Fremont, San Francisco.

☞All work done at the shortest notice. All orders promptly attended to.

REFERENCES—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co., Assayers. 7v20qy

DR. ABORN,

Oculist, Aurist,

AND

CATARRH, THROAT

AND

Lung Physician.

No. 22 KEARNY STREET,

SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX,
San Francisco (Cal.), Jan, 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street. San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.
San Jose (Cal,), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

TO WHOM IT MAY CONCERN.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. · Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.

WILLIAM BEARDSLEE.
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.

VINCENT MONATTI,
Corner of Dupont and Green streets,
San Francisco, Dec. 25, 1869. 7v20-3m

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama end Fremont streets, above Howard street, San Frencisco. 3-qy

---

GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plete and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE Maneger.

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good es new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.

2v17-3m **T. G. DURNING & CO**

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

J. P. GALLAGHER. J. H. WEED V. KINGWELL.
9v13-1y

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.]

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, end all kinde of House-smith Work; Bridge, Prison,

FORGING AND MACHINE WORK,

FIRE AND BURGLAR-PROOF SAFES,

BANK VAULTS,

Improved Monitor Safes,

Constructed of Welded Steel end Iron, fastened with conicel steel bolts.

Safes Let by the Month.

Manufecturer of the

Duplex and Excelsior Combination Bank Locks.

Agent for the ISHAM KEY REGISTER BANK LOCK.
1v17-tf

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and **15** Fremont street, near Market, San Frencisco.
10v14qr

SAN FRANCISCO
Pioneer Screen Works.

[JOHN W. QUICK,

203 Fremont street, noer Howard, San Francisco.

Screen Punching of all kinds end qualities for Quartz, Cement, Flour and Rice Mills, at greatly reduced rates.

ORDERS SOLICITED AND PROMPTLY ATTENDED TO.

I would call special attention to my slot cut and slot punched Screens which are attracting much attention and giving universal satisfaction, both as regards their efficiency and durability. This is the only establishment on the coast devoted entirely to the manufacture of Screens. It has furnished screens for the principal mills and firms on the coast for many years. 10v19tf

---

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO.

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and meintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new end old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

SACRAMENTO BOILER WORKS,

I Street, between Front and Second,

SACRAMENTO.

All kinds of Marine and Stationary Boilers, Wrought Iron Tanks, Girders, Bridges, Gasometers, and all kinds of Sheet Iron Work, etc. All work warrented. Millmen and Grain Threshers are cautioned to look to the sefety of their boilers. Repairing promptly attended to et the lowest possible terms. Refers to Huntington, Hopkins & Co. and H. Adams, Esq.

J. V. HALL, Practical Boiler Meker,
6v20-3mnuf Proprietor, Sacramento.

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

NEW FILES OF EVERY DESCRIPTION

ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended to. 9v19 qy

---

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery,

16v16q No. 23 Fremont street, San Frencisco.

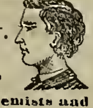
FOUNDRY FACINGS.

BENJAMIN ELLIOT,

No. **483** Brannan street......................San Francisco,

Manufectures Foundry Facings constantly, from choice coals. Bituminous, packed in tight sacks. Anthracite and Charcoel ground together or separate, packed in barrels Black Lead, Coke and Soapstone ground to order. ☞ Foundrymen located far from choice material, can rely on having superior Facings forwarded to order.
10v18qr

WONDERFUL
Scientific Discovery.



THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reelity, verified by the undersigned:

Dear Doctor: I feel much pleasure to inform you thet your "Emerald Hair Balm" hes coused the growth of hair on my heed—heving only used one of your hotties, elthough I hed been bald for twenty-five years You ere quite et liberty to use this intimetion as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

---

THE GIANT
POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 25v18

Scientific Press.—Dewey & Co. are the publishers of this sterling paper It is devoted to the dissemination of mining, farming end scientific knowledge, besides containing miscellany of interest.—*Monterey Republican.*

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED..............................APRIL 30, 1868.
CAPITAL..............................$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, James Pollock,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

JOHN N. RISDON..............................President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..............................Secretary.
24v17-qy

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

THOMPSON BROTHERS,
EUREKA FOUNDRY,

120 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS. NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil'

PATENT CANS.

5v17-tf **414 Front street, San Francisco.**

The Perfection of Prepared Cocoa.

MARAVILLA COCOA.

Sole Proprietors—TAYLOR BROTHERS, London.

The Cocoa (or Cacao) of Maravilla is the true Theobroma of Linnæus. Cocoa is indigenous to South America, of which Merevilla is a favored portion. TAYLOR BROTHERS having secured the exclusive supply of this unrivalled Cocoa have, by the skillful application of their soluble principle and claborate machinery, produced what is so undeniably the perfection of Prepared Cocoa, that it has not only secured the preference of homœopaths end cocoa-drinkers generally, but many who had hitherto not found any preparation to suit them, have, after one trial, adopted the Meravilla Cocoa as their constant beverage for breakfast, luncheon, etc.

"A SUCCESS UNPRECEDENTED."

[See following extract from the Globe of May 14, 1868.]

"Various importers end manufacturers heve attempted to attain a perfection for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend e more agreeable or valuable beverege."

Sold in packets only by all Grocers, of whom also may be had Teylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills, Brick Lane, London.
8v19-6m

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.

DIVIDED INTO 1,200,000 SHARES OF

TEN DOLLARS EACH,

FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President..............................SAMUEL MERRITT.
Vice-President..............................MICHAEL REESE.
Treasurer..............................J. SELIGMAN & CO.
Secretary and General Agent.........W. K. VAN ALEN.

Board of Trustees—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm, H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, SEVEN MILES IN LENGTH BY FOUR THOUSAND FEET IN WIDTH, EMBRACING FIVE THOUSAND AND TWENTY ACRES.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of ALL mines discovered by the Tunnel.

4th—A royalty forever of TWO DOLLARS on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, end be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to ell parts of the mines, end through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make availeble many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt es to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, es has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwell, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata end Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots end mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very importent revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Compeny two dollars per ton, forever, on every ton of ore extracted from eny portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of his great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, end confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coest,

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
Secretary and General Agent,
625 Montgomery street,
Opp. Montgomery Block,

3v20-3m

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

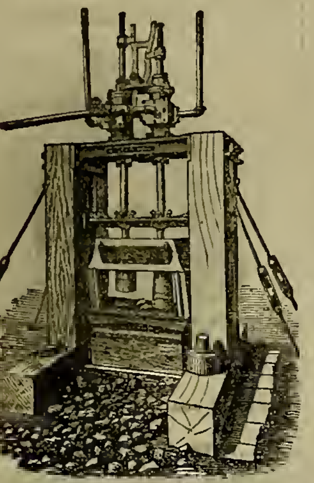
Friday, February 10, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ⅌ 100 lbs.; Bar, 1@1½c ⅌ lb; Sheet, polished, 3c ⅌ lb; common, 1½@1½c ⅌ lb; Plate, 1½c ⅌ lb; Pipe, 1½c ⅌ lb; Galvanized, 2½c ⅌ lb.		
Scotch and Eng. Pig Iron, ⅌ ton	$30 00	@$33 00
White Pig, ⅌ ton	28 00	@ 30 00
Refined Bar, bad assortment, ⅌ lb	— 03	@ — —
Refined Bar, good assortment, ⅌ lb	— 04	@ — —
Boiler, No. 1 to 4	— 04½	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
Copper.—Duty: Sheathing, 3½c ⅌ lb; Pig and Bar, 2½c ⅌ lb.		
Sheathing, ⅌ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 23
Tin Plates.—Duty: 25 ⅌ cent. ad valorem.		
Plates, Charcoal, IX, ⅌ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ⅌ lb	— —	@ — 42
Steel.—English Cast Steel, ⅌ lb	— —	@ — 15
Quicksilver.—⅌ lb	— 55	@ — 60
Lead.—Pig, ⅌ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ⅌ lb	— 10½	@ — 11
Borax	— —	@ — 45

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

CROSS' COMBINED

Heater & Sediment Collector

This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

RICE'S PATENT

SELF-ADJUSTING

UNIFORM STAMP LIFT.

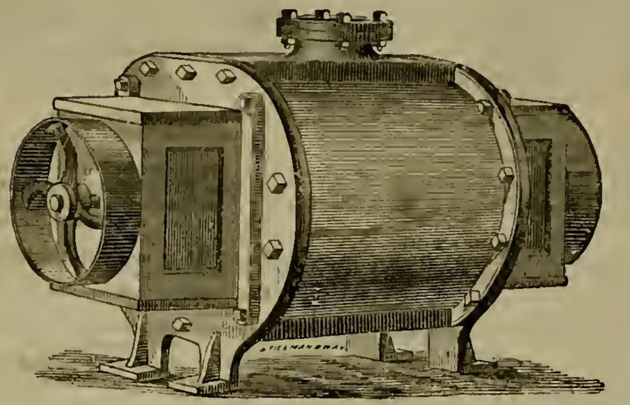
A Model of this valuable invention can be seen at the MINERS' FOUNDRY CO-OPERATIVE, 235 to 245 First street, San Francisco. 4v20-1m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER

MANUFACTURED BY KEEP & BARGION,

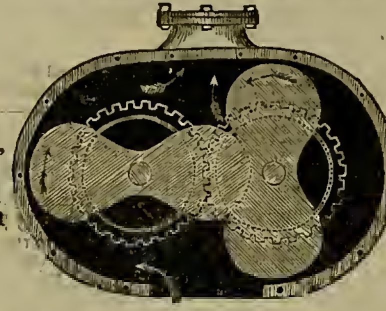
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition,



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.



REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

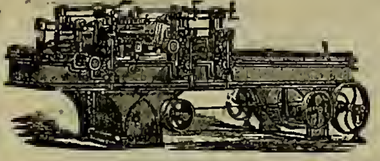
Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m Globe Iron Works, Stockton, Cal.

WOODWORTH PLANERS.



PLANERS AND MATCHERS,

With patent expansion feed gears and other improvements, made in the most finished and substantial manner; also every description of Richardson, Meriam & Co's, Smiths and

J. A. FAY & CO'S IMPROVED

Wood Working Machinery.

Embracing various styles and sizes of the following Labor-saving Machines:

Morticing (Sash and Door),
Sash and Moulding,
Blind Slat Tenoning,
Boring (Horizontal and Upright),
Shaping,
Re-sawing,
Planing and Matching,
Blind Stile Boring,
Blind Wiring,
Blind Slat Planing,
Rod and Dowell,
Hand and Foot Mitering,
Railway Sawing,
Improved Tenoning,
Variety Moulding (Gear's Patent), } Machines.

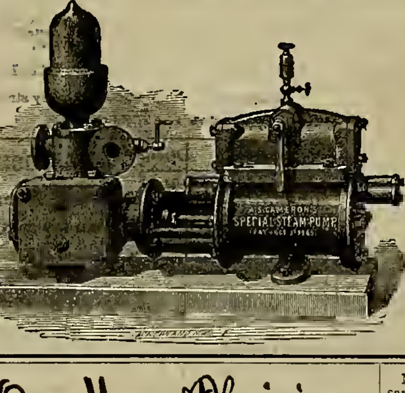
An assortment of the best always on hand.

SCROLL SAWS, DIMENSION PLANERS, GROOVER SAWS, FAY'S PATENT BAND SAWS, WOOD TURNING LATHES OF ALL KINDS.

ENGINE LATHES and Machinists' Tools generally, with also a large assortment of small machines used in Planing Mills, Machine Shops, etc. Also, Planer Knives, Saw Gauges, Matcher Sets, Sash and Matcher Heads, Saw Tables and Arbors, etc. Being the selling agents for most first-class Eastern Machinery Builders, we sell THE BEST, and at manufacturers' prices. Invoices of the above Machinery are now being received by every vessel. ☞ Send for Illustrated Catalogue.

BERRY & PLACE,
112 and 114 California Street, San Francisco.

☞ Agents for Blake's Patent Steam Pump, Davis & Furber's Woolen Machinery, Gear's Upright Shapers, Fay's Band Saws, Washington Iron Works Portable Engines, Saw Mills, etc., etc. c7v20



CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

MARINE

ENGINES.

SURFACE

CONDENSERS.

DAVID STODDART,

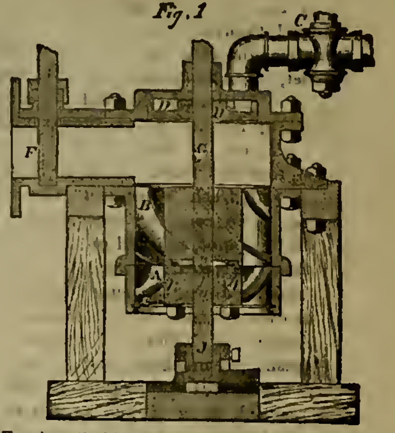
114 BEALE STREET.

Our Home Physician.

By GEO. M. BEARD, A. M., M. D., of New York. Its superior merits are endorsed by the Scientific American, Rural New-Yorker, leading medical journals and physicians of established reputation at the East and on the Pacific coast. Copyrighted 1869. The only complete Family Medical Book written since 1860. Send for circular containing extracts from author's introductory, testimonials, etc. Address, WESTERN PUBLISHING AGENCY, 411 Kearny street, San Francisco. Agents wanted; also for Dr. Dadd's Reformed Horse Book. 6v20-3m

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 6v20-1y

Lind's Improved Water Wheel



Has given the highest satisfaction to parties using it. We are now prepared to sell it at reduced prices. Will also contract for all kinds of Machinery—Flour, Saw and Quartz Mill. All our work guaranteed. We will send competent men to put up our Wheels and Machinery. We contract for or do it ourselves. Our extensive acquaintance with millwrights on this coast enables us to furnish millmen with the best of workmen at short notice. Drawings for contracts furnished gratis. Send for circular.

A. LIND, Millwright,
Pacific Iron Works, San Francisco.
Refer to John Sime and J. J. Haley. 19v19

VARNEY'S

PATENT AMALGAMATOR.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

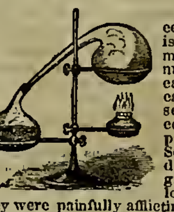
Settlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont street,

1v1 San Francisco.

Ayer's Sarsaparilla,

FOR PURIFYING THE BLOOD.



The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this *SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears*, and other eruptions or visible forms of *Scrofulous* disease. Also in the more concealed forms, as *Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia,* and the various *Ulcerous* affections of the muscular and nervous systems.

Syphilis or *Venereal* and *Mercurial Diseases* are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. *Leucorrhœa* or *Whites, Uterine Ulcerations,* and *Female Diseases,* are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. *Rheumatism* and *Gout,* when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also *Liver Complaints, Torpidity, Congestion* or *Inflammation* of the *Liver,* and *Jaundice,* when arising, as they often do, from the rankling poisons in the blood. This *SARSAPARILLA* is a great restorer for the strength and vigor of the system. Those who are *Languid* and *Listless, Despondent, Sleepless,* and troubled with *Nervous Apprehensions* or *Fears,* or any of the affections symptomatic of *Weakness,* will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 7v02eow-4m

The Artesian Well at Oakland Point.

The artesian well undertaken by the Railroad Company at Oakland Point has been brought to a stand, at the depth of 300 feet, by striking what has been termed bed-rock. Although they did not suceeed in getting flowing water, they found, at the depth of 285 feet, a bed of clayey gravel, four feet thick, which supplies excellent soft, fresh water, *that rises to the surface.* The company have tapped the pipe at this point, and will pump the water into tanks with steam power.

In sinking down, the auger brought up gravel every fifteen feet, the intervening beds being clay. The first surface water was fresh, but brackish, getting salter in every spring till the depth of 165 feet was reached, when it was as salt as the sea. At 180 feet the first fresh-water spring was struck, and each succeeding gravel deposit also yielded fresh water. At a depth of 268 feet below the level of the sea, a strata of what has been called drift-wood, was struck, about seven feet thick, which was decomposed, and came up pulverized with mud.

The above information was obtained by our correspondent from Mr. Higgins, the superintendent of the well-boring, who has also forwarded several specimens, which we have carefully examined, especially those taken from the so-called "bed-rock," and the "drift-wood," brought up by the auger. The former appears to be a very hard, indurated clay, but not such as may properly be termed "bed-rock." Other deposits of gravel may, no doubt, be found below it. The substance called "drift-wood" is simply a soft clay, containing, by careful examination, only twelve per cent. of organic matter.

◆

A Word for Home Inventors.

Oakland, Cal., December 1, 1869.

Messrs. Dewey & Co.—Gentlemen: Permit us through your paper to return our earnest thanks for the prompt and successful manner in which you have conducted the various matters of business with the Patent Office committed to your care, more especially in securing for us our last valuable patent in the face of so many difficulties. Were it an ordinary case, in which you had simply secured us a patent, and for which services you had received a suitable equivalent, we should hardly consider you entitled to our thanks, however much we might feel gratified with your professional ability, uniform courtesy, or success. But this seems to be an exceptional case, and entitled to peculiar consideration. Without entering here into a detailed account of the legal complications and various discouraging circumstances you were obliged to contend with, suffice it to say, that your almost unhoped for success, securing, as you did, a full patent, despite all these obstacles, in so short a time, was scarcely less surprising than gratifying to us; and we feel it a pleasant duty to offer you this merited testimonial of our appreciation for the valuable services rendered, and to return you our sincere thanks for the same.

In closing, we would say to the public that this is entirely voluntary on our part, as Messrs. Dewey & Co. neither asked it at our hands, nor knew that we intended giving it. It is simply a free-will offering to professional skill and reliability, and a word of friendly counsel to others on this coast who may be possessed of valuable inventions on which they wish to secure patents. To all such our earnest advice is to place them at once in the hands of Dewey & Co., instead of being driven to it by a sad experience like our own.

Yours truly,
Hubert Burgess,
James Stratton.

◆

Scientific Press.—The title of the Mining and Scientific Press, published by Dewey & Co., has been changed to the Scientific Press. This is one of the most valuable of our exchanges, and we are pleased to notice the great improvements made in it the past year. On the 1st of January it began a new volume, entering upon its tenth year.—*San Bernardino Guardian.*

GEO. E. ROGERS,
(Successor to O. W. Bell.)
A S S A Y E R,
512 California st., San Francisco.
J. A. MARS, Assayer.
Ores carefully Assayed. Gold and Silver Ores worked.
23v16-qr10pnr

To Solicitors.

AGENTS WANTED.

One or two active and reliable Agents can obtain permanent and profitable employment by addressing or calling at this office.

W. C. & JOHN DENN, M. BURKE,
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line promptly attended to.
Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

One Per Cent. per Month
Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.
THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.
Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT, Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 116 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs A. S. Hallidie & Co.—Gents:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

The Scientific Press,

Devoted to Scientific and Mechanical Progress, Mining, Farming and Mechanic Arts, contains more valuable Reading Matter than any other weekly journal west of the Rocky Mountains. It is the best printed and only finely-illustrated paper on the Coast. Its articles are able, timely and reliable, and written in a more interesting and easily comprehensive style than scientific papers in general. Now in its twentieth volume, it is printed on superior paper, containing sixteen pages, equal in size to the first-class journals of the Atlantic States and Europe. All our best citizens are interested in the new discoveries in the development and progress of the three great industrial pursuits named above, which are closely allied on this coast, and are jointly represented in the Press, rendering it a popular and influential journal with all industrial readers. Subscriptions reduced to $4 a year, Jan. 1, 1870.

To Inventors on the Pacific Coast.

Our U. S. and Foreign Patent Agency presents many and important advantages as a Home Agency over all others by reasons of long establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or a description in the Scientific Press. We transact every branch of Patent business, and obtain Patents in *all civilized countries.* The large majority of U. S. and Foreign Patents granted to inventors on the Pacific Coast have been obtained through our Agency. We can give the best and most *reliable* advice as to the patentability of new inventions. Advice and Circulars free. Our prices are as low as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior.

Engraving on Wood, of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also, engraving on metals.

DEWEY & CO.

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.
☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.
☞ The highest price paid for Scrap Iron 9v143m9p

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.
DEWEY & CO.,
No. 414 Clay street, S. F.

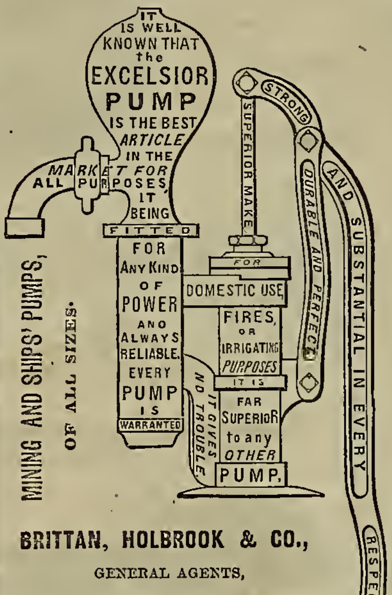
MANUFACTURING
Room to Let.

We have a large room, about 18 by 36 feet, in second story at 414 Clay street, near Sansome, which we will rent very low, suitable for printing or manufacturing purposes
DEWEY & CO.,
Publishers Scientific Press, 414 Clay street.

DEWEY & Co.
American and Foreign
Patent Agents.
Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, Saa Fraacisco.


MINING AND SHIPS' PUMPS,
OF ALL SIZES.
IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES, IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE, FIRES, OR IRRIGATING PURPOSES IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE.
SUPERIOR MAKE
STRONG
DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

For Miners, Millmen and Metallurgists.

KUSTEL'S NEW WORK,
CONCENTRATION
Of all kinds of Ores, and the
CHLORINATION PROCESS,
For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price, - - - - $7.50

A liberal discount to the Trade. For sale by the Booksellers. Sent to any part of the United States, postage paid, on receipt of the price. Address,
DEWEY & CO., Publishers,
Office of the Scientific Press, 414 Clay street,
1v16tf SAN FRANCISCO. 1863.

MAGAZINES.	*P. An.*
Harper's........	$4 00
Atlantic...........	
Godey..............	
New York Ledger..	
Blackwood..........	
Hours at Home.....	
Good Words.........	
Peterson's.........	3 00
Arthur..............	
Lady's Friend.......	
Harper's Weekly....	5 00
Chimney Corner....	
Literary Album......	
London Society.....	6 00
All the Year Round,	
London Ill. News...	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.
M. PRAG,
8v18 ly Stove Store, No. 1 Clay Street, below Davis.

W. T. GARRATT,
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURER OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."
☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 8-tf

HUNTINGTON, HOPKINS & CO.,
—IMPORTERS OF—
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
—ALSO AGENTS FOR—
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY,
54 K Street, Sacramento.
7v20

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect.
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

STEEN & CUSHING,
AGENTS FOR THE
PURCHASE AND SALE
—OF—
Patent Rights, Engines, Boilers,
—AND
MACHINERY OF ALL KINDS.
NO. 9 FIRST STREET, SAN FRANCISCO.
WE HAVE ON HAND IN GREAT VARIETY,

Engines and Boilers,	Malt Rolls,
Steam and Hand Pumps,	Injectors,
Pipe,	Lathes and Planers,
Presses,	Governors,
Shafting,	Steam Gauges,
Pulleys,	Quicksilver,
Boxes,	Gas Stocks and Dies,
Mill Stones,	Belting,
Portable Mills,	Water-tanks, etc.,

Which we will sell at a discount of 25 to 75 per cent. on cost of new, in this city. Parties having any kind of machinery for sale, may meet with customers by consigning to us. Purchases made on Commission, and prices guaranteed as low or lower than parties can make themselves.
STEEN & CUSHING,
No. 9 First street, San Francisco.

Sheffield Scientific School
Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology. and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v8-ly16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, February 19, 1870.

VOLUME XX.
Number 8.

The Johnston Distilling Process.

The San Francisco daily *Examiner* and Placer *Herald* have mistaken the processes employed by Mr. Johnston, of this city, and Mr. Downey, of Los Angeles, for procuring pure brandy, in supposing them to be identical. Mr. Downey, in reference to the matter, has published a card, in which he says:

> I have the pleasure of an acquaintance with Mr. Johnston, and am knowing to the fact that he is engaged in the invention and introducing to use of a still, which, in my judgment, may revolutionize the present system of brandy distillation. There is no conflict or antagonism between Mr. Johnston and myself, nor does the process by which I have succeeded in producing, after years of study and labor, a superior quality of brandy, interfere with the invention and use by Mr. Johnston of a new and superior still, which, if upon examination it proves to be what it promises, I shall be desirous to obtain and use. My business is distilling and rectifying, and as soon as Mr. Johnston puts his newly-invented still on the market, if it is an improvement on the stills now in use, I shall most certainly strive to secure one for my use.

As the patents for Mr. Johnston's still were obtained through the SCIENTIFIC PRESS AGENCY for the United States, England and France, we will state the important points in the invention:

First—Economy of time in making a spirit entirely free from fusel oil or excess of acetic ether, at one operation.

Second—A saving of the usual cost of rectification by charcoal or any other means.

Third—Saving of waste and loss in exposing a large quantity of weak spirit to condensation, by the old process.

Fourth—Nothing is made by this still except high-proof spirit; the proof being entirely under the control of the operator.

There is at Bughey's vineyard, El Dorado county, two of these stills made of wood, working to one column and one worm. In the pipe leading from the stills to the column there are balanced valves, by means of which the stills can be worked alternately. When steam is turned on No. 1, it opens the valve leading to the column, and closes the valve on No. 2; and as soon as the spirit has been exhausted from No. 1, steam is turned on No. 2, closing the valve in No. 1. The pomace or wine is then discharged from No. 1, which is exchanged and ready for operation. When the spirit has been exhausted from No. 2, no time is lost in discharging and loading.

The spirituous vapor, on leaving the still, passes into the six-chambered column or rectifier. As it ascends through the different chambers, it encounters, in each, a coil of pipe containing cold water, by which the water and impurities are condensed and separated from the vapor. An uniform temperature is maintained in the upper chamber of the column by the flow of water through the pipes, so that spirit of any desired strength can be brought over, and nothing but high-proof spirit goes into the worm. The only portion of the spirit that requires redistillation is a few gallons which come over first on each charge, about 80 per cent. over proof, containing an excess of acetic ether.

There is every reason to believe that at no distant date California wine and brandy will rank second to none in the world. We need only the necessary experience and capital to conduct the business on proper principles and with proper apparatus. Let small vineyard growers sell their grapes and plant more vines, instead of wasting their time in making wine in dirty, sour casks. As well may every man who grows two or three hundred acres of grain have a mill and distillery to work up the same, as for the grape grower, with a few acres, to attempt to make his own wine and brandy.

Vines properly cultivated will be in full bearing at five years old, and yield an average of five or six tons per acre, which, at one cent per pound, amounts to $100, or $120 per acre. The cost of cultivating and gathering is from $20 to $30 per acre, showing a profit of $80 to $100 per acre.

Since the above was in type, we have noticed the following, from the *Evening Bulletin*, in reference to the working of the above still:

> SACRAMENTO, Feb. 10—7 P. M.—At noon to-day, B. N. Bugbey, of the celebrated Natoma Vineyard, displayed in the rooms of the Sergeant-at-Arms six cases of brandy, six cases of champagne, and six cases of still wines. Members of both Houses of the Legislature accepted the invitation to come in and taste. Tests were made of two qualities of French brandy, as compared with that of Bughey's manufacture, by W. G. English. The application of ten drops of ammoniated mixture of silver to the French production gave the liquor a deep inkish hue, while Bughey's, under the like ordeal, did not change color. The samples are on exhibition. Bughey's brandy came from Johnston's patent still, the only one ever built. The verdict was decidedly in favor of Natoma brandy, champagne and still wines. A prominent gentleman from a wine-growing district in the southern portion of the State at once ordered a supply of each, and many other orders followed.

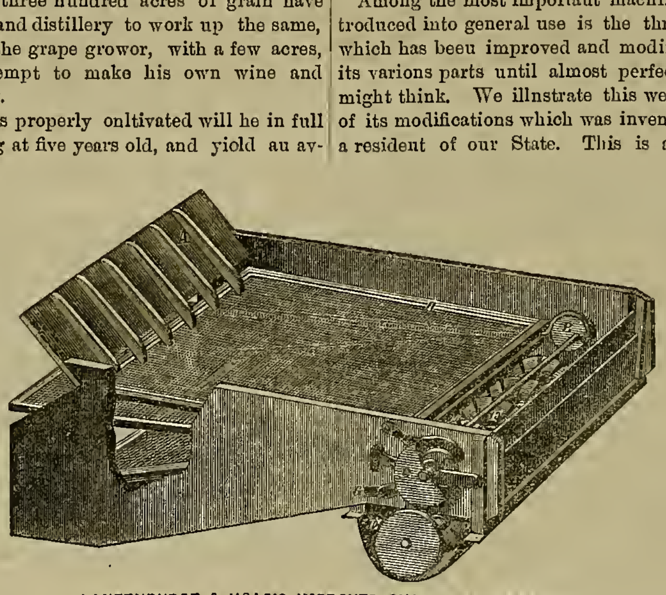
◆

SWAMP AND OVERFLOWED LANDS.—The House of Representatives has directed the Committee on Public Lands to define by law what is meant by swamp and overflowed lands.

Improved Shoe for Threshers.

The modification and improvement of agricultural machines have attracted the attention of inventors to a very high degree in our country. The broad fields and extensive farms owned by individuals have rendered necessary the use of machines to supply the want of manual labor in working on so large a scale. The inventive talent of our countrymen has been taxed to the utmost, and the result is that wonders have been accomplished.

Among the most important machines introduced into general use is the thresher, which has been improved and modified in its various parts until almost perfect, one might think. We illustrate this week one of its modifications which was invented by a resident of our State. This is an improvement on that part known as the shoe, which separates the grain from the straw, smaller seeds, etc., after passing through the threshing cylinder. It is very simple in its arrangement, and its construction can be seen readily from the illustration. The main points are the sieves and their manner of working, and the horizontal screw, F, for conveying the tailings to the elevator.



LANFENBURGE & HOAG'S IMPROVED SHOE FOR THRESHERS.

The upper sieve, H, inclines towards the screw, F, while the lower one inclines in the opposite direction. These are connected with the eccentrics, B and C, of the driving shaft, by means of curved rods and bell cranks, and in such a way that they move in opposite directions. The manner in which the upper sieve is thus connected is shown at B; that in which the lower is worked is shown at C and G. There is a middle sieve, shown in the engraving, which can be used, if necessary, for taking heavy substances from the grain and running them away from the machine.

Below the driving shaft is a trough, in which runs the screw, F, which is driven by a belt, which passes around E and D. The grain, etc., falls on the ribbed apron, A, and thence on H; and that part which does not pass through this sieve is carried, by means of the peculiar shaking and throwing motion imparted by the eccentric and by the inclination, into the trough, and thence transferred, by the revolution of F, out through one end to the elevator, in a uniform manner, and without being liable to choking up if it happens to be damp.

The advantages claimed for this machine are important. It is very easily adjusted, and in a short space of time. It is not liable to get out of working order, and runs lightly and without creating a jar on the frame of the thresher. Damp grain will not choke it, as is the case where small troughs are employed. It cleans the grain better, and takes less power to run it, than in the common machines used. There is but one stake ever needed to set it.

This device was patented in June, 1868, by Mr. M. Laufenhurge, and is now owned by this gentleman in company with Mr. J. C. Hoag. Their address is Bloomfield, Sonoma county, Cal. Mr. L. writes us that he has engaged seventy machines this year (1870), that he has given his invention many severe tests, and that he has threshed, in the most satisfactory manner, and without any clogging of the sieves, 3,000 and 4,000 bushels per day.

A small number of machines have been manufactured at the East with these patent shoes, and the inventor believes that they will soon be very generally used. All the castings can be obtained by applying to Messrs. Baker & Hamilton, of this city, who are the general agents for the Pacific coast. The royalty on the invention is twenty-five dollars, and the whole cost of the shoe (including royalty) is about fifty dollars,

◆

THE WIOKERSHAM STREET SWEEPER has been tried twice in this city, the last time on Tuesday last, when, unfortunately, the rain prevented many from witnessing the trial. This machine is in use in the Eastern cities, and Mr. A. Weed is trying to introduce it (with a few modifications) into use here. The iron-work for this was made at the Risdon Iron Works, the wood-work at Gallagher's wheelwright shop on Mission street, near Beale. The sweeper stands about eight feet high, and runs on two wheels six feet in diameter, which gear into other wheels so as to drive the brushes, which throw the dirt into a low car attached to the machine. These brushes are made of rattan, and can be raised or lowered some six or eight inches, as may be required. Several cars accompany one sweeper, and when one is filled with dirt it is detached and hauled off and another substituted. It is claimed that the sweeper will work without raising a dust. The public will have another opportunity to see it in operation in a day or two.

◆

THE CARSON CITY MINT.—The *Bulletin's* Washington correspondent says that the House Committee on Appropriations have agreed to omit this year all appropriations for this mint, except a sufficient sum to pay two workmen to take care of the property. They will also recommend the repeal of the law authorizing its maintenance. The Nevada delegation will oppose these measures.

Communications.

Smut in Wheat—Historical Memoranda.

[Written for the Scientific Press.]

Pliny and Columella notice diseases similar to mildew, sometimes, but improperly, called blight, and smut, as being found amongst growing cereal grains; and notice that at that period mixtures of water and urine and a decoction of cypress-leaves were employed to remedy the evil, and are recommended as specifics by the authors named. Virgil also recommends the lees of oil for the same purpose.

The father of modern husbandry, Mr. Jethro Tull, ascribed the presence of smut to moisture, and as a preventive recommends the adoption of his drill system of cultivation. As is often the case with highly observant, practical, but not scientific men, old Jethro was not far from the truth, though it is probable that the presence of smut is promoted by atmospheric moisture, rather than by the undue hydroscopic character of the soil.

During the last century the general opinion was, that smut was due to insects. A long list of Italian, French and English naturalists, of deservedly high reputation, could be given who supported this opinion. It may satisfy the reader that the skill and ability of parties entertaining this view has not been overrated, when it is mentioned that Linnæus was amongst the number. It may also be observed that this opinion was generally considered to be supported from the circumstance that "pickling" the seed sown was usually found to be a palliative, if not a preventive.

After old Jethro, Sir Hnmphrey Davy made the best guess at the true cause of smut—the first from personal observation, the latter by the more philosophic mode of inductive reasoning. These two opinions were almost typical of the mental characteristics of the two men. Sir H. Davy considered that smut was a small fungus. He arrived at this conclusion because he found, on analysis, that smut furnished products similar to those afforded by the puff-ball, and considered that without the agency of some organized structure, so complete a change could not be effected in the constitution of the grain.

Forencroy and Vanquelin made a most elaborate analysis of smut balls, without arriving at any conclusion as to the originating cause. The result, however, accorded with that made by Davy, and may be said to have lent strength to his views. Fontada was of opinion that the "black mildew," or smut, form real vegetables, perhaps of an imperfect kind; and that these, by absorbing the nutritive juices, enfeeble the plant and produce the injury. Wildenow ("Principles of Botany") considered that smut proceeded from a fungus. Such was the state of opinion on this long-debated subject, until it was taken up by the celebrated French naturalist M. Adolphe Brongniart, who clearly proved that smut arose from the presence of a fungus now commonly known as *Uredo carbo.*

Real or Assumed Preventives.

The earliest "pickle" employed to prevent the growth or spread of smut after those described as having been used during the Roman Empire, is brine. Tull, so often alluded to, relates that the use of salt brine, as a pickle, was discovered in consequence of sowing wheat that had been steeped in sea water, from having been taken out of a ship which had been sunk near Bristol, which sea-steeped seed-wheat was found, at harvest, to be free from smut, when nearly all the wheat in England was affected. In using brine, the general custom is to make it strong enough to float an egg.

At what time and by whom a solution of sulphate of copper, blue-stone or blue vitriol (for it passes under the three names) was first employed as a steep for seed-wheat, with the object of preventing smut, the writer cannot now state. It is probable that the practice was first introduced from France into England, in which latter country there exists records of its use nearly a century ago, and to the present day it is not employed so proportionately extensive as in the former country; salt being still more generally employed in the British Isles. The sulphates of copper employed in France are the varieties locally known as *vitriol Salzbourg* and *vitriol mixte Chyp're*—the former being a compound salt of sulphate of iron (green copperas) and sulphate of copper (blue copperas), and the latter of sulphate of copper, compounded with sulphate of zinc (white copperas), or, as they are sometimes called respectively, green, blue and white vitriol.

A knowledge of these terms may prevent mental confusion with many who may not be acquainted with the synonomous titles applied to the three varieties commonly known under the generic denominations of copperas and vitriol—both alchemical terms—the latter being based on the circumstance that vitriol (sulphuric acid) constitutes one of the salt-forming elements.

In Lincolnshire, the south of Yorkshire and portions of Northumberland, England, common arsenic (arsenious acid) is employed as a steep, and has been found more successful in preventing smut than bluestone; but an old observant Lincolnshire farmer informed the writer that he has known smut to follow after wheat had been steeped in solutions of salt, sulphate of copper and arsenic, although he never knew an instance of its affecting a wheat crop when the seed employed was two years old, or, rather, the produce of the last year, but one which would really be only about fourteen months old.

The use of arsenic as a steep appears from English newspapers, to have spread into the southern English counties, as a few years ago it was noticed that partridges were found dead, unaccountably, in the fields—a circumstance then attributable to some mysterious diseases; but it was subsequently ascertained that they had died from eating wheat which had been steeped in arsenic.

It would render this paper too long to enter into the *rationale* of the varied processes employed for steeping wheat, and their probable values under varied circumstances, or to give tables of various experiments made to test them. If, however, any considerable number of the agricultural readers of the Scientific Press should express a desire to possess the same, they can be furnished on a future occasion through its columns.

Thomas Rowlandson.

Horaoe Greeley on Migration discourses as follows. It will be remembered that Horace is one of the prime movers in getting up a colony for Colorado: I advise no man who has a farm anywhere, and is able to keep it, to sell out and migrate. I know men who make money by growing food within twenty miles of this city quite as fast as they could in the West. If you have money to buy and work it, and know how to make the most of it, I believe you may find land really as cheap, all things considered, in Vermont as in Wisconein or Arkansas. And yet I believe in migration—believe that there are thousands in the Eastern and Middle States who would improve their circumstances and prospects by migrating to the cheaper lands and broader opportunities of the West and South. For, in the first place, most men are by migration rendered more energetic and aspiring; thrown among strangers, they feel the necessity of exertion as they never felt it before. Needing almost everything, and obliged to rely wholly on themselves, they work in their new homes as they never did in their old; and the consequences are soon visible all around them. "A stern chase is a long chase," say the sailors; and he who buys a farm mainly on credit, intending to pay for it out of its proceeds, finds interest, taxes, sickness, bad seasons, hail, frost, tornadoes, floods, etc., deranging his calculations and impeding his progress, until he is often impelled to give it up in despair. There are men who can surmount every obstacle and defy discouragement—these need no advice; but there are thousands who, having little means and large families, can grow into a good farm more easily and more surely than they can pay for it; and these may wisely seek homes where population is sparse and land is consequently cheap. Doubtless, some migrate who might better have forborne; yet the instinct which draws our race towards sunset is, nevertheless, a true one. The East will not be depopulated; but the West will grow more rapidly in the course of the next twenty years than ever in the past. The railroads which have brought Kansas and Minneeota within three days and California within a week of us, have rendered this inevitable.

Mills and Mines of Colorado—No. V.

By Almarin B. Paul.

[Written for the Scientific Press.]

Bad weather, business, etc., have prevented my moving about much, hence the break in my letters. As a matter of interest to White Piners and Cerro Gordo smelters, I visited the

Callom Reduction Works,

Which are located at Swansea, some four miles below Georgetown. These works are upon a new plan, more so in Colorado than California, where the same principles have been tried at Meadow Lake, and are being tried now, to a certain extent, in Cerro Gordo, Inyo county. As they differ in one or two particulars, I will be minute.

The works are new and not yet completed or at work. The proprietors are Callom & Co., Mr. Callom being the inventor, and, I believe, the patentee. The ore is first reduced by the Dodge crusher, which is universally used here, and is really worthy of its popularity, being simple, cheap and efficient. From the crusher the ore passes into Cornish rollers, where it is more finely reduced. It then passes into bolters, where the ore is sized. The sized ore then passes into Callom's plunger concentrators, a short account of which I gave in letter No. 1. A more minute description I herewith send, clipped from the Georgetown *Miner*, which, by the way, is one of the best inland mining journals of any county. I give it, as all things appertaining to concentrations are of interest. At the same time looking at it put up for practical working, I do not regard it as equal to the Hendy or Hungerford concentrators:

"The body of each machine is a water-tight cistern or tank seven feet long, 3½ feet wide and three feet high. Its upper part is divided into three equal-sized compartments. The outer ones are occupied by two sieves, and the inner one is divided in the center, forming cases for two plungers. In the bottom of each plunger case is an aperture communicating with the space under the sieves. Standing immediately behind the machine is a trough furnished with two gas-pipes, which enter the plunger cases. The plungers are supported by spiral springs, and on the upper end of the plunger stems are adjustable thimbles, having on their top recesses for the reception of elastic cushions. Over the plunger stands the rocker, which is attached by a connecting rod to a crank on the driving shaft.

After the ore is crushed and screened, a small stream of water conveys it through a spout upon the sieves. Water passes from the trough through the gas-pipe into the plunger cases under the plungers. The rotating of the crank shaft imparts an oscillating motion to the rockers, which, at each oscillation, strike upon the cushioned thimbles and depress the plungers, causing the water to rise in a rapid succession of jets through the layer of ore upon the sieves, so that at each pulsation of the machine every particle of ore and rock is subjected to a momentary suspension in water, and this causes the different minerals in the mixed ore to arrange themselves according to their several specific gravities. The ores as they classify themselves are discharged into suitable receptacles on the outside. The quartz being the lightest, passes off through pipes, and is discharged into the tail race."

The concentrated ore is intended for

The Furnace.

This is a combined roasting and smelting furnace. The roasting chambers are three in number, one above the other, and are about twelve feet in length and five feet wide. The hearths are level, and the tops are regular arches extending their whole length. Extending through, and having a bearing at each end, are pipes, which support iron stirrers, which move mechanically to and fro. Through the pipes flows a stream of water to keep them cool during the process. The ore goes in at a hopper, above the first chamber, and is mechanically carried in time to the back end, where it falls into the chamber or hearth below. This hearth has a higher degree of heat, being so much nearer the fire. The ore here undergoes a similar stirring, and in due time is delivered at the opposite end into the third hearth, which has a still greater heat. It undergoes here the same operation and then is delivered into the inclined smelting hearth, which is directly underneath and supports the hearths above. The smelting hearth is some thirty-five feet in length, and at the extreme end, which is about ten feet further on, is the fire-place. A stack some forty feet high is connected with it. From the fire-place to the stack the fire has a draft of some eighty feet; thus: fire hearth, 10 feet; smelting hearth, 35 feet; three roasting hearths, 12 feet each, 36 feet. The furnace has been tried practically, and found to equal their expectations. To my eye it looks practical, and they have my best wishes for success.

Difference Between English and American Telegraphing.

In the course of a review of F. L. Pope's new hand-book for telegraph operators and electricians, *The Engineer* says:

The first principle of the telegraph circuit in America differs from that in use in England. On our lines, when the instruments are in repose, no current circulates in the line; and when a signal is given, it is effected by the transmission of one or more currents, whose duration, frequency and order determine its nature. On the American lines, however, the instruments are in repose when the lines and apparatus are traversed by a continuous galvanic current, the signals being given by interrupting it at intervals. With this fundamental difference in the two systems, it is natural that important differences in the nature of the apparatus employed, as well as in the directions and tendencies which the development of the art has assumed in the two countries, should be found.

In England, as well as in European countries generally, each station in a line, whether it is *end* or *intermediate*, is provided with a galvanic battery, and the signals are given by inserting this battery intermittently in the line circuit by means of a proper commutating manipulator. But, in America, only the end stations of telegraph lines are provided with batteries whose currents circulate in the same direction through the instruments at both the end and intermediate stations. With this plan of connection, therefore, a signal may be given from any station or point on the line and received at every other station by simply breaking the metallic circuit. This system has its especial advantages and disadvantages. The chief advantage consists in the fact that, by cutting the line wire at any part of the circuit, separating the severed ends, and re-touching them at proper intervals, a message may be transmitted to every station along the line without demanding any special apparatus on the part of the transmitter. Thus the guard of a train which has met with an accident far away from any station might communicate the news of his disaster and demand assistance without having to carry with him either battery or apparatus; whilst he could, by inserting between the severed ends of the wire a very simple and small pocket sounder, receive a reply. On English lines, to do this the guard would not only have to be supplied with apparatus, but likewise with batteries, which, in case of a collision, might be rendered useless when most needed. The disadvantages with which the American system is encumbered is, that the lines can be easily tapped by an enemy or for mischief.

Nothing new under the Sun.—The bicycle seems to have been known in China two centuries ago, and some forms of the velocipede were probably seen even earlier in Europe. In the ancient painted glass of the church of Stoke Pogis may be seen a youth riding the wheeled horse amid a throng of admiring spectators. The paddle-wheel for boats is seen on the Assyrian marbles; and it is now suggested that the pyramids of Egypt may be built of artificial stone, made in the same way as that which the French have used on the Suez canal. It is well known that no stone like that of the pyramids is to be found anywhere in the vicinity, and this fact lends plausibility to the supposition that it is a manufactured material.

California Brandy at New York.—The New York *Tribune* recently remarked that the brandy of California was the only article of that kind in the New York market fit for use.

Mechanical Progress.

Malleable Iron and Wrought Iron.

The specific gravity of malleable iron is 7.2; that of wrought iron is 7.7. The fracture of very carefully manufactured malleable iron appears more like that of a very fine-grained, white cast iron than that of wrought iron. In filing, turning, and planing, it works similar to wrought iron, above a cherry-red heat, but in endeavoring to beat it out, it breaks to pieces. According to Mallet, this temperature, and that beneath a bright yellow heat, are those at which it may be best forged. When hammered at yellow heat, malleable iron falls to pieces, and large, not uniformly cemented pieces, appear in the interior. It is clear that malleable iron cannot be welded properly; it is self-evident that it cannot be welded with wrought iron or steel, still it may be soldered with them, but the surface often appears somewhat whiter. Large pieces can seldom be turned to a great depth. According to some statements, malleable iron is capable of taking a better polish than cast iron, and as good a one as cast steel. It also holds a better luster than many sorts of dark and impure wrought iron. Good hard cast iron may probably be polished as well. With regard to the hardness, reliable data are not procurable. Malleable cast iron is generally softer than wrought iron of any kind. It takes the impression of the hammer with a very slight blow, and wears off rapidly in contact with rough surfaces. It is exceedingly porous, as may be expected from its small density. Cast iron bells are far more elastic than bells of malleable iron, producing also a higher and clearer sound.

"Morin and Tresca have found that the elasticity of malleable cast iron is considerably less than that of the most inferior wrought iron. Thin pieces, of a diameter not over one-quarter or three-eighths of an inch, may be bent while cold, without cracking; but they can rarely be restored to their original state without being fractured. Malleable iron will bear rolling to a small degree. All these manipulations bring about a closer grain, and a fracture similar to that of fine-grained steel-like iron. No instance is known where malleable iron has been drawn into wire; but this is possible, since it will bear a slight elongation, assuming thereby a finer grain. It may be pretty well forged at a low red heat. With respect to the fusing point, it lies above that of gray cast iron, but probably not above that of many sorts of white or hard cast iron, and certainly considerably below that of cast steel."

The above is condensed from an article prepared by Dr. Adolph Ott, for the *Journal of Applied Chemistry.*

The American Institute Premiums on Steam Engines.—The action of the judges on steam engines at the late Fair of the American Institute having been criticised, they have sent a communication to the *Scientific American,* in explanation and vindication of that action. We quote a part of the concluding paragraph: "With these facts before them the judges had no difficulty in deciding which was the *best engine,* and they plainly indicated that opinion by awarding the first premium to the Babcock & Wilcox engine 'for the *most perfect automatic expansion valve gearing.*' But they also felt that the trial having been made under certain rules, and the Corliss engine having shown the best results by the strict rendering of these rules, though that result was purely accidental, it, therefore, should have a first premium for those results. In giving this premium, however, it was expressly stated that it was 'for best results on net effective power shown at the trial,' and they added, 'for superior workmanship, and general arrangement of valves and valve gearing.'"

Another Lock-Nut.—The lock-nut patented by Messrs. Elliott & Seely, of New York, is illustrated by the *Artisan* as applied to the fish-plates of rail-joints. The bolt has upon it a washer, in the face of which is a recess into which a plate of sheet metal, put on next, fits. This plate has a curved slit on one side, making a tongue, which, bent outward, constitutes a spring pawl, and works in an annular ratchet on the under side of the nut, when that is screwed home.

The "Walter" Printing Machine.—This new and powerful machine was entirely designed and manufactured on the London *Times* premises. *Morgan's British Trade Journal* gives a description of it, from which we quote and condense: "The new invention does not in the least resemble any existing printing machine, unless it be the calendering machine, which has possibly furnished the type of it. At the printing end it looks like a collection of small cylinders or rollers. The paper, mounted on a huge reel as it comes from the paper mill, goes in at one end in an endless web, 3,300 yards in length, seems to fly through among the cylinders, and issues forth at the other in two descending torrents of sheets, accurately cut into lengths, and printed on both sides. The rapidity with which it works may be inferred from the fact that the printing cylinders (around which the stereotyped plates are fixed) while making their impressions on the paper, travel at the surprising speed of 200 revolutions a minute."

This machine requires only three boys and an overseer to work it, and turns out, per hour, 11,000 sheets printed on both sides. The Hoe requires eighteen men, and turns out 7,000.

A New Pigment.—A method of preparing a white oxide of lead, by treating either roasted galena or finely divided metallic lead in a furnace similar to that used in the manufacture of oxide of zinc, and collecting it with canvas bags in the same way, is spoken of by the *American Exchange and Review* as destined to effect a change in the manufacture of pigments. We quote: "The white oxide produced is nearly pure protoxide of lead, differing from ordinary litharge only in appearance. When roasted galena is employed, the resulting substance is contaminated somewhat by the presence of small amounts of sulphate and sulphite of lead, and by some oxide of zinc from the associated blende; but when the metallic lead is used, these do not exist in the new compound. This oxide of lead is peculiarly soft and mixes well with oil, producing a pigment almost equal in body and covering properties to the best white-lead produced by the old Dutch method. It is, therefore, well fitted for employment as a white paint, or as a basis for the preparation of certain colors."

Cigar-Making Machine.—The *Scientific American* illustrates and describes a new machine, which it says is destined to revolutionize the business of cigar making. By its aid, a girl can easily make 1,500 cigars per day. It consists, briefly, of two pairs of concave rollers, one of which pairs is in the upper part of the case, and the other in the lower part; these two parts closing together by a hinge. By the act of closing, the two pairs of rollers are geared together; and as the members of each pair revolve in opposite directions, a roll of tobacco, placed between, is equally compressed on all sides towards the center. The mouth end of the cigar is shaped by a "header" or conical recess, into which it is gently pushed by a spiral spring during the revolution. The apparatus may be run by steam, or by a treadle like that of a sewing machine.

The New York Machine Shops.—The *Tribune* says: "The fact is apparent in the circle of the machine shops that their proprietors are preparing for anticipated business, and are arranging their shops with a view to economy of space and a consequent withdrawal of the capital hitherto lying idle in city lots, which were used as receptacles for scrap-heaps and refuse stuff. Since the close of the war nearly every marine machine shop has been rebuilt and rearranged, so that before spring they will be in a better condition to receive orders than they have been for years."

File Cutting.—"The file passes next into the hands of the cutters, who are seated on spring-boards, before small anvils fastened in stone blocks, on both sides of the room, in order to get a strong light. The cutter, with a short, wedge-like chisel, held obliquely, deftly covers the file with closely indented lines or teeth, that are so accurate in width and depth as to seem hardly possible to be done by the work of men's hands."

Scientific Progress.

The "Niin" of Yucatan.

The Report of the U. S. Commissioners of Agriculture contains a communication from Dr. Schott, late of the Yucatan Scientific Commission, in which he gives some description of a single product of that country, specimens of which he has had analyzed by a New York chemist. We condense: "The niin (pronounced *neen*) is the grease of an insect bearing the same generic name. It may be considered akin to the cochineal; but they differ essentially, one serving as a dye, the other as a drying oil. It is a yellowish-brown, fatty mass, having a peculiar oily odor. It is neutral to test-paper. Its melting point is about 120° Fah., though, when once melted, it remains in a semi-fluid state with the temperature as low as 80° or 85°. When cooled to 10°, it becomes hard and brittle, like suet. At ordinary temperature, that is, about 60°, it is of a thick, pasty consistency, like ordinary lard. Its specific gravity at 60° is about ·92. It is not soluble in alcohol, either hot or cold. Dissolves freely in ether, with which it forms a yellow, oily liquid. Also in turpentine, with which it forms a liquid possessing peculiarly valuable properties for mixing delicate oil colors. Also in benzine, and in chloroform. Like some others of the animal fats, it contains a distinct volatile acid, peculiar to itself, which might be termed niinic acid. Like others, it contains a fluid oil—oleine—and a solid containing stearic, margaric, and other fatty acids.

A peculiarity of the niin seems to be its difficult saponification. The strongest ammonia has no saponifying action on it. With potash, it saponifies slowly and imperfectly. With soda it forms a soap only after extended boiling with a strong lye. It is only after several hours' boiling with oxide of lead that it forms the so-called "lead soap," and then the product is very imperfect.

When the niin is melted in a porcelain dish, and the resulting oil exposed to a continued and high heat (between 250° and 350° Fah.) for an hour, the residue in the dish will be found to have assumed a tough, flexible, varnish-like condition—a gelatinous mass no longer soluble in turpentine, or affected by heat or cold. If a piece of this is placed on porcelain, moistened with turpentine, and ignited, another remarkable change takes place; for, if the plate is slightly inclined as the mass burns, a thick, yellow, resinous oil or gum flows from it, which possesses most remarkable adhesiveness, closely resembling a thick solution of india-rubber, but which does not dry, retaining its half-fluid consistency for several days.

When the turpentine solution is exposed to the air in thin strata for a few days, it acquires the properties of a resinous varnish. If further developed, this property will make the niin of the greatest commercial value. The film of varnish is very elastic, and at the same time hard. Another valuable application could be found in the manufacture of water-proof fabrics. An excellent way of water-proofing would be to saturate the article with melted niin, and then expose it in an oven to considerable heat until the grease gelatinizes. By these means the niin becomes insoluble not only in water, but also in most of its solvents."

Formation of Ozone by Rapid Combustion.

The *Chemical Repertory* gives a paper upon this subject which was read on the 10th ult. before the Chemical Section of the New York Lyceum of Natural History, by Oscar Loew, Chemical Assistant in the New York City College. The paper was commented upon by Professors Wurtz, Seely, and others, who considered the discovery of great interest and importance. We quote:

"According to Schoenhein, in very slow oxidation there is a previous formation of ozone, ordinary oxygen not being able to combine directly with other elements. Clausius advanced in 1858 the hypothesis that ozone is oxygen in the state of *free atoms,* while common oxygen consists of compound *molecules,* of two combined atoms each. But the later investigations of Andrews and Tait, Babo and Soret, upon the volume of ozone do not favor this supposition, and Clausius modified his hypothesis thus: *Ozone is a compound of a single atom of original oxygen with a molecule of common oxygen.* This combination is but a loose one, and the power of oxidating possessed by ozone resides in the third atom of oxygen, which combines directly with elements leaving common oxygen behind. * * It seemed to me that at every combustion, even in the most rapid and energetic, this intermediate decomposition of the molecule of common oxygen must take place, if the single atoms will enter into combination with the elements, and that ozone or antozone could be detected in a flame, if the high temperature did not destroy it again as fast as it is formed.

To test this hypothesis, I blew a strong current of air through a tube into the flame of a Bunsen's burner and collected the air in a beaker glass. In a few seconds I had enough ozone to be distinguished readily by the intense smell and by the common tests, tincture of guaiacum, iodide of potassium, etc. This observation shows that not only in slow oxidation but also in rapid combustion an intermediate production of ozone occurs, and that it can be separated and isolated in this way."

Germs Suspended in the Atmosphere.

To prove that, even under the most favorable conditions, the gases of the air could not alone cause organisms to be produced, and that when such did occur they were due to floating germs already endowed with life, M. Pasteur prepared a flask with a long neck bent at various angles, but open at the end, and therein boiled a decoction of yeast. The flask was then left undisturbed for some days, during which time the gases were of course in daily circulation in and out through the tube or neck, owing to the daily and nightly change of temperature. Yet the fluid remained for an indefinite period without any trace of organic life. The conclusion was, that as the gases passed freely, while any floating germs would be likely to be arrested at the angles of the tube, the latter, and not the former, were probably the source of the organisms found in former experiments made without such angles. To settle the matter, the end of the tube was sealed, and the flask was inverted and shaken until some of the fluid passed into the angles, after which it was again left to itself. "In a short time the fluid in the angles exhibited indications of organic life, showing that the germs had been arrested there."

Separation of Arsenic and Antimony from Tin.—The following is from an article in *Silliman's Journal* for January by F. Wigglesworth Clarke, S. B.: "By availing myself of the solubility of the sulphides of tin in oxalic acid, I have been enabled to separate tin perfectly from arsenic and molybdenum, and almost perfectly from antimony. When only arsenic and antimony are to be separated from tin, I find it best to proceed as follows: to the solution containing the three metals, this solution being prepared in the usual manner for the precipitation of the sulphides, I add oxalic acid in the proportion of about twenty grams of the reagent for every gram of tin, taking care to have the whole so concentrated that the acid will crystallize out in the cold. I then heat to boiling, and pass in sulphuretted hydrogen for about twenty minutes. No precipitate appears at first, but as soon as the liquid is saturated with the gas, the sulphides of arsenic and antimony begin to fall, and in a very few moments are completely thrown down. Then, as usual, the whole should be allowed to stand about half an hour in a warm place before filtering. Every trace of arsenic and antimony is precipitated, so that in the filtrate from the sulphides neither of these metals can be discovered by Marsh's test, nor can any antimony stain be produced with zinc upon platinum."

An Appropriate Medal.—A medal of the alloy of palladium and hydrogenium was struck, not long before the death of Graham, to commemorate his discovery of the latter metal. It bears on one side the effigy of Queen Victoria, and on the other the name of Graham and the words "Palladium—Hydrogenium, 1869." The medal contains 900 times its own bulk of hydrogenium.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Items.—*Miner*, Feb. 5th: Leviathan Lower Tunnel running in as fast as men can push it.

Good Ore.—The M. C. Tunnel No. 3 has been running all the week in hard rock containing pockets, from which fine sack ore is obtained. A sample of the clay from one of these assayed $640 per ton.

Globe—A survey made this week shows that the drift must run 110 feet to cut the Hercules lode.

Silver Glance.—The whole face of this tunnel is now fair grade ore. Three weeks ago an average sample assayed $11; yesterday a similar average of the whole face assayed over $30.

Imperial.—This tunnel continues its course, notwithstanding announcements.

Items.—Mt. Bullion tunnel goes on.... Encouraging discoveries in Exchequer. ....Ore for a test will soon be sent to mill. ....Lower tunnel of Schenectady makes good progress.

The Tarshish.—*Chronicle*, 5th: We learn that the lower tunnel of the Tarshish Co. is in 350 feet and making good headway, although the rock has been harder.

AMADOR COUNTY.

The Oneida.—*Ledger*, 12th: The clean-up last week turned out better then they anticipated.

The Old Amador.—This mine, at Amador City, is worked vigorously, and proving valuable. They are now in a very large ledge, and taking out large quantities of rock that looks well.

BUTTE COUNTY.

Mountain Spring.—Cor. of Oroville *Record*, 12th: Most of the miners on the ridge have had water for two weeks. They have had water up as far as Franklin Hill—something I never knew before. It is running short now. The bed-rock tunnel at Lower Cascade is driven five feet per week. It is now in 125 feet, and is to run about 300 feet further before they reach the valley.

EL DORADO COUNTY.

Rich Quartz—Placerville *Democrat*, 12th: Van Hooker & Co. are taking out some very rich rock from a ledge on the west side of Cedar ravine. The rock shows free gold in considerable quantities. This is the second good ledge this company have opened during the last two months.

Gold Dust Shipped.—For the first eleven days of the present month, there has been sent by Wells, Fargo & Co., from this place, $23,455 in gold dust.

NEVADA COUNTY.

O'Connor Mine.—Grass Valley *Union*, 8th: From all appearances we believe that the O'Connor will give a more astonishing result at the next crushing that it did at the last. The affairs of the company will be regulated in a few days.

Gold Bars.—Monday, at Finley's, we noticed bars valued in the aggregate at $24,000, the gold being mostly from the Union Hill and Town Talk mines.

Allison Ranch.—9th: A gentleman informs us that splendid rock, like that of the old days, is coming out. The finer specimens are saved separately, but the dump pile shows very rich rock.

McLellan.—10th: This mine is taking out better rock than at any time in its history. The character of the sulphurets has changed for the better, and free gold is visible. The crushing of 50 tons began yesterday. The rock being crushed is not as good as that which is coming out.

Items.—The Coe mine is being pumped out, and ore will soon be raised....The West Eureka is working with excellent prospects. The ledge is well defined.... The William Penn has good rock at last. Yesterday some fine samples were sent to the office in Boston Ravine. In these, free gold is seen....Howard Hill mine is not to remain idle much longer. From the ledge, when it bore the name of "Lucky," upwards of $200,000 worth of gold came out.

Eureka—12th: Yesterday a piece of quartz weighing about 100 pounds, all through which the bright gold appears, and which is loaded also with heavy sulphurets, was sent to the surface.

Buckeye.—13th: There is a strong probability that the Buckeye claims, known also as the Stidger & Evans, have been sold to the London Pacific Co. Mr. McLean, the Supt. appointed by the company, is now in charge. We received yesterday a sample of the cement, which is flecked with gold.

Bowery.—*Gazette*, 8th: The last crushing paid $96 per ton, and they are now taking out better rock than ever.

Empire Mine.—Captain Lee, Supt., is taking from both shafts 40 tons a day. The 30-stamp mill is kept running constantly. One hundred and thirty men are employed in the mill and mine, and the pay roll amounts to $13,500 a month. A large amount of rich specimen rock has been taken out in the past few weeks.

Big Blast.—10th: The German Co. on Diamond creek let off a blast of 90 kegs of powder in their gravel claims on Tuesday, and did good execution.

School-Boy's Ledge.—12th: The boys at the Mud Flat school house, near Gold Flat, on Thursday were playing a game of "Prisoner's Base," and had a hole dug in the ground where they placed their "prisoners." While digging out this hole to make it larger, they struck a quartz ledge, from which they took out valuable specimens.

The Big Sale.—*Transcript*, 10th: We mentioned the proposed sale of the Buckeye Hill claims, in Bridgeport township, to an English company for $180,000. This is only for the claims proper. The Sweetland Creek, which was purchased some time ago, is included, making the entire price $200,000. The money is ready, and the bargain will be closed when the buyers are satisfied as to the title.

The School Boy.—12th: Nine boys own the ledge. It shows as fine a prospect as we have ever seen in surface rock. It is 18 inches wide. Same of 13th says the ledge is expanding, and at the depth of 15 feet filled the entire face of the shaft.

Mining Sale.—A twelfth interest in the Kansas claims, hydraulic, at Kate Hayes' Flat, Bridgeport township, was sold a few days ago to William Williams for $45,000.

San Juan.—13th: The Water Co. has reduced the price of water from 16⅔ cents per inch to 12½; and some claims which have been unworked are now being washed.

Latest.—*Union*, 15th: The Empire cleaned up yesterday after a run of 24 days, $23,725.

A Grass Valley telegram of the 16th says: The Webster Co. struck rich pay gravel in their claims in Alta Hill yesterday. The strike shows that the old Alta Hill lead run through the hill from Grass Valley to Rough and Ready. The Eureka mine cleaned up $26,000 yesterday—the result of 10 days' run.

PLACER COUNTY.

Rich Quartz.—Grass Valley *Miner*, 10th: We were shown yesterday at Findley & Co's, specimens of very rich rock from the St. Patrick ledge, near Auburn. We understand that the owners have pounded out $9,000 worth of gold in a mortar, the pestal of which is rigged on a spring pole. The Auburn *Herald* quotes this, and adds that the claim has just been sold to a Grass Valley company for $3,000.

Rattlesnake Bar.—Cor. of *Stars and Stripes*, 10th: This exceedingly dry season has been a serious drawback. It would be lively here if we had water, as there are more claims fitted up for work than for many years. Some of the old abandoned claims are taking a new start.

PLUMAS COUNTY.

Indian Valley.—Cor. of Quincy *National*, 5th: Some prospecting is being done in the neighborhood of Greenville. Round Valley is dull. Crescent is lively, and the mine pays as well as ever.

SAN DIEGO COUNTY.

Prospecting.—The *Union* says: We have just learned that a man who had been out on prospect, returned last evening and exchanged five ounces of dust for coin. He immediately procured a miners' outfit and started out again, refusing to tell where he had struck it. Mr. Hill struck a claim, where he washed out $2 worth of gold from four buckets of dirt.

SIERRA COUNTY.

Port Wine.—Cor. of *Messenger*, 12th: The Monte Cristo boys washed the little dirt they had on hand, and it panned out $5,000. They are getting along well with their bed-rock tunnel. The Union Co. are taking out good pay. The Old Eagle Co. washed what dirt they had, and it turned out better than they expected. They have struck good diggings in the hill this week. The old Never-Sweat, better known as Jack Cayote's claims, had quite a pile of dirt out; but the ditch broke one night, and that was the last of the dirt. I have heard it reported that the rock was softer in the Grass Flat tunnel.

The other day a large company, formed here, took up all the ground not claimed in Wahoo district, and mean to commence work in the spring.

Scales' Diggings.—Water is the cry from every one. The Council and Fair Play claims are being worked. They are the only ones that have water. Cox & Co's big tunnel is almost completed. When it is finished and they get their ditch in, it will give employment to 50 men.

Kanaka.—We learn that the mine is now a complete success. The new ledge found ten feet east of the old vein is from six to seven feet wide, encased in regular walls, and contains rich paying ore, so much decomposed, that never a blast is necessary, and ten men are able to get quartz enough out to keep the 20-stamp mill running. This new ledge is called Treasure. The copper-plates outside of the batteries at the mill give every 20 hours from 12 to 14 ounces of hard amalgam, equal in value to the whole expenses of mining and milling. The mill has been running three weeks.

SISKIYOU COUNTY.

Accidental.—Yreka *Union*, 4th: This newly discovered ledge at Humbug prospects well. Several specimens from it show free gold plentifully.

Roadside Diggings.—The Woodford claim, opposite the mouth of the Greenhorn, is being successfully worked, after lying idle three years. The owners are John A Fairchild and Mr. Dewitt.

TRINITY COUNTY.

Junction City.—*Journal*, 5th: Everybody is busy. Miners have plenty of water. This camp will render a good report.

Court-House Hill.—Martin & Edgecombe are opening a claim on Haskin's lot. The hill paid rich up as far as it could be mined without injuring any of the improvements. Judging from what has been taken out, Martin & Edgecombe's claim is good for one ounce per day to the man.

YUBA COUNTY.

Brown's Valley.—Cor. of *Appeal*, 13th: There is a good deal of excitement about the old mine known as the North Carolina; it has been lying idle since 1864, until two months ago, when four men re-located the claim and called it the Big Bug. They took out ten tons near the surface, which paid expenses. They then started an incline a few feet deeper, took out 12 tons more, and the result was $10.40 to the ton. The owners are Louis de Forest, Charles Hanson, Henry and Charles Smith. There has been some talk about a new mine in the rear of Judge Hall's house, called the Lodi, and owned by James Read, Hall and others. They are taking out rock which promises to pay well for their labor.

Timbuctoo.—Cor. of *Appeal*, Feb. 13th: Only five of the mining claims here are being worked. Those are the Bullard, Antone, Michigan, Esner and Babb. These are said to be paying tolerably well. The general opinion seems to be that the mines here have seen their best days. At the Bullard's (Warner's) claim I found Mr. Chase and force in the great tunnel, now nearly completed. They have been at work upon this nearly five years. The hydraulic, with six pipes, was being worked. The Union recently made a clean up of dirt saved from last June, and took out about $8,000. The claim is not being worked, nor will it until expenses for water can be decreased.

Arizona.

Mining Items.—Prescott *Miner*, Jan. 29th: England Gulch still pays well. The 25 men on Lower Lynx creek are making small wages, with rockers. Some of those in the creek near the old Mexican camp, are doing remarkably well. Theophile Lansuillon informs us that a miner from the camp had that morning paid him one ounce of fine gold dust, which he dug out in two days. Chas. Otten and other placer miners came to town Sunday, from the headwaters of the Hassayampa, and, after purchasing supplies, returned.

Quartz.—Our only two working mills—the Vulture and Big Bug—are at work, and we are confident—paying.

Walnut Grove.—J. M. Tiernan writes: "I am well pleased with the mines. I have built a furnace for desulphurizing ores, and an amalgamating pan, which I will have in operation in a few days."

Colorado.

Bullion.—Georgetown *Miner*, Feb. 3d: The total shipments during the past week were, in coin value, $8,860.

Reduction Works.—Collom & Co's at Swansea, four miles below town, will soon be complete. They contain a patent ore-dressing machine of Mr. Collom's own invention. Part of the furnace arrangement is also an invention of Mr. C. The capacity of the dressing works is 40 tons per day, and that of the roasting and smelting furnaces 10 tons.

Cliff Lode.—Work will be resumed in a short time. It was discontinued last spring on account of water at the depth of 105 feet Sixteen hundred pounds of Cliff ore treated at Stewart's last year gave a yield of $850 per ton.

Fairmount.—The main shaft has reached a depth of 100 feet. The crevice is clearly defined. The distance between walls is 4½ feet. Selected samples of ore assayed $1,424.30 in gold, and $159.97 in silver, aggregating $1,584.27 per ton. The trial run of the mill was made on 10½ tons of ore. Sixty per cent. of the fire assay was obtained, being $28 per ton. The full capacity of the works will be 20 tons per day.

Briggs' Mine.—Central City *Register*, Feb. 3d: A magnificent lump of gold retort weighing 420 ounces and valued at $8,400. has been produced from mill ore since Jan. 3d. During this time Mr. Beech has sold to the smelting works, 40 tons of first-class ore, which will amount to $3,000 more, making the total yield for the month nearly $12,000.

Items.—Work has been resumed on the Bates, under the direction of Mr. Miley, who with Mr. Sensenderfer has leased the property....Mr. Stevens has rented the old Stanton mill, and proposes to run it on Bobtail ore....The Chicago mill is being repaired by Geo. Wells, and will run on Burroughs ore....Cyrus Hurd, Jr., will start his mill in a few days on ore from the Harsh lode....Miley has his engine up, and will start again shortly.

Empire.—Georgetown Cor. of same: Haskins & Grove are working the Paul Process. Several tons of Silver Mountain ore yielded 46 dwts. gold per ton. Dr. Rae and Mr. Davis are still experimenting on desulphurizing with peat. Several lodes are being worked, and all the mills are running.

Idaho District.—*Herald*, Jan. 26th: The Shafter lode, Hugel gulch, is one of the best. The ore improves in quality as work progresses. Last week a quantity of select ore was shipped to Chicago. E. C. Prehle of this city, is about to put up a mill near the mouth of Hugel gulch to run on ore from this mine.

Idaho.

Baxter.—*Tidal Wave*, Feb. 10th: This mine is developing finely. Last Saturday we were shown a rich and beautiful specimen which weighed five or six pounds. One side was literally full of ruby silver, some of which was beautifully crystallized. It was taken 45 feet north from the main shaft, and 220 feet from the surface.

Home Resort.—Judge McDaniels and others have leased the mine and are taking out ore which will net handsomely if properly worked. The shaft is down 20 feet, and shows rich in gold.

Flint.—Mr. Chas. Isenbeck informs us that rock of extraordinary richness is being taken from the Pioneer.

Northern Idaho.—A correspondent from Warrens' Diggings says that the miners at that place have concluded to permit Chinamen to work the old placers next season.

Montana.

Lincoln Gulch.—Cor. of Helena *Gazette*, Feb. 3d: "Claim No. 14 is working 20 men. Seventeen is taking out dumps in the Upper Drain Co. No. 16 is making calculations on doing big work in the spring. Nos. 27 and 28 have piled up on their claim this winter 400 feet of timbers. On 29 they are taking out dumps. No. 30 is washing dirt with good results. No. 32 is also washing and making small wages. No. 33 cleaned up for the week's run, with four men, $680. No. 34 is good. Nos. 35 and 36 have nothing worth mentioning. No. 37 is considered as good ground as there is in the gulch. There is no more work until you get down to No. 50. The latter having finished their ditch up to No. 38, have moved down there to commence taking out pay dirt.

Beaverhead.—Virginia *Times*, Feb. 4th: Placer mining will be more extensive than in any previous season. The ditches now completed will furnish water in any part of the gulch, and the diggings are 12 miles in extent. Much gravel is being taken out for spring washing, and many persons are working with rockers. The old quartz men are still at work. Andrew Murray, the pioneer, is raising ore from the Blue Wing. A quantity of this has been smelted in the Stapleton furnace with a gratifying result. Geo. Brown is extracting rock from the St. Paul lode. Many leads are being developed in the vicinity of Banuack and Marysville. The Cherokee, Waddam and Dakotah are being worked. Work on the Hopkins shaft has been suspended till spring. Col. Hardwood, of the Huron Co., is sinking a shaft through the bedrock in Bannack City. Col. Softwood, of the New Jersey Co., is opening leads preparatory to starting his mill in the spring.

Nevada.

COPE DISTRICT.

BALD MOUNTAIN.—Elko *Independent*, Feb. 12th: John H. Foreman & Co. left on Wednesday with a complete outfit for their new district. They intend shipping ore from the Nevada mine, and when spring opens, will develop others. The owners of the Silver King will commence work in 60 days.

Work has been commenced on the Congress mine, Mountain City, owned by McKitrick, Savage & Co.

HUMBOLDT.

BUENA VISTA MINE.—*Register*, 12th: Parties from Battle Mountain report that an extraordinarily rich body of ore has been struck in the Buena Vista by Robert McBeth & Co.

GOLD RUN.—The mines are proving rich. F. A. Shaw, Supt. of the Cumberland, is extracting large quantities of first-class ore. The Register are running a tunnel to tap their mine at a greater depth than any yet attained in the district. A large quantity of ore is now at Golconda for transportation to the English Co's mill at Reno. Hurst & Burns have struck ore in the Shephardson, samples of which have been sent below for working process. The strike exposes a body of ore five feet wide, that assays up in the hundreds.

BATTLE MOUNTAIN.—In the Grant mine, a few days ago, at a depth of 40 feet, a fine ledge three feet wide, which assays from $60 to $200 per ton, was struck, and arrangements are being made for working several tons by mill process.

REESE RIVER.

BULLION.—*Reveille*, 9th: The Manhattan Co. shipped to-day, overland to New York, eight bars valued at $12,156.20. This mill for the week ending Feb. 5th, produced 22,498 ounces.

QUARTERLY RETURNS.—The entire ore product of Lander county for the quarter ending with last December, is 993½ tons, about one-half the amount produced during the previous quarter. The total value is $163,475, which gives an average of $164.42 per ton, it being understood that the computations are in gold. The Assessor's returns are imperfect and indefinite.

MINERAL HILL.—Same of 11th: A correspondent says a number of claims have been located at the foot of the hill where rich ore was discovered; also, at a point two or three miles south. The deepest incline is that of Ward & Co., 60 feet, at the bottom of which is a large body of good ore. About two weeks ago this company shipped 10½ tons to Reno, to be worked by the Stetefeldt process. The first quality of which there were five tons, yielded $798.75 per ton; and the remaining 5½ tons, $500 per ton.

The Supt. of the English Co., which bought the Lane & Fuller property, has arrived at Austin.

WASHOE.

YELLOW JACKET.—Gold Hill *News*, February 12th; The new body of ore at the 1,000-foot level, increases in size. and is of good grade. It is a very important discovery. The sinking of the south shaft is progressing. The lower levels are yielding 120 tons of fair ore per day, and the upper 140 tons.

OPHIR.—There is yet 175 feet of water to drain out of the old mine, through the new shaft, in which the water is 100 feet deep.

SAVAGE.—There is little of a very encouraging character to be seen in any part of the mine. The receipts for January amounted to $25,560.

HALE & NORCROSS.—The daily yield is 200 tons; principally from the lowest level, at which point the new body looks exceedingly well.

IMPERIAL-EMPIRE.—The new hoisting engine arrived yesterday. It is 120-horse power. As soon as it can be got into operation, sinking will be resumed. The drift north, at the 1,100-foot level, is in 73 feet. The rock is hard.

GOULD & CURRY.—No improvement, except in the quality of ore, which is yielded from the upper workings at the rate of 40 tons per day, assays averaging $53. Receipts for January, $18,238.75.

CHOLLAR-POTOSI.—The drift west from the new shaft, at the 450-foot station, is in over 100 feet. Receipts for January, $115,263.37. Present daily yield, 150 tons. Average assays, $43.

WHITE PINE.

THE *News* says it is currently reported that Col. Buel's agent has sold mining property in Eureka to an English company to the amount of $300,000.

MINING ITEMS.—*News*, 9th: Total bullion shipped yesterday from Hamilton and Treasure City, $13.277....Van Wyck & Co's furnace starts to-day....Evening Star Consolidated and Mahogany Cañon is again being worked....10th: Silver Wedge yesterday sent 16 tons of ore to Swansea mill, and will add 14 tons to-day....The Nevada mill started yesterday on 11 tons from Ely District....Bullion shipped yesterday from Treasure City, $3,844....11th: Bullion yesterday from Hamilton, $14,583—all East.....The Independence will commence shipping ore to mill to-day. There is 30 tons on dump, which assays from $84 to $147....McIntosh & Barclay yesterday shipped 36,000 pounds of base bullion from the White Pine Smelting Works....The Hillyer and Howe metal mines were reöpened this week and fine ore was struck....The Dayton and Manhattan mills (jointly, 44 stamps) will shut down this morning. The batteries will be cleaned up to-morrow....12th: At Hall & Co's works 65 bars of bullion were turned out in 30 hours' run, each weighing 125 pounds....We have seen some assays from Old Kentucky Home mine, running from $40.83 to $241.90 to the ton in silver....Bullion shipped yesterday from Hamilton, $2,043....Evarts & Co. shipped this week from the furnace of Rathburn & Co., 10,697 pounds of base bullion.

New Mexico.

QUARTZ ITEMS.—Elizabethtown *Telegraph*, Jan. 29th: Conly & Co. are deepening their shaft on the Atlantic lode, at Last Chance. They are down 70 feet. Young & Co. have begun a new shaft on the Great Eastern. Mr. Pease crushed a pound of rock from this lode in a mortar and pounded out eight cents—equal to $160 per ton. Pease & McCollum are down 25 feet on the IXL, the vein looks well. McRay, Biddle & Co. are opening the Ophir lode, near Nigger Gulch. Their rock is rich. Graham & Dimmick expect to start up their 25-stamp mill in a short time. Thos. Martin is sinking a shaft on Irish Flats, a half mile west of the city. He has sunk through 30 feet of pay gravel.

CIMARRON.—J. H. Mitchell reports the discovery of gold quartz near the head of the Little Cimarron, 12 miles south of Cimarron Cañon. The vein is four feet wide.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alleghany, Sierra co., Dec. 30, 50c	Feb. 7	Feb. 28*
Bullion, Storey co., Feb. 8, $4	Payable immediately	
California, W. P., Jan. 18, 50c	Feb. 21	March 14
Cons. Chloride Flat, W. P., Dec. 14, $1	Jan. 29	Feb. 24
Crown Point, Storey co., Jan. 5, $7 50	Feb. 8	Feb. 28
Cons. Virginia, Storey co., Jan. 7. $2	Feb. 12	March 5
Columbia, Cope, Jan. 29, 50c	March 5	March 25
Dancy, Lyon co., Feb. 9, $1	March 14	April 2
Dutch Flat G. & C., Feb. 11, 75c	March 18	April 8
Empire M. & M., Storey co., Jan. 7, $10.	Feb. 11	March 7
Glenwood, El Dorado, Feb. 4, 25c	March 7	March 28*
Gould & Curry, Jan. 12, $15	Feb. 16	March 9
Imperial, W. P., Jan. 5, 25c	Feb. 10	Feb. 28*
Imperial, Storey co., Feb. 15, $10	March 22	April 14
Kearsarge, Inyo co., Dec. 29, $5	Jan. 31	Feb. 19
Latawana, W. P., Nov. 22, 10c	Jan. 29	Feb. 19*
Lady Bryan, Storey co., Jan. 12, $2.50	Pay. immed'ly	
Mammoth, W. P., Jan. 4, 20c	Feb. 14	March 7
Meadow Valley, Jan. 29, 50c	March 3	March 22
Nevada L. & M., Feb. 8, 2½c	March 15	April 5*
N. Bloomfield, Nevada co., Jan. 15, $5	Feb. 12	Feb. 28
Noonday, W. P., Jan. 20, 30c	March 2	March 23
Ophir, Storey co., Jan. 8, $2	Feb. 11	March 2
Pilot, W. P., Nov. 23, 10c	Jan. 3	Feb. 21*
Pinto, W. P., Jan, 3, 15c	Jan. 15	March 7*
Savage, Storey co., Feb. 7, $10	March 14	April 2
Taylor, El Dorado co., Jan. 5, 50c	Feb. 7	Feb. 28*
U. S. Grant, Nev. co., Jan. 19, 50c	Feb. 21	March 12*

MEETINGS TO BE HELD.

Continental	Meeting March 15
Peytona	Annual Meeting Feb. 28
Silver Vault, White Pine	Meeting March 2

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable Feb 7, 1870
Chollar-Potosi, div., $1	Payable Feb. 10, 1870
Eureka, div., $7.50	Payable Feb. 7, 1870
Hale & Norcross, div., $6	Payable Feb. 10, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

San Francisco Prices of Copper Ores.

SAN FRANCISCO, Feb. 17, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

	Per ton.		Per ton
12 per cent. ores	$24 00	18 per cent. ores	$41 40
13 " "	26 65	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

* * *

THE WHITE PINE NEWS.—This journal, which a short time since removed from Treasure City to Hamilton, has resumed its daily issue. This has a healthy look, and indicates an abiding faith in the future of the district. We wish it well.

San Francisco Mining Stock Market.

The mining share market, during the week under review, has been characterized by about the usual activity noticeable for several weeks past, and sales of several prominent stocks were quite large; however, upon the whole, prices have been well maintained.

The San Francisco Stock and Exchange Board will hold no session on the 22d inst., (Washington's Birthday) and only one session (from 10 to 11 A. M.) on the 23d and 24th, on account of the Musical Festival in aid of the Mercantile Library Association, to be held on those days.

CHOLLAR-POTOSI — was somewhat less active than during the previous week, but realized better prices. During the week ending February 11th, 1,220 tons of ore were extracted, against 1,075 tons the previous week. We learn of no material change in the ore localities of this mine. The drift from the Chollar-Potosi shaft is now 123 feet in length, 61 feet having been added since the previous weekly statement. On the 11th inst., $17,486 39 in bullion was sent forward to the office in this city.

GOULD & CURRY — was in much better request, and at improved rates. For the week ending February 14th, 195 tons of ore were taken from the old ore-chambers. These ore localities are reported to have improved, both in abundance and quality, the particular sections showing the most improvement being the drift from the 20th floor and the United States Tunnel. At the 7th station, work south of the shaft is suspended. The main north drift, cross-cut No. 1 and cross-cut No. 2, to the west, are all being pushed ahead rapidly. These cross-cuts are 00 feet apart, and both have considerable water.

HALE & NORCROSS—was not in the market to a very great extent, though prices have been well sustained. During the week closing with the 12th inst. 599 tons were extracted, the ore coming from the following localities: 175-level, 192½ tons; 300 level, 51; 3d station, 123; and 6th station, 232½. On hand, 6,784½ tons, of which 2,485 tons is low grade. On the 15th inst., $25,050 in bullion was sent forward from this mine. With regard to the mine, we learn that the south body of ore heretofore spoken of, lying between the third and fifth level, is now thoroughly drained by the south drift on the third level, and they are now prepared to extract this ore. On the sixth level they are breasting out south of the shaft, and at this point most of the ore is in the south face, about fifteen feet wide, and of a better quality than on the level above, directly over this point. The ore-breasts north on this level are without any material change, and in the upper mine the ore localities are reported to be looking well.

OVERMAN—continues rather quiet. Letters of the 13th state that the 500-level has been connected with the 400 by the "raise," and they find the ore fully as good, and more abundant. By this connection they will be enabled to extract double the quantity of ore. For the week ending February 13th, 304 tons were extracted from the 225-level; upper tunnel, 369; 500-level, 164; and 400-level, 43, making a total of 880 tons, against 738 tons the previous week. On the 14th they shipped six lots of crude bullion, valued at $15,400.——IMPERIAL levied an assessment of $10 per share on the 15th inst.——DANEY levied an assessment of $1 per share on the 9th inst.——KENTUCK receipts of bullion in January, $31,207.——IDA ELLMORE (Idaho) reports bullion receipts in January to the amount of $22,900. A dividend of $1 per share was paid on the 8th inst.—*Commercial Herald.*

* * *

Latest Stock Quotations.

AT THE S. F. STOCK AND EXCHANGE BOARD

THURSDAY, February 17, 1870.

WASHOE DISTRICT, NEV.	*Bid.*	*Asked*
Alpha	11	11½
Belcher	17	17½
Bullion, G. H.	5	7
Crown Point	18½	16
Cole (Va.)	—	—
Confidence	—	15
Chollar-Potosi	20½	21
Daney	—	50c
Exchequer	5	7
Empire M. & M. Co.	16	17
Gould & Curry	60	—
Gold Hill Quartz	15	—
Hale & Norcross	137	138
Imperial	26	28
Julia	—	50c
Justice and Independent	2	3
Kentuck	93	94
Lady Bryan	3¼	3¾
American	—	—
Occidental	12	12½
Ophir	13½	—
Overman	67	57½
Segregated Belcher	7½	8
Savage	38	39
Sierra Nevada	7¼	7¾
Yellow Jacket	48	49
MISCELLANEOUS DISTRICTS.		
Amador (California)	320	—
Aurora, White Pine	3¾	4
Eureka, (California)	230	235
Golden Chariot (Idaho)	14½	15

* * *

THE SCIENTIFIC PRESS.—*An Illustrated Journal of Scientific and Industrial Progress, Mining, Farming, and Mechanic Arts.* Vol. XX., No. 1. January 1, 1870. San Francisco: Dewey & Co. We welcome the first number of the new volume of this our contemporary, whose indefatigable efforts to promote the intellectual progress of the working classes, reflect credit upon the Pacific slope.

The price of the Press has been reduced, and is now equal to that of this journal ($4). We wish the enterprising proprietors a great increase in the list of subscribers, as a consequence. They say they intend to make it a *live* paper; and they have already succeeded.

Besides sound editorials on leading industrial topics, every number contains an amount of information worth many times the price of subscription for the whole year.—*N. Y. Engineering and Mining Journal.*

* * *

THE GRAND MUSICAL FESTIVAL on Tuesday, Wednesday and Thursday next promises to be a success and a very rare treat.

* * *

A PRETTY sharp earthquake shock was felt in this city Thursday, doing no damage.

The People's G. & S. M. Co., Sierra County.

In reply to our earnest request for information with regard to this company, we received the following letter:

EDITORS PRESS:—I noticed in your paper an inquiry concerning the People's Mining Company. Their mine is located on Kanaka creek, about half a mile from Alleghany. They have a ten-stamp mill. Their property was sold about eight months ago for $250, and a Sheriff's deed of it was given to Samuel Newell (who has had the management of it for the last five years) about two weeks since. Mr. Newell is at present living in Alleghany. They have a tunnel within about fifteen feet of the ledge, which will tap the ledge about one hundred feet below the surface; but there is no present prospect of the completion of this tunnel.

We subsequently recived a communication from Mr. Newell on the subject. The substance of the letter is, that the claim was worked for about two years with good prospects of success; that, however, owing to "the profligate waste, extravagance and shameful peculations by both the President and Treasurer," the enterprise was fatally crippled about four years ago; that Mr. N. kept the work progressing slowly by his own means until nearly $50,000 were due him, urging the stockholders and officers to relieve him or take measures to carry on a still promising work; that he received no aid; and that finally the property was sold last April under judicial process. The new owners have finished the work at much expense, put things into "a thorough paying condition," and will commence milling as soon as the season opens for work. Before milling commences old *bona fide* stockholders may obtain a number of shares in the new company, equal to the number they held in the old one, by paying an assessment of thirty-five cents (coin) per share. No one has as yet accepted this proposition. Mr. N. cannot find our correspondent's name in the list of stockholders, "but as the officers issued a large number of shares for their own use and benefit, he probably may be among that class of holders."

OBITUARY NOTICE.—Died, after a lingering illness of four years, the People's Mining Co., of Sierra county. The deceased commenced life with bright prospects, but owing to want of care and to exposure to harassing debt, its days were brought to an untimely end by a dreadful illness known as the Wall street fever. There are suspicions and charges of foul play, which can be investigated only by examinations of the books and accounts, for which a call may be made at the office in New York. We sympathize deeply with the friends of the departed in their loss, but can only advise them hereafter not to lay up their treasures in the deep pockets of stock sharps (who sell the worthless garments of decaying mines to honest, unsuspecting people), for there moths and rust do corrupt and thieves break through and steal.

* * *

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, Feb. 5, 1870.

IRON.			
Pig, Scotch, No. 1 (cash), per ton	$37 50	@	$42 00
Pig, American, No. 1 (cash)	42 00	@	— —
Pig, American, No. 2	38 00	@	39 00
Swedish, ordinary sizes	140 00	@	155 00
Common	87 50	@	92 50
Refined	95 00	@	— —
Rods	100 00	@	155 00
Horse-shoe	115 00	@	— —
Hoop	125 00	@	180 00
Scroll	110 00	@	145 00
Nail-rods, per lb	— 8½	@	— 9½
Spring	— 9½	@	— —
Tire	— 9¾	@	— —
STEEL.			
Bars, best cast, warranted, per lb	— 23	@	— 23½
Sheet, best cast	— 23	@	— —
Sheet, second quality	— 20	@	— —
Sheet, third quality	— 18	@	— —
Saw-plates, circular	— 27	@	— —
Double-shear, warranted	— 23	@	— —
Single-shear	— 19	@	— —
Montague & Co. (cast bars)	— 18	@	— —
Machinery, round	— 16	@	— —
German, best	— 16	@	— —
German, goat	— 13½	@	— —
German, eagle	— 12	@	— —
Blister, warranted	— 15	@	— —
Blister, common	— 15	@	— —
Jessop & Sons', common	— 17	@	— —
Double-refined	— 25½	@	— —
Stone-ax shapes	— 26½	@	— —

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

The Agricultural Department at Washington.

We regret to observe that an effort is being made to abolish the Agricultural Bureau at Washington; but we trust such a suicidal policy will not be carried out. This department has been but recently organized; yet, considering the term of its existence and the pecuniary means placed at its disposal, it has accomplished a vast amount of permanent good.

Whatever means of retrenchment may be decided on, it will be poor economy to stint in the allowance for this. Even in the proposed reform of the franking privilege, greatly as such reform is needed, the free distribution of the agricultural and patent reports should be provided for—not perhaps in the loose way in which they are now too generally sent out; but all who signify their desire, by letter or otherwise, to the members of Congress from their respective districts, should be entitled to receive copies of those documents post free. The annual publications sent out from these departments are of far more real value to the people of the country, than any other public documents which emanate from the seat of national government.

During a recent visit to Washington we took occasion to inspect the various departments connected with this bureau, and became more satisfied than ever of its value to the country. The system of exchanges of plants and seeds, which has been instituted between this and other countries, and their free distribution, is of very great value to the entire people. Prof. Glover's collections of insects, destructive or otherwise, to plant growth, with the facts connected with their production, their habits, the mode of destroying them or preventing their appearance, etc., etc., is of the highest importance. It would be economy of a high order, and policy most sound, if the government would provide the necessary means to spread this information *free* before the agricultural masses of the country. The result would be the saving of millions, annually, and the creation of actual values to that extent. The Department of Agricultural Chemistry and Geology—the basis and preliminary to scientific agriculture—and the Statistical Department, are also doing much to forward the greatest and most important industry of the country.

This is eminently a *working* department, and no place for drones or hangers-on; and, notwithstanding the flippant disparagement of it in which certain classes of newspaper scribblers indulge, the information here collected and disseminated is eagerly sought after by a large class of the most intelligent, industrious and useful people in the country. The deprivation of this information, or any interference with its collection, would be nothing short of a national calamity.

A New California Cherry.—Mr. W. W. Smith, of Napa City, writes to the *Rural New-Yorker* that he has possession of a seed, originated in the valley, the fruit of which is "the finest he ever saw. It possesses characteristics of the Black Tartarian, and is probably a seedling of it, but in fruit it is far superior." Mr. Smith says all varieties of the cherry do well with him, and the past season he shipped six tons of the fruit to San Francisco.

To Remove Stumps.—A stump of large size can be removed at a cost of fifty cents by simply boring a hole through the stump or tree, at the base near the ground, and pouring a pint of crude oil into the hole and setting fire to it. The fire will soon burn the stump down three feet below the ground.

Selecting Breeding Animals.

Why do so many sows of choice breed, beautiful animals in every respect, so far as the eye can see, bring forth only two or three pigs at one litter? and why do others, of the same breed, and, so far as appearances indicate, equally as promising, bring forth young equalling in number the teats on the udder? Intelligent breeders have answered this question, and proven the correctness of the answer by long and careful observation. We are told that in every brood of pigs, in every flock of lambs, in every herd of cattle, in every band of horses, in every nest of birds, in every natural brood of domestic fowls, and in every ear of corn or grain, Dame Nature makes special provision for the propagation of its kind, by concentrating the excellencies of the entire litter, flock, herd, nest or ear in some one animal or seed, which, more than any other of its fellows, possesses the power to keep up to its highest standard of excellence the peculiarities of its race or kind.

In no animal can this distinctive individual be so definitely and easily pointed out as in the pig. Every farmer knows that each little youngling of a well-bred sow, within two or three days after birth, instinctively chooses, and ever after keeps, his own particular teat at the udder. After this choice is once made, in all the after rough-and-tumble, in seeking for food, each little pig brings up at its proper and regular place, at the maternal "lay out," with as much accuracy as well-drilled soldiers find their places in line, in response to the order to "fall in."

When the litter is all thus in place, it is "graded," by Nature herself, with an accuracy which no human art or judgment can equal. The leader of the band, and the one which is best fitted, *par excellence*, for the propagation of the species, occupies the place at the head of the dinner-table; while the one that possesses the least stamina—the "runt" or "titman"—is crowded to the rear end of the udder, and corresponds to the "nubbin of corn" or the diminutive kernels at the tip end of an ear of grain. The order in which the pigs are arranged at the udder, corresponds to their powers for propagation.

When choice animals only are desired, always select for breeders the forward one at the udder, male or female. It would be well never to go far down the table for breeders; and, lest mistakes may arise, always make your selection before weaning time comes. The second or third pig may, to all appearance, be as beautiful and thrifty as the first, and may possibly make as heavy an animal when slaughtered, or heavier; and for once or twice may bring as full and large a progeny; but in the long run they will be sure to fail. The law is established and incontrovertible; and, as has been often said and sung,

"A sow pig and boar pig that sucketh before"

should always be chosen for breeders.

It is not always the most beautiful that should be selected as breeders, from any family of animals; but the ones that are capable of transmitting the most excellent points to their progeny. With the pig, this selection is easily made by attending to the above; in other animals, more care and judgment is required. Breeders of stock, of any kind, to succeed, must make themselves familiar with the unalterable laws of procreation and transmission. When these laws are carefully and intelligently observed, there is no tendency among animals to degenerate; but without such care, that tendency is manifest and rapid in its effects.

If we subject a herd of improved horned stock to poor and scanty fare, and insufficient protection from the weather, and in that state allow them to breed without proper discrimination, they will speedily lose their fine qualities and improved points. Experience has fully shown that improved foreign breeds of sheep thus treated, soon assimilate to "natives." Merinos and long-wools thus rapidly retrograde toward the unimproved types. The same is true of all domestic animals. In a wild state, Nature has provided that animals shall always "select" by instinct. This is especially true of the horse. There is not a truer saying in the whole catalogue of aphorisms than that "Nothing is granted to mortals without great labor," and in nothing does this saying more aptly apply than in the breeding of domestic animals.

Farmers Victimized.—The Stockton *Independent* is informed by a correspondent from Ellis Station, that some time ago several farmers in that neighborhood sent their entire crops of barley to a commission merchant in this city, with instructions to store and await a rise in the market; the merchant promptly forwarded 25 per cent. advance on the consignments, and they supposed all was right. After the lapse of two or three months, some of the parties visited the city for the purpose of settling up with their consignee and getting the balance of their money. The city merchant, being encountered in the street, appointed an hour when he would meet them at his office, but failed to appear. After waiting several days, and failing to hear from him, the farmers found, on inquiry, that they had been victimized; as the barley had been *sold* on the day of its arrival. Several weeks further having elapsed, and no tidings coming from the merchant, the parties concluded to make this public *expose*, as a warning to others to beware how they trusted their business to unknown and unreliable adventurers. Why not give the name of the swindler?

Goat Meat Better than Mutton.—The trial of taste came off January 29th at Mal Paso bridge, between Gilroy and San Juan. Forty or fifty persons were present from each of the above places, and there were six tasters on each side. There was a bountiful repast for all, a speech, and a vote of thanks, as well as the toasting. The *Central Californian* says the twelve tasters deposited their ballots with the following result: In the pan containing the sheep meat were deposited twelve ballots, four of which pronounced the meat first-class and eight second-class; and in the vessel filled with goat-meat were cast a like number, eight of which declared for first-class, and four for second-class. It will be seen by this that the goat meat had a majority of votes as being first-class.

Thrashing Corn in a Thrashing Machine.—At a recent meeting of the Western New York Farmers' Club, Shelby Reed exhibited a quantity of corn cobs and stalks which had been passed through an ordinary thrashing machine. The grain was pretty thoroughly separated from the cob, and the latter, with the stalks and husks, mashed fine. Members of the Club thought the fodder would heat if stored in stacks in that fine condition; besides the soft and sound corn could not be separated. It was suggested that it might be a good process in cases where both stalks and grain were to be fed immediately to stock. Mr. R. stated that it took from three to four minutes to thrash a shock containing a bushel and a half of ears.

Joint Corn—Something New.—The *American Agriculturist* speaks of a variety of corn, that has recently been shown to the editor, which is, at least, a curiosity, if not something of value. It produces an ear at each joint. Each of the several stalks shown had from eight to twelve ears upon them. It is small in the ear and grain, much like pop-corn; but if, as is claimed, it will yield 200 bushels to the acre, it must prove very valuable.

Fatal Disease among Horses.—A new and strange disease has appeared among horses in and around Woodland, Yolo county. The disease is said to be fatal in a few hours. All horses that have been taken with this malady have died.

Smut.—A very interesting communication on smut in wheat will be found on the second page of our present issue.

Chicken Raising in Alameda.

[Written for the Scientific Press.]

At the grounds of E. Nichols & Son, Fruit Vale, I saw something novel in the way of chicken breeding. These gentlemen breed pure stock—the White Leghorn and Bramah Poota varieties. The former are small, active fowls, resembling the Black Spanish in every particular except color, which is a beautiful white, with a slight changeable golden shade.

The Bramah Pootas are large, lazy-looking birds, weighing eight to ten pounds each. Color, white, mottled with chocolate, and having a dull golden tinge to the long feathers.

It is claimed that the White Leghorns are perpetual layers, and never try to set. The great number of eggs produced constitute the special merits of this breed. The Bramah Pootas lay larger eggs, and make excellent mothers; attending and sheltering their brood with warm affection. Being so large, they cover many eggs, and are valuable to keep for hatching and nursing. As a market fowl, their flesh is white plump, and very tender—a most profitable sort.

Mr. Nichols makes the chicken business a specialty, and systematizes things accordingly; and I was interested to learn his method. Cleanliness and purification—thorough and effectual—with pure water and liberal feed, keep the birds in full plumage and healthful condition.

Roosts.

His roost-houses are tight-roofed, but *well ventilated*—movable little houses, four by six, and only five feet high. The hens have no flying to do, but can hop into the house and up to the roost without injury. The movable houses allow such changes of location as may be desirable, and are easily kept clean.

Nests.

The nests are in roofed boxes, the size of common apple boxes, open at one end, and also movable. The advantage in this arrangement is quite apparent. They can be placed under lee of fences, or in the open yard, or under shelter. Each nest being kept separate, is clear of any contagious filth. Mr. N. occasionally fumigates the boxes by burning the straw in the same, using care, of course, not to consume the box. He says that his poultry are never troubled with any sickness, and I believe it.

Feedings.

He feeds young chicks several times a day, giving hard-boiled eggs, corn meal and oat meal. The large chickens and hens are fed three times daily—corn meal in the morning, and corn at noon and night. Burned shells and bones are always in reach.

Remarks.

While commending him highly for his admirable arrangements, I must suggest that I think a greater variety of food advisable. Neither wheat nor corn alone is as good as both wheat and corn. Some experience and much comparative observation has convinced me that a *variety* of food is better than any one sort alone, for economic reasons. The difference in the chemical composition and digestive qualities of grains, seeds, etc., in connection with the physical wants of vital beings, strengthens my position in theory also. It is the nature of fowls to pick a great variety of seeds, fruits, insects, etc., even when plenty of corn or wheat is within reach. The prejudice against feeding wheat comes mainly from the ignorant or careless—from the fatal effects of feeding smut wheat! "Chicken feed" is the popular name for filth, smut and poisonous stuff sold cheap by the sack from the separator. My advice is, to beware of all such chicken feed. Use none but clean wheat, of the best quality, if you want healthy fowls. Corn, oats, peas, flaxseed, sunflower seed, etc., are all good feed in variety. Feed plentifully by all means if you desire plenty of eggs. Fruits, in their season, are excellent in small quantities. A limited supply of boiled potatoes is good as a constant feed. Laying hens eat fresh meat with great avidity. A little is excellent. Although we may differ in the matter of feeding, we must agree in cleanliness as to feed, water and accommodations. H.

Culture of the Poppy for Opium.

CONTINUED FROM PAGE 102.

Obtaining the Juice by Incision.

The proper time for collecting the juice is a few days after the fall of the flower leaves, when the seeds are fully formed, but before they begin to mature. In the process of slitting, the proper instrument to use is the sharp blade of a small penknife. Before commencing, take off a capsule and examine the outer walls of its cells, carefully gauging their thickness. Then wind some thread around the knife-blade so as not to leave enough of the point naked as to cut through into the cell. A little experimenting on one or two capsules will give the operator a reliable gauge. If the capsule is cut through, the juice will find its way to the inside of the cell, where it cannot be obtained, and the capsule will be so injured as to be incapable of properly maturing its seed.

Experience has shown that the best form for the incision is to make it spirally, from the point or top to the base of the capsule. One slit, passing entirely around, is said to be sufficient; or two may be made, largely overlapping each other. A single crescent, passing entirely around the capsule, about one-third up from its base, is also found to work well; but a number of parallel cuts, from top to base, give very poor results. A very slight incision is all that is needed. A little practice will enable the operator to perform the work very rapidly.

Throughout the East the slitting is done either early in the morning or late in the afternoon. In both cases the juice is allowed to exude and partially dry on the surface for several hours before removal. It is then scraped off with a small iron scraper—the blade of a dull knife would form a very good instrument. Some prefer to slit towards the close of the day, with the idea that the damp night air is more favorable for the exuding of the juice than the dry air of daytime. This method of collecting the juice of the poppy was described by a Greek writer more than 1,800 years ago.

The Germans and French generally collect the juice from the capsule before it begins to dry, and very soon after slitting—one person passing ahead to slit the capsules, while another follows soon after, wiping off the moist juice with the forefinger and scraping it off the finger by drawing the same over the edge of a dish in which it is collected. After the juice is so collected, in any convenient vessel, it soon becomes hard and tough, and of a gray-brown color.

Subsequent Treatment.

As soon as it becomes of a doughy consistency, it should be worked up into balls with a spatula; the warmth of the hand or of the sun is sometimes required to make it work properly. No more skill and but little more time is required in this process than is employed in working butter into rolls. This is all the process required in preparing the opium for sale. In fact, it may be put in the market in forty-eight hours after it is collected.

Each head yields but a few grains of dried juice, and is exhausted by one cutting; a second incision at any time afterwards, fails to yield any juice, if the work has been properly done. In India, a blade with three points is generally employed; but careful experiments in Europe seem to show that a single blade gives equally good results.

Disgusting Practices in its Preparation.

It is said that in Asia Minor they mix warm spittle with the crude opium, which they scrape from the capsule, in order to make it work easier in shaping it into balls. In scraping the opium from the capsule, special effort is made to take off with it the dust, and a portion of the beard and skin, so as to increase the weight. It is said to be often further adulterated by admixtures with small quantities of cow dung, with extracts of the plant boiled down to a gummy consistency, and with other substances. Linseed oil is always mixed with opium from Asia Minor. Remembering this, and also bearing in mind the fact that nearly all the opium of commerce found in the drug stores of this continent is obtained from that quarter of the world, we think our people will prefer to use an article of home production, which would be prepared in a more cleanly manner.

Mode of Collecting the Juice by Expression.

In collecting by expression, plants are cut from the stem and ground or mashed to a pomace, as already stated. In this operation the vat to hold the pomace should be lined with tin or brass. Before putting the pomace in the press half a pint of alcohol is added to every forty or fifty pounds of pomace, the whole well stirred together, and allowed to stand for about an hour. The mass is then ready for the press. The alcohol used unites with the juice and renders it limpid and more easy to be taken away from the pomace by the action of the press.

The liquid, as it comes from the pomace, should be received into a settler, where it should be allowed to stand about one hour, during which time the green matter, or watery juice of the plant, will settle to the bottom, so that the opium liquid may be drawn off from the surface. Faucets should be properly arranged for that purpose. This latter should be immediately placed in shallow plates of tin, so as to stand about one-half an inch deep, and these plates arranged on suitable racks in a drying room. This room should be tight, and so arranged that the heat and moisture may escape from a single opening at or near the top. The temperature should never be allowed to fall below 130° F., or to exceed 160°. If the heat gets down, the juice will become sour and spoiled; if too high, it will scald. The drying or evaporating process must be carefully watched, day and night, until completed, and it should be continued until the opium is dry enough to scrape off from the plates, care being taken not to allow it to get too dry for that operation. When taken from the plates it should be molded into balls or blocks of about one pound weight, when it is ready for market. There is no more difficulty or mystery about the business, nor as much, than in making butter. In cutting plants for this process, care should be taken that none should go to the mill until they are sufficiently ripe—fully as ripe as required for the previously described process.

Opium Culture in Europe.

The chief portion of the opium of commerce has been derived from Asia Minor, for the last 2,000 years, until its recent introduction into China, by the English, led to its increased production for that trade in British India.

Some few years ago its cultivation was started in Germany, and with such success that it has already nearly supplanted the foreign article in that country. From Germany it passed into France, where now from 60,000 to 70,000 acres of the poppy are under successful and profitable cultivation.

Opium in Vermont.

The production of opium is fast becoming an important branch of industry in Vermont. Addison county, on the southern shore of Lake Champlain, takes the lead. Two years ago Mr. Moncton, near Middlebury, raised and manufactured opium to the value of $3,000. Mr. W. O. Wilson, of Uxbridge, has been growing it for five years, with a handsome profit. There are several acres of poppies under cultivation on one farm in East Middleboro, Vt., and a large number of farmers in that section of the State are gradually entering upon its cultivation. We have no knowledge of the variety of poppy which is grown there.

Profits of the Culture.

It is difficult to arrive at any reliable data as to the yield per acre or profits derivable from the business. The statements put forth vary greatly, and many of them are highly colored. The yield per acre, according to these statements, varies all the way from 50 to 250 pounds, and the prices obtained have an almost equally wide variation. It is presumable that the yield depends very largely upon the richness of the soil and the care employed in its cultivation and the collection of the juice. Upon the latter also depends, in a great degree, the value of the product.

A careful collection of the juice, by incision, and its preparation free from any extraneous substances, will produce a drug which will command a high price; while its collection by expression, though securing a large yield, produces a low-priced article. The two are often mixed, and in proportions which give greatly varied qualities of product, valued all the way from five to twenty dollars per pound. The value of the drug depends mainly upon the percentage of morphine which it contains, which is from three or four to twelve per cent. of the mass.

The fact that the business requires very little skilled labor, that most of it can be done by children, and that the culture can be carried on to about equally as good advantage in a small way as on a large scale, would seem to point to this as a very desirable industry to be added to our farm labor. The compactness of the product takes the matter of transportation almost entirely out of view, and admits of its introduction in remote districts where land is cheap, and where the usual diversity of agricultural labor is impractical. We are not aware that any experiments in this culture have yet been made on this coast; if any have been made, we should be pleased to note the results, and we would at the same time recommend experiments in a small way, in various localities. We presume the seed can be obtained from Vermont; and, perhaps, in small quantities in this State. Probably an ounce is sufficient to plant an acre, and might cost anywhere from $5 to $10 per ounce.

What I Know of Farming—No. 5.

Buying a Farm.

No one need be told at this day that good land is cheaper than poor—that the former may be bought more cheaply than it can be made. Yet this, like most truths, may be given undue emphasis. It should be considered in the light of the less obvious truth that *every farmer may make advantageous use of* SOME *poor land*. The smallest farm should have its strip or belt of forest; the largest should have an abundance and variety of trees; and sterile, stony land grows many if not most trees thriftily.

I am not a believer that "Five Acres" or "Ten Acres" suffice for a farm. I know where money is made on even fewer than five acres; but they who do it are few, and men of exceptional capacity and diligence. Their achievements are necessarily confined to the vicinage of cities or manufacturing villages. The great majority of all who live by agriculture want room to turn upon—want to grow grass and keep stock—and, for such, no mere garden or potato-patch will answer. They want genuine farms.

And, go where you may in this country, you will hear a farmer saying of his neighbor, "He has too much land," even where the criticism might justly be reciprocated. We cannot all be mistaken on this head.

There are men who can each manage thousands of acres of tillage, just as there are those who can skillfully wield an army of a hundred thousand men. Napoleon said there were two of this class in the Europe of his day. There are others who can handle a hundred acres, so that nothing is lost through neglect or oversight. Rules must be adapted to average capacities and circumstances. He who expects to live by cattle-rearing needs many more acres than he who is intent on grain-growing; while he who contemplates vegetable, root, and fruit culture, needs fewer acres still. As to the direction of his efforts, each will be a law unto himself.

If I were asked by a young man intent on farming to indicate the proper area for him, I would say *buy just so large a farm as half your means will pay for;* in other words, "If you are worth $20,000, invest half of it in land, the residue in stock, tools, etc., and observe the same rule of proportion, whether you be worth $100,000, or only $1,000. If you are worth just nothing at all, I would invest in land the half of that, and no more. In other words, I would either wait to earn $500 or over, or push Westward till I found land that costs practically nothing.

This, then, I take to be the gist of the popular criticisms on our farmers as having unduly enlarged their borders: *They have more land then they have capital to stock and till to the best advantage.* He who has but fifty acres has too much if he lets part of his land lie idle and unproductive for lack of team or hands to till it efficiently; while he who has a thousand acres has none to much if he has the means and talents wherewith to make the best of it all. The soil of New England is as cheap, all things considered, for him who is able to buy and work it, as that of Minnesota or Arkansas. I urge migration to the West only upon those who cannot pay for farms in the old States. I doubt whether the farmers of any other section have, in the average, done better, throughout the last ten years, than the butter-makers of Vermont, or the cheese-dairymen of this State. And yet there is, in the rigid, rocky, *patchy* character of most of our Eastern farms, an insuperable barrier to the most economic, effective cultivation.

The genius of our ego points unmistakably to cultivation by steam or some other mechanical application of power; and this requires spacious fields with few or no obstacles to the equable progress of the plow. I apprehend that, for this reason, the growth of bread-corn eastward of the Hudson can never more be considerably extended, so long as the boundless, fertile prairies can so easily pour their exhaustless supplies upon us. Fruits, vegetables, roots and grass, we must continue to grow, probably in ever increasing abundance; but we of the East will buy our bread-corn largely if not mainly from the West.

He, therefore, who buys land in the Eastern States should regard primarily its capacity to produce those crops, in which the East can never be supplanted—grass, fruits, vegetables, timber. If a farm will also produce good corn or wheat, that is a recommendation; but let him place a higher value on those capacities which will be more generally required and drawn upon.

In the West, the case is different; for, though wheat-culture still recedes before the footsteps of advancing population, and Minnesota may soon cease to grow for others, as Western New York, Ohio, Indiana, and Northern Illinois, have already done, yet Indian corn being the basis of both beef and pork, will long hold its own in the valleys of the Ohio and in that of the Upper Mississippi. As it recedes slowly westward, clover and timothy, butter and cheese, will press closely on its footsteps.

Good neighbors, good roads, good schools, good mechanics at hand, and a good church within reach, will always be valued and sought; few farmers are likely to disregard them. Let whoever buys a farm whereon to live resolve to buy once for all, and let him not forget that health is not only wealth but happiness—that an eligible location and a beautiful prospect are elements of enjoyment not only for ourselves but our friends; let him not fancy that all the land will soon be gobbled up and held at exorbitant prices, but believe that money will almost always command money's worth of whatever may be needed, so that he need not embarass himself to-day through fear that he may not be able to find settlers to-morrow, and he can hardly fail to buy judiciously and thus escape that worst species of home-sickness—sickness of home.—*Horace Greeley.*

INDIGESTION IN HORSES.—A well-known horse breeder expresses the opinion that indigestion is the source of nearly all ordinary complaints in horses, and that this is brought on by irregular feeding and watering, by exposure, fatigue, by long journeys without food in a storm, and then by overfeeding and neglecting to rub them dry before leaving them for the night.—*Country Gentleman.*

San Francisco Market Rates.

Wholesale Prices.

THURSDAY EVENING, February 17, 1870.

Flour, Extra, ℔ bbl	$5 00	@$5 50
Do. Superfine	4 50	@ 4 75
Corn Meal, ℔ 100 lbs	2 00	@ 2 25
Wheat, ℔ 100 lbs	1 30	@ 1 65
Oats, ℔ 100 lbs	1 15	@ 1 60
Barley, ℔ 100 lbs	1 15	@ 1 25
Beans, ℔ 100 lbs	2 50	@ 3 50
Potatoes, ℔ 100 lbs	85	@ 1 15
Hay, ℔ ton	11 00	@17 00
Live Oak Wood, ℔ cord	9 00	@14 00
Beef, extra, dressed, ℔ lb	7	@ 12½
Sheep, on foot	2 50	@ 3
Hogs, on foot, ℔ lb	5	@
Hogs, dressed, ℔ lb	8	@ 8½

GROCERIES, ETC.

Sugar, crushed, ℔ lb	13½	@ 14
Do. Hawaiian	8	@ 11
Coffee, Costa Rica, ℔ lb	18½	@ 19
Do. Rio	17	@ 18
Tea, Japan, ℔ lb	75	@ 90
Do. Green	60	@ 1 25
Hawaiian Rice, ℔ lb	8	@ 9
China Rice, ℔ lb	5½	@ 6
Coal Oil, ℔ gallon	42½	@ 45
Candles, ℔ lb	16	@ 20
Overland Butter	25	@ 37½
Ranch Butter, ℔ lb	30	@ 35
Isthmus Butter, ℔ lb	25	@ 37½
Cheese, California, ℔ lb	18	@ 22
Eggs, ℔ dozen	30	@ 35
Lard, ℔ lb	12½	@ 13
Ham and Bacon, ℔ lb	15	@ 18
Shoulders, ℔ lb	10	@ 12

Retail Prices.

Butter, California, fresh, ℔ lb	45	@ 50
do. pickled, ℔ lb	35	@ 40
do. Oregon, ℔ lb	25	@ —
do. New York, ℔ lb	40	@ —
Cheese, ℔ lb	20	@ 25
Honey, ℔ lb	25	@ 30
Eggs, ℔ dozen	45	@ 50
Lard, ℔ lb	20	@ 25
Hams and Bacon, ℔ lb	22	@ 25
Cranberries, ℔ gallon	1 00	@ 1 25
Potatoes, ℔ lb	2	@ 3
Potatoes, Sweet, ℔ lb	—	@ 2
Tomatoes, ℔ lb	2	@ 3
Onions, ℔ lb	3	@ 5
Apples, No. 1, ℔ lb	4	@ 5
Pears, Table, ℔ lb	5	@
Plums, dried, ℔ lb	10	@ 12
Peaches, dried, ℔ lb	10	@ 15
Oranges, ℔ dozen	50	@ 75
Lemons, ℔ dozen	—	@ 1 00
Chickens, apiece	75	@ 1 00
Turkeys, ℔ lb	—	@ 25
Soap, Pale and C. O	10	@ 12
Soap, Castile, ℔ lb	18	@ 20

Scientific Press.

W. B. EWER..............................Senior Editor.

A. T. DEWEY. W. B. EWER.

DEWEY & CO., Publishers.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance..................$4 00
One copy, six months, in advance.................. 2 50
Delivered by city carriers, per month............ 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month.......................... 3 00
One column, one month.......................... 40 00
One column, one year........................... 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, Feb. 19, 1870.

Table of Contents.

Improved Shoe for Threshers—Ill...............113
The Johnston Distilling Process...............113
Smut in Wheat.........114
Lectures to Mechanics..121
Improved Chair Spring—Ill....................120
Telegraphing......... ..114
Gold Mines of Victoria.120
People's G. & S. M. Co..117
Sale of Crushed & Sampled Ores.................121
Full List of Patents....121
New Incorporations.....117
To Correspondents......120
Notes of Recent Patents121
New York Metal Market117
S. F. Stock Market......117
S. F. Shareholders' Directory...................117
Reading for the Hour.—Specimen from the Antique—Ill.; A Beer Shop in Africa; A New Religious Sect, etc.........124
Farming and Gardening.—The Agricultural Department at Washington; Selecting Breeding Animals; Chicken Raising in Alameda; Culture of the Poppy for Opium; What I Know About Farming, etc............. . 118-9
Mechanical Progress — Malleable Iron; American Institute Premiums on Steam Engines: Walter Printing Machine, etc.115
Scientific Progress — The Niin of Yucatan; An Appropriate Medal; Formation of Ozone by Rapid Combustion; Germs Suspended in the Atmosphere, etc...........115
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Montana; New Mexico and Nev.116

Notices to Correspondents.

Camera Lucida.—The width and frequency of the waves of light, according to the undulating theory, varies from the 34,000th part of an inch for the red or least refractive ray, to the 60,000th part for the most refractive or violet ray. Their succession is, however, still more marvelous as respects numbers, being for the red light not less than 482 millions, and 707 millions per second for the violet ray.

E. L. S., Olympia, W. T.—The opinion of anyone with regard to the value of such rock from a locality with which one is unacquainted, would amount merely to a *guess*, and would be of no worth whatever. There is but one way to arrive at any satisfactory conclusion, and that is, by having an assay made.

Mechanic, First street.—The union of one pound of hydrogen and eight pounds of oxygen to form nine pounds of aqueous vapor, is accompanied by a greater amount of force than would be developed by one thousand tons falling against the earth from a height of twenty feet.

J. V. Hall, Sacramento.—The new ice-making machine imported by Tubbs & Co. will probably be put in operation next week, and until then we are unable to get any particulars.

Construction of Hollow Walls.—The *Scientific American* of Feb. 5th gives an engraving of an improved construction of hollow walls, recently patented in England. The two walls are connected by flat plates or ties of iron, zinc or slate, built into the vertical joints of the walls.

In the Scientific Press of Jan. 7th, 1865, is an illustration of almost the same construction; which was invented by Mr. Goodrich of San José, and patented in September, 1864. The difference between the two is merely in the details of construction but, as far as we can see, we should judge that Mr. Goodrich's plan, while operating just as well with regard to excluding dampness and to the non-conduction of heat, is superior in affording more stability to the building.

Notes on Colorado.—Mr. Paul, after a delay of a few weeks, caused by business, bad weather, etc., again resumes his interesting letters on the mines and mills of this Territory. His communications contain much valuable information, which will be of interest to our readers, as showing the attempts, successful and unsuccessful, made in this promising country.

Improved Chair-Spring.

The ideal American of other lands is held to believe that the article of furniture commonly known as a chair ought, under no circumstances, to rest on more than four legs, and that, when a man sits down in such chair, as he is then to be regarded as a corporate part of the article, two of its legs must be suspended from the exercise of their functions, and his two substituted in their stead.

As an aid in this operation, and as a stable article, not easily overturned, the rocking-chair has long been the only common device employed. During the last few years, however, some bright genius invented the chair-spring, as an improvement of more general application and use. To perfect this improvement, by obviating the danger of injuring the legs of the chair and by increasing the facility of applying the device, a Californian—Mr. T. C. Purington, of Lincoln, Placer county—has invented a new spring, which we illustrate. Fig. 1 shows the nut; Fig. 2, the spring, and Fig. 3, a chair with spring attached.

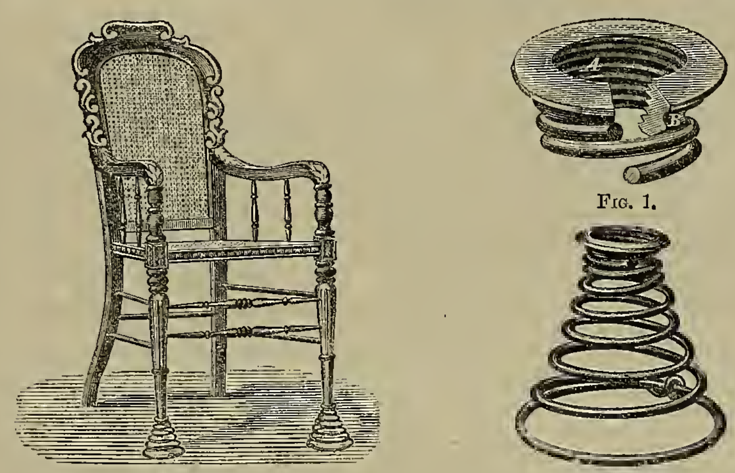


Fig. 3. Fig. 1. Fig. 2.

PURINGTON'S IMPROVED CHAIR-SPRING.

The nut is made of metal, and is provided with a screw-thread, so that it can be screwed to the leg of an ordinary chair, and instead of weakening and splitting the leg, as in the case where a hole is bored and a screw inserted to hold and attach the nut, this method strengthens it. The nut can also be very quickly and easily put on or removed.

The ease and convenience in applying the spring to the nut is readily seen. The top of the nut is provided with a collar or shoulder, and also an incline groove around the outer surface, so that the smaller end of the spring can be screwed to the nut; and its top coil being brought firmly against the shoulder, all oscillation from side to side is prevented.

To the comfort-loving American this device is indispensable. By its use the miner can add another modification to his chairs of queer construction, and the bachelor farmer can rock himself into the belief that he enjoys all the conveniences of married life. A list of other advantages too numerous to mention here may be obtained by applying to A. Mayoux, Marysville, one of the patentees, or to P. N. Roth, 809 Montgomery street, San Francisco.

◆

Large Wire Rope.—There was recently turned out from the manufactory of A. S. Hallidie & Co., a flat wire rope of extraordinary dimensions, and one which shows to what extent our mining interests are enlarging. The rope was made in one piece, 1,600 feet in length, six inches wide, one half inch thick, weighing 8,640 pounds, and intended for the Imperial Mining Company of Virginia City. There was consumed in this rope 110 *miles* of iron wire. That we have a factory capable of turning out such a rope ought to be a matter of pride to us who are so fond of our capabilities.

The Gold Fields of Victoria—No. 1

Geological Maps.

Eight years ago the colony of Victoria was agitated by questions similar to some now occupying public attention in California. The gold fields had been worked some ten years, and there were fears that these had been exhausted. To obtain definite ideas on this and other points, the proprietors of the *Argus*, the leading paper of Melbourne, sent one of their editorial staff to visit the gold regions, and his letters were afterwards published in book form. As these contain matters of much interest to those whose attention is directed towards mining, and are calculated to encourage this great interest of our State, as well as to throw light on several mooted questions of the day, we propose to make extracts from the work. It is very interesting and instructive to watch the progress of this colony, whose affairs have borne a striking similarity to ours; which, though younger than we as a gold-producing country, is yet to-day ahead of us in many respects with regard to general mining management, and where, eight years after many had supposed the auriferous deposits to be exhausted, the mines are still making large returns and paying big dividends on the capital invested in them.

One of the points which even then was acknowledged to need more attention, was a better geological survey of the country. The writer above referred to, speaks of it as a matter of reproach that no more had been done in this particular. "Even now," he says, "the prospecting miner sets out on his mission of hope, much like a seaman who goes down to the deep without chart or quadrant, without chronometer or barometer, to aid him in his navigation, and whose sole trust for the prosperous ending of his voyage is his 'sheer industry' and his fortunate stars." And yet much had already been done; much compared with what we have accomplished. The Mining Department had commenced publishing a series of charts, giving the position, extent and boundaries of the alluvial workings and of the veins in certain districts. The different deposits were denoted by different colors; numbers and figures indicated the extent of the workings, the dip of the veins, their number, position, etc., enabling the miner to form an idea of the character of the auriferous deposits and their mutual relations in the district where he was at work.

Political changes, unfortunately, put a stop to this work before it was completed. But happily its necessity had been impressed on the government, and the geological department of the public service had been kept at work, although on a limited scale. By the diligence and faithfulness of the members, much had been done nevertheless. Twenty-two maps, embracing an area of 1,188 square miles, had been published, and were for sale at a cheap rate. These maps had been prepared with the greatest care. The various rocks and soils were marked by distinct colors, the contour of the ground and the forms of the mountains and hills faithfully drawn; the depths of the rocks and of the soils recorded, wherever it was possible, and every discovery made carefully noted. "Now we are told that the clay of a deposit is adapted for brick-making; that this ironstone contains 65, that, 67 per cent. of ore; that the shales are valuable; that the ledges have produced certain yields of gold from a certain thickness of stone, and that the gold in them is associated with other minerals. * * * They tell the miner where he can sink with a fair prospect of success, and they mark out other localities where his pains would be wasted. By their help he can discover the sources of leads, and they assist him in his speculations as to where those leads go and where they should be sought for. To the agricultural settler, the vine-grower, and others whose industries are affected by the peculiarities of the soil and its aspect, they are also important, supplying information which could only be obtained by expensive journeys and local inquiries."

Want of space prevents our speaking more fully on this important subject, and we can only touch on some of those measures to which the present prosperity of the colony is due. But we cannot close without calling attention to the amount of self-abnegation and devotion to science involved in such work, of which the public are but little aware. "They spend their days in the woods or rambling over barren hills and deserted valleys, doing nothing but chipping off bits of rocks, measuring the depths of soils and making hieroglyphics in note-books about things which nobody will buy. They are on gold fields, but they do not dig. They descend shafts, and they look at the wash-dirt, but they search curiously for little odd bits of stone and clay, and are strangely indifferent to the gold the dirt contains. They 'fossick' about old workings, but they look for fragments of rock and pebbles or bits of rough cement, of no value to any one, and go home contentedly with wallets full of trash as valueless as fairy gold. They spend their evenings, marking out the results of their works for the benefit of others whom they may never see and who may never hear of them. * * * These apparently misanthropic beings are the surveyors, and from their single-hearted devotion to science we have gained almost all the knowledge we possess of the formation of the land we live in. It is to be hoped, for many reasons, that greater liberality on the part of Parliament (State Legislature) and, perhaps, an improvement of the arrangements of the Survey Department, will enable geologists to expedite their labors and place the public as early as possible in possession of a completed geological map of the country," which remarks we apply to the present times, in our own State, and with a hearty amen.

◆

Encouragement to Domestic Productions.—In the State Assembly, Mr. Waldon has introduced a bill to encourage iron manufacture, by providing for a premium of $12 per ton for every ton manufactured in this State up to 5,000 tons, and by exempting from taxation all iron furnaces for 12 years. Mr. Newell introduced a bill to encourage the raising of Angora and Cashmere goats, and the manufacture of fabrics from their fleece. Premiums varying from $500 to $2,000 to be given to persons who shall exhibit at the State Agricultural Fair in 1874 amounts of from 500 to 7,000 pounds of wool, the production of one year's clipping, from Angora or Cashmere goats of seven-eighths, fifteen-sixteenths or pure blood. The premiums for fabrics manufactured from their fleece vary from $3,000 to $10,000.

◆

Redeeming the Colorado Desert.—Some time ago Dr. Wozencraft brought up a proposition for redeeming a part of this desert by leading in water from the Colorado river. This scheme has again been revived, and brought before the State Legislature by a bill introduced by Mr. Rockwell, which provides for the cession of land to the doctor on condition of his introducing and furnishing a permanent supply of fresh water along the line of travel between Fort Yuma and the San Gorgona Pass, and Fort Yuma and Cerico creek.

Our Home Industries.

Sale of Crushed and Sampled Ores at San Francisco.

Many miners who possess good lodes have not the capital or means necessary to work their ores. Hence, heretofore, in many instances, they have been obliged to dispose of their claims either wholly or in part, or else let them lie idle. In either case there were many disadvantages. Many valuable claims have been sacrificed for a trifle, and many others have been sold for a high price which have proved worthless, and the business has been too speculative. The assays made have too often afforded—from the hap-hazard system followed—incorrect results, being too frequently merely of picked samples and affording no criterion of the richness of a ledge.

The Completion of Railroads

Through mining districts has worked a considerable change, enabling the miner to send amounts, varying from a ton upwards, to this city, at a moderately small expense (for instance, the freight from Elko is at present $14 per ton), and here have the ore tested in such quantities as to give a fair indication of the value of the deposits. Those without the means of working their ores can, moreover, send them hither and have them properly assayed, and sold on these assays to the highest bidder. There have for some time past existed works in this city for sampling and testing ores; but the business seems to be extending now, and daily the advantages to both seller and purchaser are increasing.

How this is Effected.

The ore can be sent to some responsible agent, who takes it to the crushing and sampling works and has the whole amount crushed and carefully sampled, and the samples then assayed with fair results. On the result of the assay being made known, the ore can be sold; and there is no reason, in this case, for charging unfairness on the seller, as the buyer can see the ore and know just what it contains. Moreover, there are several houses here which are ready to make advances on the ore as soon as the value of the assay is given; and thus the miner realizes immediately a part of the value of his ore, and the rest as soon as it is sold.

Prices Paid for Ores.

The prices paid for ore here varies somewhat at different times and according to the nature of the gangue. This is especially the case with silver ores. A ton of this weighs 2,000 pounds avoirdupois. Mr. Atwood tells us he hopes to make some arrangements soon which will regulate this better. A ton of copper ore weighs 2,352 pounds. The copper is paid for by the unit. We publish weekly the approximate prices which can be realized. This class of ore is assayed by the humid process, and 1 3-10 per cent. deducted to equal the fire assay. Silver in copper ore is paid for by some parties when assaying $50 per ton, by others, when assaying $30; but this varies at different times.

Shipping Ores to England.

Messrs. Rodgers, Meyer & Co. make an advance to the miner of 50 per cent. of the value of the ore as determined by assay here. Advances are made on copper ores assaying 15 per cent. and over, and on silver ores assaying $100 or more. The ores are sent to Liverpool, and there sold to the highest bidder; and as bids are made by smelting works, chemical factories, etc., several ingredients—as, for instance, the sulphur—which are generally valueless here, are paid for. The bids are per ton of 2,352 pounds, the amount of moisture, as determined by assay, and a draftage of 24½ pounds to the ton being deducted. The sacks are also sold if of any value. After the sale, the money is paid to the miner, less the actual expenses and a commission of five per cent. The advantages of sending to England are, the higher price obtained by having the sale open to the public competition of so many parties, and by selling the various substances which cannot be sold here. The chief disadvantage is the time required for making the final returns. The latest Liverpool quotations were $3¼ per unit for copper ore and $332¼ for bars. Bar silver was quoted at $1.25 per ounce standard.

Crushing and Sampling Works.

There are several of these in the city. The general charge is $10 per ton for small lots, but for large amounts considerable reduction is made. Messrs. H. W. Gray & Co., of the Yolo mills, corner of Market and Beale streets, have done this work for some time. Messrs. S. W. Howland & Co., 413 Mission street, pay particular attention to this department. We visited their works last week and witnessed their method of operating.

The ore is first crushed into small pieces by being passed through a Wilson crusher. It then goes to a large apparatus, resembling a coffee mill, where it is reduced to the size of fine gravel. It is then mixed in the most thorough manner by being spread out on the floor and repeatedly turned over and over. A tenth part is now passed through a mill of Mr. Howland's own design, where it is reduced to fine powder. This is again mixed thoroughly, about 50 pounds taken and treated in a similar manner. Finally, from different parts of the last pile made, about five or six pounds are taken, and put into four bottles, which are sealed up, labeled and sent to the assayers. By these means as fair samples are made as are well possible. Each apparatus is carefully cleaned after being used and the floors swept. On ascertaining the assay values, the ores can be sold to the best advantage.

Buying for American Works.

Mr. W. T. Atwood, 507 Montgomery street, is probably the largest purchaser of ore for the Eastern markets. He gives us weekly the copper market returns. We have obtained from him, also, the rules for purchasing copper ore adopted by all the American works. According to these, the weight of a ton is computed at 2,352 pounds. Moisture assay is taken and deducted by weight. Assay to be made by humid process, and 1 3-10 per cent. deducted to equal fire-assay. Any return made in assay beyond tenths not to be computed.

Many miners do not understand why they do not receive as much as they think they ought. We give these particulars merely to show how the buyers here are obliged to make computations to cover the deductions made where they in turn become the sellers.

Testing Ores, Etc.

There are, moreover, various establishments for testing ores by practically working them on a small scale. This is done at the several foundries. G. W. Strong, of No. 10 Stevenson street, is well known in the business, and also as an assayer. Chas. Pletz & Co., 36 Fremont street, are likewise engaged in this work. At 220 Fremont street, the well known Varney pans are at work. The parties all make assays as well, as do also Messrs. Falkenau & Hanks (State Assayers), at the Pacific Chemical Works, and J. S. Phillips, 423 Washington street. There are also other parties too numerous to mention.

The prices of assays vary somewhat. For gold or silver, or both, from $2½ to $5; for copper, it is $5; for all three, $10. The prices for working the silver or gold ores, to find out the best method, etc., cannot be given with any degree of exactness until the ore is seen, as the different qualities vary so much in case of working. The very lowest-priced given is at the rate of $40 per ton for the simplest silver ore.

There is a very large amount of work done in this line at San Francisco during the brisk business times. Everything is at present dull, and the influence is felt especially in mining; yet large amounts have still been treated here in the last few days, and the value of having these crushing and testing works in the city is becoming better understood every day.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending February 8th.

Gang-Plow.—John Cox and Solomon Cox, Eugene City, Oregon.

Claim 1.—The bars *f g h*, when combined with the upright bar E and plow-beams D D, substantially in the manner and for the purpose herein shown and described.

2.—The ratchet-wheel *l* and loose lever H, when used in combination with the pawl *n*, and with the ropes or chains *m*, substantially as herein shown and described.

Vehicle Spring.—John Goller, Los Angeles, Cal.

Claim 1.—A wooden spring, K, slotted from the initial point of the bend out to the end thereof, and strengthened throughout the curve by a steel-spring plate, I, in the center, and a circumjacent steel-spring plate, A, all as shown and described.

2.—A spring, whose end works easily against some elastic material in the socket of a circumjacent steel band, A, and is thereby allowed to readily contract and expand longitudinally, in the manner set forth.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Improved Paddle Wheel.—Adam Wingard, S. F.—The object of this invention is to so construct the buckets or floats of a paddle wheel, that there will be but little power lost or expended, either by pounding on the water as they enter, or by lifting up the water as they emerge. To effect this, the wheel is constructed of one or more separate wheels, each one of which consists of arms or spokes radiating from the hub and connected at their extreme ends by a rim or metal band, which serves to strengthen and keep them in their proper position. Other bands may be employed at suitable distances, if necessary, to give greater strength to the wheels. On these arms are placed the floats or buckets, which consist of three wings, at angles of 120 degrees with one another, which revolve on the arms as axles. When more than one wheel is used, the buckets are arranged so as to alternate in position with those of the next wheel. It is claimed that when the wheel revolves, the buckets turn as the motion of the wheel induces them, but when they strike the water, one of them, acting as a rudder, causes the other two to stand so as to present a V-shaped opening or trough to engage the water, while on emerging they will again revolve so as to discharge the water. As the wings taper toward their outer end, they enter the water more easily than if they were of equal width their entire length, while after being submerged, the greater width of the upper end causes them to exert more driving power. In reversing the wheel, the wings reverse themselves, thereby relieving the engine, and allowing the operation to be effected immediately. There are various other points claimed, which are important. In the case of heavy seas striking the wheel above the surface of the water, the buckets revolve and yield to the force of the blow, thus avoiding the stiff resistance of the ordinary fixed floats. The shape of the paddle, moreover, tends to concentrate the water on the face of the bucket instead of depressing it. Experiments made, show a decided gain, it is said, over the ordinary constructions, and arrangements have been made to repeat these experiments on such a scale as to satisfy everyone.

Improved Pruning Knife.—H. Alter, Lakeport, Lake Co., Cal.—This instrument can be used not only for cutting off the smaller branches of trees, but likewise for sawing off the larger limbs. The knife moves in a slot at the back of a bar. A suitable spring serves to throw the knife upward, after use, while by means of a level, the blade is brought down when it is required to cut any branch. At the end of the lever is a saw, for use on the large limbs, so attached as to be opened or shut similarly to the blade of a knife. The lower end of the bar is provided with a suitable hole, into which a stick or rod may be inserted for the purpose of raising the instrument, when it is desired to prune the tops of the trees, in which case a string or cord is attached to the end of the lever, so as to draw it down and thus operate the knife. By this combination a suitable implement is provided for performing all the operations necessary in pruning trees, and one which can be easily handled and operated even amongst the topmost branches.

Swivel Shackle.—W. Williams, Vallejo, Cal.—This device is an improved swivel shackle or coupling, which may be used for connecting the chains or cables of anchors, or for other purposes, when it sometimes becomes necessary to effect a rapid separation. It consists of two links of a shackle, connected together by a bolt, one end of which is permanently connected with one link, while the other is made in the form of a cross or star, which is introduced into the other link through a similarly formed slot, after which it is turned and secured by means of a key. This coupling is especially valuable for use on ships' cables, where it may be necessary to slip the cables and to move the vessel instantly, as the only operation necessary to accomplish the first object is to remove the key and turn the cross-shaped link until the lugs pass through the slots in the other link, when the two parts are freed.

Lectures to Mechanics.

We have received a programme of the fifth course of "Lectures to Mechanics," to be delivered this year at the Sheffield Scientific School, and with the programme came a complimentary ticket, which we wish we could use. The course comprises fourteen lectures on different subjects, embracing quite a large range of topics, and the price of tickets for the course is placed at the merely nominal sum of *one dollar*.

The liberal educational spirit evinced by the managers of the Sheffield Scientific, in thus giving instruction to the public, is deserving of the highest commendation, and ought to be imitated on our coast. We are rather behind the times in this respect. At the East, especially in Boston, manifold advantages for obtaining instruction are offered to the poor man as well as to the rich. Education is the main-spring of all improvement, and that country which gives the best education to its inhabitants may well lay claim to being the "finest country in the world."

John Lowell has rendered himself deservedly famous by providing the Lowell Institute lectures at Boston, Peter Cooper, by the same act in New York, and others in various parts of the country. The man is yet to be found who is ready to render a public benefaction by a similar proceeding in this city. May that man soon appear.

◆

Local Aid to Railroads.—J. Ross Browne has published a carefully prepared pamphlet of forty-eight pages on "The policy of extending local aid to railroads, with special reference to the proposed line through the San Joaquin Valley to the Colorado." This pamphlet contains an interesting statement of the arguments in favor of such an enterprise, showing the advantages which would accrue therefrom to the counties interested, and advocating the policy of local aid from such counties as a means of securing its early completion. The arguments adduced are logical and exhaustive, and will be read with much interest by all who feel an interest in the material development of the State. The pamphlet was placed in our hands too late for any extended notice this week. We shall endeavor to refer to it again more at length.

◆

Earthen and Stoneware.—Daniel Brannan, the enterprising manufacturer of all sorts of useful and ornamental stone and earthenware, fire bricks, etc., at San Antonio, has favored us with a call, and left his card, which will be found in our advertising columns, and to which we refer our readers for further information.

◆

Dairy Business.—Experience is fast proving the fact that the dairy business is one of the most reliable and profitable in this State.

Our Agents.

OUR FRIENDS can do mnch in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none bnt worthy men.

Traveling Agents.

WM. H. MURRAY, California and Nevada.
S. H. HERRING—California.

Resident Agents.

CENTERVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—Thos. Starr.
CARSON CITY, Nev.—John G. Fox.
TREASURE CITY, Nev.—J. L. Robertson.
SHERMANTOWN, NEV.—P. C. Renfrew.
SILVER CITY AND IDAHO TER.—Sam. Heidelberger.
SILVER CITY, Idaho—J. Caplee.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orahood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Barkalow & Brothers.
LONDON—George Street, 30 Cornhill, E. C.
HEDGON & MENET, 41 Park Row, New York.
A. C. KNOX, City Soliciting and Collecting Agent.

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

I. O. O. F.

THE NEW AGE,

A WEEKLY JOURNAL OF SIXTEEN PAGES.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf 414 Front street, San Francisco.

OCCIDENTAL

Insurance Company,

OF SAN FRANCISCO.

Cash Capital, - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

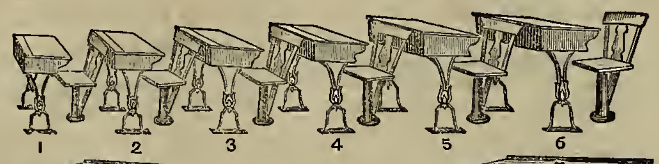
Fire and Marine Insurance.

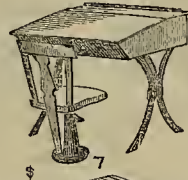
All Losses paid in U. S. Gold Coin.

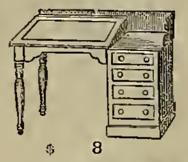
A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

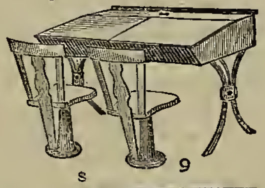
THE Mining and Scientific Press, published at San Francisco, California, by Dewey & Co., is a handsome illustrated sixteen-page weekly, and one of the most valuable and interesting exchanges that comes to our table. Subscription price, $4 per year.—*Inventors' and Mechanics' Journal,*

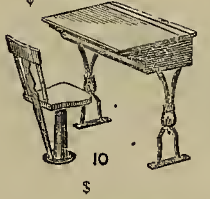
PACIFIC SCHOOL INSTITUTE.


1 2 3 4 5 6

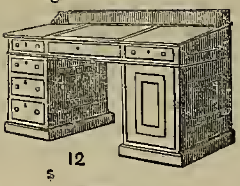

7 $

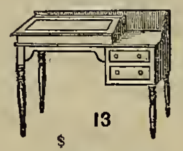

8 $

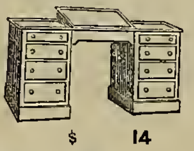

9 $

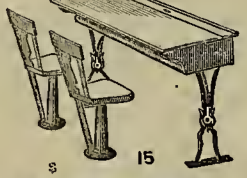

10 $

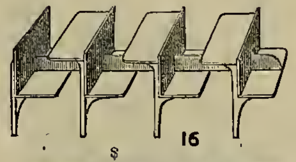
11 $

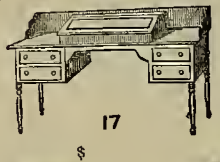

12 $

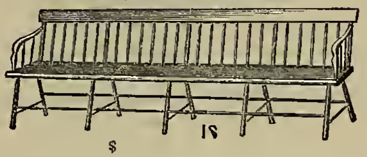

13 $

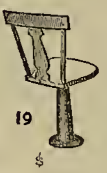

14 $


15 $


16 $


17 $


18 $


19 $

20 $

PRICES:

No. 1	$ 6 00	No. 8	$20 00	No. 15	$ 9 00
No. 2	6 25	No. 9	12 00	No. 16—per set of three, Rankin's Patent	21 00
No. 3	6 50	No. 10	7 00	No. 17	25 00
No. 4	6 75	No. 11	16 00	No. 18—per foot	80
No. 5	6 75	No. 12	48 00	No. 19	2 25
No. 6	7 00	No. 13	14 00	No. 20	6 00
No. 7	8 00	No. 14	45 00		

BABBITONIAN PENMANSHIP,

Copy Books, Pencils, Pen-Holders, Paper-Cutters, Maps,

CHARTS, GLOBES, AND INK-WELLS.

A Large Map of California and Nevada, four feet by five,

IS NOW READY FOR DELIVERY.

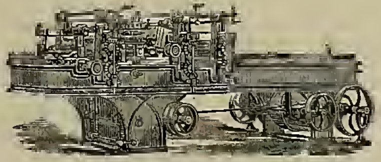
This Institute is prepared to furnish Schools and Seminaries with the most approved School Furniture, Apparatus, Stationery, and all other SCHOOL SUPPLIES. Having ample facilities for manufacturing and importing most of the articles used in Schools, Teachers, County Superintendents and Trustees will find their orders promptly filled with articles that will give entire satisfaction. Office Furniture of every variety will be supplied. The numbers refer to each cut.

WARREN HOLT,

No. 411 Kearny Street, between Pine and California, San Francisco.

8v20-q1am2

WOODWORTH PLANERS.



PLANERS AND MATCHERS,

With patent expansion feed gears and other improvements, made in the most finished and substantial manner; also every description of Richardson, Meriam & Co's, Smiths and

J. A. FAY & CO'S IMPROVED

Wood Working Machinery.

Embracing various styles and sizes of the following Labor-saving Machines:

Morticing (Sash and Door),
Sash and Moulding,
Blind Slat Tenoning,
Boring (Horizontal and Upright),
Shaping,
Re-sawing,
Planing and Matching,
Blind Stile Boring,
Blind Wiring,
Blind Slat Planing,
Rod and Dowell,
Hand and Foot Mitering,
Railway Sawing,
Improved Tenoning,
Variety Moulding (Gear's Patent), } Machines.

An assortment of the best always on hand.

SCROLL SAWS, DIMENSION PLANERS, GROOVER SAWS, FAY'S PATENT BAND SAWS, WOOD TURNING LATHES OF ALL KINDS.

ENGINE LATHES and Machinists' Tools generally, with also a large assortment of small machines used in Planing Mills, Machine Shops, etc. Also, Planer Knives, Saw Gauges, Matcher Sets, Sash and Matcher Heads, Saw Tables and Arbors, etc. Being the selling agents for most first-class Eastern Machinery Builders, we sell THE BEST, and at manufacturers' prices. Invoices of the above Machinery are now being received by every vessel. ☞ Send for Illustrated Catalogue.

BERRY & PLACE,

112 and 114 California Street, San Francisco.

☞ Agents for Blake's Patent Steam Pump, Davis & Furber's Woolen Machinery, Gear's Upright Shapers, Fay's Band Saws, Washington Iron Works Portable Engines, Saw Mills, etc., etc. c7v20

SCIENTIFIC PRESS

BOOK AND JOB PRINTING OFFICE,

No. 414 Clay Street,

Below Sansome, - - - San Francisco.

SPAULDING & BARTO,

PROPRIETORS.

EVERY VARIETY OF

PRINTING,

FOR

Business Men, Corporations

AND ALL

Branches of Industry,

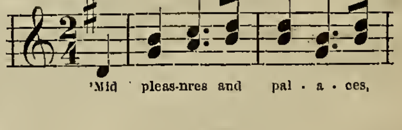
EXECUTED IN THE

BEST MANNER,

AT REASONABLE PRICES.

Music Printing

Executed correctly and with dispatch.



"Live and Let Live,"

Is a good old adage, and we shall adopt it as our own. We do not pretend to do work at "less than cost," as some people advertise to do; but we do claim to do all kinds of printing as cheap as it can be done on this Coast—and we believe as cheap as it IS DONE in Chicago. Customers, in the country or city, are invited to call in person at our office, or send their orders by mail or express, and they will be fairly dealt with.

SPAULDING & BARTO.

Scientific Press Office,
414 Clay Street,

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street.......... ....San Francisc

(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4vt7tf

---

DR. KNOWLES, Dentist,

HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco. 21vt8-1y

---

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.
2v15-1qy

J. VAN O. HORNER,
DENTIST,
COR. J AND THIRD STREETS, SACRAMENTO.
All work warranted. 7v20-3m

JOHN ROAOH, Optioian,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. R. R. ROBERTS,
The Great Magnetizer,
Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all CURABLE Chronic Diseases by ANIMAL MAGNETISM and the SWEDISH MOVEMENT CURE. 2v20-1y

Business Cards.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25vt4tf

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Paten Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway.
SAN FRANCISCO.
Belt Leather for sale. 26v19-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.
24v18 1m

W. C. CAMPBELL,
PATTERN AND MODEL MAKER,
No. 20 Fremont street, over Phœnix Iron Works, San Francisco.
Particular attention given to MODELS for the Patent Office Brands and Pattern Letters Cut. 4v18mtf

---

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.

Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

---

J. F. PAGES,
SEAL ENGRAVER.
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

---

EVENING DRAWING SCHOOL
—BY—
N. P. LANGLAND,
(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 536 MARKET STREET, over Occidental Market. School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3v20-3m

---

W. C. & JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.

Job work of all kinds in the Drug and Spice Line promptly attended to.

SECOND DEPARTMENT.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

---

SAN FRANCISCO
Gold and Silver Plating Works.

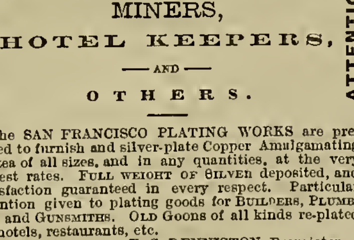
ATTENTION.
Quartz Mill Men,
MINERS,
HOTEL KEEPERS,
— AND —
OTHERS.
ATTENTION.

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. OLD GOODS of all kinds re-plated for hotels, restaurants, etc.
E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

All work done at the lowest prices. 1v20-3m

To Carpenters and Stair Builders.



Drew's Patent Extension Pitch-Board

Saves TIME, LABOR, and LUMBER, and secures exactness and perfect work. This is a very simple instrument, which is quickly and easily adjusted (as may be seen by the engraving), so as to give any desired pitch and tread for stair building. It is adjusted by a system of slides and screws. Full information may be obtained of the inventor, JOHN R. DREW,
5y20 Cor. Natoma and Fifth streets, S, F

Metallurgy.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at

No. 86 FREMONT STREET,

And WORKS at H. J BOOTH & CO'S FOUNDRY, northeast corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.

Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.

By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public. Mines Examined and Reports made.

REFERENCES.—William Bosworth, Thomas Varney, Egbert Judson, E. T. Steen, Wm. Bellshaw, P Reichling, W. O. Sleeper, J. L. N Shepard, Norbert Laudry.

CHAS. PLETZ & CO.
CHAS PLETZ, Analytical Chemist.
FRED MORRIS, Amalgamator and Millman. 25v19-3m

S. W. HOWLAND. J. W. THURMAN.
S. W. HOWLAND & CO.,
Crushers and Samplers
— OF —
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

All work done at the shortest notice. All orders promptly attended to.

REFERENCES—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co, Assayers. 7v20qy

---

G. W. STRONG,
ASSAYER AND WORKER OF ORES,
No. 10 Stevenson street, near First, San Francisco.

Highest price paid for choice lots of Ores, Sulphurets, Assay Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14v15qr.

H. W. GRAY. J. ROSEBERRY. D. S. LOOMIS.
Ores of all Kinds Crushed and Sampled.
H. W. GRAY & CO.,
YOLO MILLS.
Corner Market and Beale Sts., San Francisco
24v19-3m

SILVER AND LEAD ORES
Of every description purchased or worked at
The Oreana Smelting and Refining Works,
JOSEPH MOSHEIMER,
Oreana, Humboldt County, Nevada.
Office in San Francisco, 328 Montgomery street. 6v20

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent. and upwards. 23v17qr

---

STEAM
FIRE-PROOF
SAFES
SANBORN'S PATENT.

Perfectly Dry in Use.
ACTUALLY FIRE-PROOF.

GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by ROSS, DEMPSTER & CO.,
105, 107 and 109 California street,
5v20-3m San Francisco.

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED **WEED** Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hour, 329 Kearny St. S. F., Act. TO $500

International Hotel,
JACKSON STREET,
BETWEEN MONTGOMERY AND KEARNY STS.,
SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.

Prices varying from $1 50 to $2 per day for Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House FREE OF CHARGE, and to any part of the city for 50 cents
F. E. WEYOANT, Proprietor.

DR. ABORN,

Oculist, Aurist,
AND
CATARRH, THROAT
AND
Lung Physician.

No. 22 KEARNY STREET,
SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.
San Francisco (Cal.), Jan, 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street, San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.
San Jose (Cal,), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

TO WHOM IT MAY CONCERN.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.
WILLIAM BEARDSLEE.
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.
VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869. 7v20-3m

HIBBERD, SANBORN & CO.,

STAIR

BUILDERS.

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

Reading for the Hour.

BETTER NOT TO SPIT.—If a man will chew tobacco, he ought, at least for the sake of common decency, to be careful as to where he deposits his saliva. From absence of the possession of this decency, a carpenter at Sacramento, according to the *Record*, has been obliged to pay a heavy price for one spit. Ejecting his saliva, without any care as to where it went, it alighted on the fine velvet cloak of a lady who was passing. She was exceedingly wroth, and went after the cause of the dirty accident. He tried to excuse himself; but it was no use. The lady demanded $15 for the damage, which was paid. He may consider himself lucky at getting off so cheaply.

A BRILLIANT genius of Pottsville (Pa.) is on the point of annihilating distance by running cars 17 feet wide at the rate of 60 miles an hour. A single track will have four rails instead of two. The distance between San Francisco and New York will be traversed in 60 hours, including stoppages. The *Miners' Journal*, at the close of an article on the invention, inquires, "Is not this a wonderful age?" We reply that it is.

LADY BROKERS.—A couple of adventurous ladies have started a broker's office on Wall street, New York. They are said to be quite pretty, and are having a large share of curiosity, if not business. All kinds of rumors are circulated with regard to their credit. One report says they are backed by the gallant Commodore Vanderbilt.

CURATIVE VIRTUES OF LIVE OAK.—The White Pine *News* says that a doctor at Hamilton has discovered that the California live oak contains an oil equal, if not superior, to any medicine now advertised. The list of diseases cured equals that of the King of Pain, and closes with the customary troubles of such lists—sore throat and piles.

THE OCCIDENTAL HOTEL is to have a new elevator for the accommodation of its guests. A member of a New York firm has arrived to make all necessary arrangements for putting up a most sumptuous machine, which will probably be stationed in the front hall. [The old elevators at the bar have proved complete successes, judging from the patronage.]

GOLD EXCITEMENT IN INDIANA.—A miner has been prospecting in Clarke county and has found gold, according to the reports, in paying quantities, in every handful of earth. The people in that section are wild with the mania, and are leaving other business to search for the precious metal. We heard of such cases before.

A WARNING TO LEGISLATORS.—The members of the Louisiana Legislature have received notifications from the "Knights of L." (whatever that may be), that if they pass any unrighteous bills they will receive condign punishment. If the valiant knights fulfill their threats, Louisiana may soon be deprived of its legislative bodies.

NOBLE SPIRITS.—A number of members of the Mercantile Library, who have been fined, according to rule, for keeping out books over the time allowed, have withdrawn in anger from the institution. The Library Association has been improved by the withdrawal of such spirits, whose room is much better than their company.

CHINESE FARMING IN CALIFORNIA.—A San Joaquin paper says that the Chinese are giving their attention to farming in that county; and that they fasten their plows to the horse's tail.

"COLD SLAW" is a corruption of "*kohl salat*," which is Dutch for cabbage salad.

Specimen from the Antique.

The accompanying illustration has been given us with the remark that it contains a moral. This being the case, we have consented to allow it a space in our columns. Morals are none too frequent on this coast.

The artist whose fertile brain produced this elegant picture, must have flourished apparently in the early times, for antiquity is impressed in every line. We have no hesitation in dating the work at some year after the discovery of America. Three things are evident: that it was executed after the invention of lawyers, after the invention of printing, and after the invention of milking. This would denote a very early date.

The moral alluded to is evident. Two parties are expending their time and exertion in endeavoring to dispossess one another of a cow, without other result than the benefit of a third party, whose occupation and character are plainly denoted by the wig, the well-filled bag (projecting from the pocket), the sharp lines of the nose, the shrewd twinkle of the eye, and the firm grasp of the hand. We haven't the slightest doubt that there is a fourth party, engaged in a similar way, on the other side of the animal, omitted, perhaps, because the author felt himself unable to do complete justice to the subject.

We have the greatest respect for all lawyers; and our remarks just above apply only to the gentlemen who existed at the time of the original publication of the picture, since which time great improvements have been made by these limbs of the law. But, unfortunately, the spirit evinced by the other figures is as rife now as in the olden times. Men now-a-days are as ready as ever to quarrel with one another until the costs have completely swallowed up the value of the contested article. As long as there is any milk to be extracted for the lawyer, the contest will be prolonged to the detriment of the poor animal, who is meanwhile worried, harassed, deprived of sustinence, and rendered worthless to the party which may finally obtain a useless carcass.

Man is a queer animal. The slightest difference about no matter how worthless a thing is sufficient to make a couple go to law and fight with tooth and nail until completely exhausted. A gentleman remarked to us, a few days ago, that he would rather pay five hundred dollars to a lawyer than twenty to a man who had made a claim which he considered as infringing on his rights. This is, apparently, according to nature. At least it is the impulse in ninety-nine cases out of a hundred. How few men there are who have never had a lawsuit! And how few lawsuits there are where the victorious party has made any real gain, especially when we take into consideration the loss of time and of mental quiet!

We dedicate the picture to our readers. If any one of them is disposed to "take the law" on another, we advise him to go home, indulge in a cup of cold water, and gaze intently at the illustration for a quarter of an hour before taking any decided steps.

A Beer House in Africa.

Paul du Chaillu, if he does sometimes tell rather tall stories about his travels, knows how to tell them well. He gives the following description of a beer house in Africa: It was a large building, under a single roof, supported by numerous wooden pillars, and on these hung a great many bunches of plantain. In the middle of the building there were scores of large jars, manufactured in the country, some of which would hold ten or fifteen gallons. From the neck of some of them a quantity of rich white froth was running out. The beer in others was just ripe, and ready for drinking. There were also many large mugs, looking more like dishes, however, for the plantain juice to be poured into.

Very soon the men seated themselves, either on the stools that belong to them or on mats, and the drinking began. Mug after mug was swallowed by each man. I think no German would drink the same amount of liquid. They became, after a while, jolly and boisterous; they began, in fact, to get tipsy.

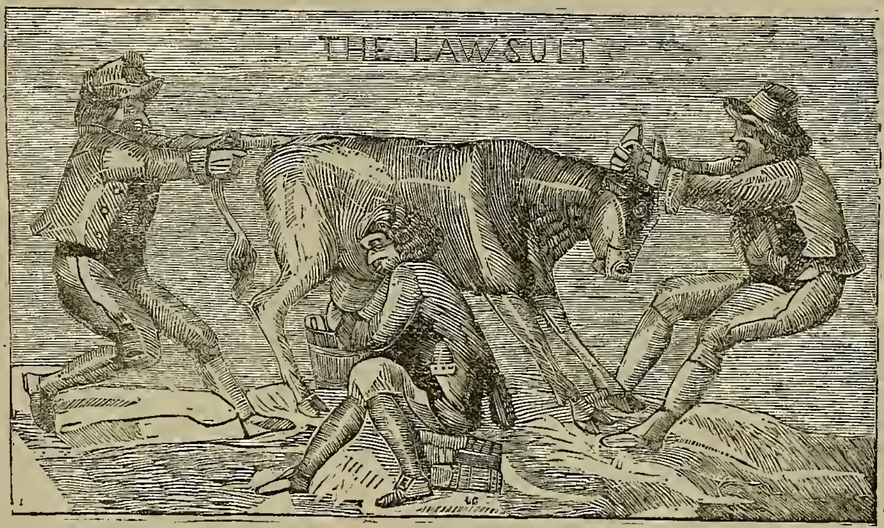
Do not believe they were drinking at random. Each jug of wine belonged to several men, who had clubbed together; that is to say, each had given a certain amount of plantain to make the beer, which the vessel contained.

The bunches of plantain, which were hanging by hundreds, had their owners, and had been brought from the plantation by their wives, and were ripening in the shade. As the plantations yield fruit all the year round, the beer is never lacking among the Ashiras.

After they were sufficiently excited, they began to talk of their wonderful warlike exploits, and I do believe it was who should lie the most. The greater the lie, the louder the applause.

I tasted the plantain beer, and found it somewhat sour; I did not like it at all.

I spent the day in the beer-house, and, when we returned to the village, the men insisted on having another dance, and they kept hard at work at it all night, and all went to sleep the next morning. I was glad when everything was over, for my head began to ache.



[By one of the "Old Masters."]

DON'T BOX A CHILD'S EARS.—It is a barbarous practice, and dangerous. The passage of the ear is closed by a thin membrane, especially adapted to be influenced by every impulse of the air, and with nothing but the air to support it internally. If any one designed to break or overstretch the membrane, he could scarcely devise a more effective means than to bring the hand suddenly and forcibly down upon the passage of the ear, thus driving air violently before it, with no possibility of its escape but by the membrane giving way. Children are sometimes made deaf in this way.

A GOOD USE FOR SOAP-GREASE.—"Any soap-grease to-day ma'am?" "No, sir; I use my own soap-grease." "Make your own soap?" "No, sir." "How do you use your own soap-grease, then?" "I make it into eggs," I said, smiling. The man looked so astonished and half frightened that I thought it time to explain. "I feed the grease and fat which is unfit for cooking to the chickens."

A NEW RELIGIOUS SECT.—Of making books, says the Preacher, there is no end. The same person might have made a similer remark about religious sects, had he lived in these days. The Albany *Knickerbocker* gives an account of a new religious sect which has just been organized near that city. This party is composed of men and women; but instead of there being a dividing line, they mingle together in a love-feast sort of style. Music is their hobby, and through its influence they all expect to be saved. The members are principally musicians of some sort, and those who are not blow upon horns, sing to the full extent and powers of their lungs, in the hopes that the noise, if not the sweetness of their notes, will secure their salvation. The members of the new society are now engaged in practice for the summer of 1870. A friend of ours who was present at a late rehearsal, says it was terrible; the beating of bass drums, blowing of horns, trombones, flutes, pipes, etc., knocking the great Peace Jubilee into a cocked-hat. It was fearful. There was no harmony or order, but all banged and blowed away on their own hook. One person is selected as chief. He is the favored one of the order, dressed like the apostles of old, who is elevated upon a platform, and instead of using a wand as leaders of orchestrae usually do, he swung a huge mallet, which came down with great force upon some arrangement which vibrated far and near, like the echo of a huge bell or heavy piece of ordnance. The whole arrangement resembles a great burlesque, but the *Knickerbocker's* informant says he never saw a more earnest collection of devotees, or met with a more friendly set of people.

MANAGEMENT OF BROOMS. If a broom is occasionally dipped into boiling suds, the straws will in a measure lose their brittleness and become *tough*, and do less injury to a carpet. It will also last much longer. Brooms wear out carpets full as much as the usual tramping over them. Before commencing to sweep a carpet, dip the broom into a pail of cold water and strike it against some object, to knock off the drops. drops. Repeat this frequently while sweeping, and you will raise little dust, and be surprised at the quantity of dirt which will settle in the bottom of the pail. It is well to strew moistened sawdust, Indian meal or tea leaves on a carpet before sweeping. Fine, moist salt is equally as good or better, and gives the carpet a nice clean look.

HOW TO DRINK ICE WATER.—Ice water may be drank so as to be very injurious to health, and even dangerous to life; or it may be drank in a manner to be a healthful and refreshing beverage. Ice water should *always be drank slowly*. The warmer and more thirsty the drinker, the *slower* he should drink. The swallows should be taken at sufficient intervals to allow the stomach to gradually accommodate itself to the great change of temperature.

STARTLING JUDICIAL DECISION.—There is a report that in one of the courts of this city a decision has been rendered to the effect that taking any umbrella which may be lying around loose, is stealing, and, as such, is punishable by law. Is'nt this infringing on the rights of public property?

TO AVOID TROUBLE FROM DREAMS.—Dreams are usually the result of a disordered physical or mental condition. Persons in perfect physical and mental health rarely dream. The preventive, therefore, lies in recovering the health. Temperance in eating and drinking is the best way to prevent dreams.

THE following advertisement lately appeared in a London paper: "Wanted, by a father, a school, where his son may receive an education to fit him for a manly and useful life, without any humbug as to nations dead and buried thousands of years ago."

PRACTICAL printers propose to start a small daily paper in Napa, March 1st. They had better defer it just one month.—*Oakland News.*

Scientific Press.—After January 1, 1870, the Mining and Scientific Press will resume its original title of Scientific Press, under which it was established in 1860, and will continue to be devoted to the improvement of the three great branches of industry—Mining, Farming, and Mechanic Arts—whose interests are intimately associated on this coast and are popularly and reliably represented by the Press. The subscription price is reduced to $4 per annum. Other charges will be at the lowest rates. This paper has been enlarged and improved in every department, and is now one of the best on this coast. Published by Dewey & Co., U. S. and Foreign Patent Agents, 414 Clay street, San Francisco.—*Tulare Times.*

A Valuable Book for Inventors and Artisans.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Press office, postpaid, for $1.—*New Age.*

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 26 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Returned.—Dr. J. H. Paine, Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

Spectacles, their adaptation to the various conditions of sight, is C. Muller's specialty. His store is at 205 Montgomery street. *

New Mining Notices.

Alameda Coal Mining Company, San Francisco and Alameda Counties, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of February, 1870, an assessment of thirty (30) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 409 (first floor) Battery street. San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the twenty-second (22) day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

M. PHILIPP, Secretary.

No. 409 (first floor) Battery street, between Clay and Merchant streets, San Francisco. fe19

Pinto Mining Company.—Location of Works: Silverado, Pinto District, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the third day of January, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
R Beverly Cole...bal. of	Nos. 112 162	1243⅓	$186 50
R Mayrisch	unissued	1843⅓	276 60
Julius Hausmeister	46	30	4 50
Julius Hausmeister	47 to 71	100 ea.	375 00
D H Jackson	76 to 81	100 ea.	00 00
D H Jackson	82	65	9 75
D H Jackson	83 to 94	60 ea.	90 00
Adler & Gallinger	33	65	0 75
Adler & Gallinger	34 to 45	100 ea.	180 00
Henry G Langley	171	1610	241 50
G E Barnes....bal. of 166 167		1156⅔	173 50
P B Forster..bal. of 163 to 165		536⅔	80 50
A H Ward, Jr	111	805	120 75
T J Reed	unissued	536⅔	80 50
John A McQuaid	104	600	90 00
John A McQuaid	105 106	250 ea.	75 00
John A McQuaid	107 108	50 ea.	15 00
John A McQuaid	109	40	6 00
John A McQuaid	110	25	3 75

And in accordance with law, and an order of the Board of Trustees, made on the third day of January, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the seventh day of March, 1870, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street, San Francisco. fe19

Mining Notices--Continued.

Alleghany Consolidated Gold Mining Company. Location of Works: Sierra County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the thirtieth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
W H Tompkins	34	1000	$500 00
A L Whitney	32	185	92 50
John J Rorho	4	15	7 50
Chas Adams, Trustee	12	1000	500 00
I N Thorne	13	125	62 50

And in accordance with law and an order of the Board of Trustees, made on the thirtieth day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room 37 New Merchants' Exchange, on the twenty-eighth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.

Office, No. 37 New Merchants' Exchange, third floor, California street, San Francisco. feb5

Glenwood Mill and Mining Company.—Location of Works: Greenwood, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the seventh day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of March, 1870. to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.

Office, 418 California street, San Francisco. feb52

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of February, 1870, an assessment of two and one-half cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the fifteenth day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fifth day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5 No. 302 Montgomery street, San Francisco, California. feb12

North San Francisco Homestead and Railroad Association:—Location of Property: City and County of San Francisco, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Association, held on the ninth day of February, 1870, an assessment of seven dollars and fifty cents was levied upon the capital stock of said Association, payable immediately, in United States gold coin, to the Secretary, at his office, No. 415 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the ninth day of March, 1870, shall be declared forfeited, and duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the thirtieth day of March, 1870, to pay the delinquent assessment thereon, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

EDWARD C. LOVELL, Secretary.

Office, 415 Montgomery street, San Francisco. feb12

Taylor Mill and Mining Company.—Location of Works: Georgetown District, El Dorado Co., State of California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the fifth day of January, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bell, Josiah	16	1000	bal $300 00
Baily, D	20	090	bal. 297 00
Bishop, T B	18	500	300 00
Coy, Frank	12	1000	600 00
Gibbs, W T	1	1000	bal. 300 00
Kentfield, J	22	1000	bal. 300 00
Mastick, S L	23	2000	bal. 600 00
Mastick, L B	24	1000	bal. 300 00
Murfey, S S	19	1000	bal. 300 00
Murfey, S S	17	500	300 00
Creighton, F..	2 to 11 inclus.	1000	bal. 300 00

And in accordance with law and an order of the Board of Trustees, made on the fifth day of January, 1870 so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of John Middleton & Son, No. 310 Montgomery street, San Francisco, on Monday, the twenty-eighth day of February, 1870, at the hour of two o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

SAM'L S. MURFEY, Secretary.

Office, No. 520 Montgomery street, over Sather's Bank, San Francisco, Cal. feb12

Pilot Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-third day of November, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Morris Newton, Trustee..not issued		1500	$150 00
F L Castle	not issued	100	10 00
John Hewston Jr.	not issued	1600	160 00
Lewis A Garnett	not issued	1600	160 00
H H Blake	not issued	840	84 00
A F White	not issued	840	84 00
G W Smith	not issued	800	80 00
W B Swain	not issued	40	4 00
H E Green	not issued	2400	240 00
A J Pope	not issued	2400	240 00

And in accordance with law and an order of the Board of Trustees, made on the twenty-third day of November, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room No. 7, 428 California street, San Francisco, on Monday, the twenty-first day of February, 1870, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. M. HARRON, Secretary.

Office, Room No. 7, 428 California street, San Francisco, California. fe5

U. S. Grant Mining Company.—Location of Works: Carlisle, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of January, 1870, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 226 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of February, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the twelfth day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ENOS TAYLOR, Secretary.

Office, 226 Clay street, San Francisco. ja20

Virginia, Nev., Jan. 27, 1870.

Messrs. Dewey & Co., *Patent Agents*—Dear Sirs:—I have your favor of the 24th inst., informing me that my application for patent of "Improved Roofing and Flooring" has been allowed, and I thank you for the attention and dispatch used in executing this business for me. Yours truly, Patrick N. Mackay.

New Advertisements.

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

MACHINERY
— AT —
GREATLY REDUCED RATES.
Miners' Foundry & Machine Works.
235 TO 245 FIRST STREET,
SAN FRANCISCO.
This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

SAN ANTONIO
PIONEER POTTERY.
DANIEL BRANNAN, Proprietor.
A Complete Assortment of
STONE WARE,
Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also
Chemical Ware, of Sorts Made to Order.
We manufacture to order
Terra Cotta Equal to the Best French.
Samples on hand.
FIRE BRICK.
A No. 1 article made to order, warranted superior to any imported.
Flower Pots and Ornamental Vases
Of all sorts and sizes. 200,000 on hand.
With our patent machinery and superior workmen we challenge competition.
Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.
☞ Orders promptly attended to, and goods put up and shipped with care to all parts of the country.
Brooklyn, Alameda County.
8v20-tf

Valuable Stock Ranch For Sale
IN ALAMEDA COUNTY.
The attention of miners, "new-comers," or others, who wish to buy desirable real estate, is called to
675 ACRES
— OF —
Excellent Pasture, Grain, Garden
— AND —
ORCHARD LAND,
FOR SALE AT A BARGAIN.
TERMS EASY.
This Ranch comprises hill and valley, is supplied with an abundance of good living water, is well fenced, buildings good, and is stocked with implements and animals. It is one of the best DAIRY RANCHES in the State, and is near the Railroad. Inquire of
JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

Real Estate For Sale
In a romantic and desirable locality near the Railroad, in Alameda County. ONE HUNDRED AND TWENTY ACRES, in a body, of level, rich and superior soil, fit to produce everything. One of the finest gardens and nursery sites in the State. Rarely equaled as a homestead. For sale for $15,000—less than one-half its real value. Miners or city residents will find this a good opportunity to buy land cheap. Call on
JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

☞☞☞☞☞☞☞ ☜☜☜☜☜☜☜
TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. O. ALLEN & CO., Augusta, Maine. 5v20-3m

MANUFACTURING
Room to Let.
We have a large room, about 18 by 36 feet, in second story at 414 Clay street, near Sansome, which we will rent very low, suitable for printing or manufacturing purposes
DEWEY & CO.,
Publishers Scientific Press, 414 Clay street.

Free Information for Inventors and Patentees.
Our Patent Office Circular, relating to U. S. and Foreign Patents, Caveats, Patent Laws, Rights of Inventors, Valuable Hints, Illustrated Mechanical Movements, etc., comprises 48 pamphlet pages, embracing the following
List of Contents:
Advancing Cases; Advantages, Important; Assignments, Forms, Cost, etc.; Caveats of what they Consist, Form of, Cost, how Filed effectively; Cost of Obtaining Patents; Confidential Advice; Copies of Patents Assignments, etc.; Copyrights; Dangers of Delay; Designs, Patents for; Engravings and Illustrations; Engine, Condensing-Beam—Illustrated; Extension of Patents; Foreign Patents—all Countries; Foreign Inventors; Hints to Inventors; Government Fees, List of; Home Counsel; How to Obtain Patents—Steps Necessary; Hydrostatic Press—Illustrated; Interferences; Influence at Washington; Laws (U. S.) and Decisions Relating to Patents; Lathe, Engine—Illustrated; Letters Patent—of what they Consist; Library, Reports, Law Books; Locomotive Engine—Illustrated; Medicines or Compounds, Patent for; Mechanical Movements—Illustrated; Mining and Scientific Press Office; Processes, Patents for; Record of Pacific Coast Patents; Re-issues; Rejections—Cause and Remedy; Reports of Patent Office; Rights and Privileges of Inventors and Patentees; Saving of Time; Self-evident Facts; Selling Patent Rights; Springs, Various Kinds—Illustrated; Stamp Battery, Quartz—Illustrated; Telegraph, Patent Business by; Unsuccessful Applicants; Who can Obtain Letters Patents; What Claims can be Patented; Worthless Patents, Candid Reasoning.
This pamphlet will be furnished free on receipt of postage stamp. Confidential advice given, and every legitimate branch of Patent Soliciting business promptly and faithfully executed by
DEWEY & CO.,
U. S. and Foreign Patent Agents, Scientific Press Office, 414 Clay street, San Francisco.

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.
CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.
STEAM
PRINTING ESTABLISHMENT.
Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf

California Steam Navigation
COMPANY,
Steamer CAPITAL..................CAPT. E. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE........ —— ——
" CORNELIA.................CAPT. W. BROMLEY
" JULIA.......................CAPT. E. CONCKLIN.
Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.
Office of the Company, northeast corner of Front and Jackson streets.
B. M. HARTSHORNE, President
13v12

The Aerial Steam Navigation Company.

At a meeting of the stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cazneau, Henry F. Williams and Simon L. Jones were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars, said shares to be *unassessable.* The funds thus raised are to be devoted exclusively to the construction of the first aerial steam carriage, and to be deposited in the Bank of British Columbia, to be disbursed upon requisition of Mr George K. Gluyas, Engineer of Construction. The working, drawings, etc, can be seen at the office of Gen Thomas N. Cazneau, No. 321 California street, where subscriptions will be received. No invention for navigating the air has before received such positive indorsements from engineers of reputation, or so liberal encouragement from prominent capitalists' as Marriott's Avitor, which now seems sure of being thoroughly tested on a large scale. 2v20-my

Notice to Miners,
Well-Borers and Water Companies.
M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.
M. PRAG,
8v18 ly Stove Store, No. 1 Clay Street, below Davis.

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

GLASGOW
Iron and Metal Importing Company,

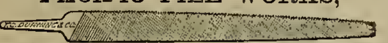
Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.

2v17-3m **T. G. DURNING & CO**

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

J. P. GALLAGHER. J. H. WEED V. KINOWELL.
9v13-1y

Phœnix Iron Works.

LABOR OMNIA VINCIT.

FIRE-PROOF SAFES. PHOENIX WORKS BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of House-smith Work; Bridge, Prison,

FORGING AND MACHINE WORK,

FIRE AND BURGLAR-PROOF SAFES, BANK VAULTS,

Improved Monitor Safes,

Constructed of Welded Steel and Iron, fastened with conical steel bolts.

Safes Let by the Month.

Manufacturer of the

Duplex and Excelsior Combination Bank Locks.

Agent for the ISHAM KEY REGISTER BANK LOCK.
1v17-tf

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco.
10v14qr

SAN FRANCISCO
Pioneer Screen Works.

JOHN W. QUICK,

203 Fremont street, near Howard, San Francisco.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at greatly reduced rates.

ORDERS SOLICITED AND PROMPTLY ATTENDED TO.

I would call special attention to my slot cut and slot punched Screens which are attracting much attention and giving universal satisfaction, both as regards their efficiency and durability. This is the only establishment on the coast devoted entirely to the manufacture of Screens. It has furnished screens for the principal mills and firms on the coast for many years. 10v19tf

---

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

SACRAMENTO BOILER WORKS,

I Street, between Front and Second,

SACRAMENTO.

All kinds of Marine and Stationary Boilers, Wrought Iron Tanks, Girders, Bridges, Gasometers, and all kinds of Sheet Iron Work, etc. All work warranted. Millmen and Grain Threshers are cautioned to look to the safety of their boilers. Repairing promptly attended to at the lowest possible terms. Refers to Huntington, Hopkins & Co. and H. Adams, Esq.

J. V. HALL, Practical Boiler Maker,
6v20-3mnuf Proprietor, Sacramento.

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS. J. BURKE.

NEW FILES OF EVERY DESCRIPTION

ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended to. 9v19-qy

---

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery.

16v16q No. 28 Fremont street, San Francisco.

FOUNDRY FACINGS.

BENJAMIN ELLIOT,

No. 483 Brannan street........................San Francisco,

Manufactures Foundry Facings constantly, from choice coals. Bituminous, packed in tight sacks. Anthracite and Charcoal ground together or separate, packed in barrels. Black Lead, Coke and Soapstone ground to order.

☞ Foundrymen located far from choice material, can rely on having superior Facings forwarded to order.
10v18qr

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good SAUCE The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed,

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c.; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

---

SCIENTIFIC PRESS.—Dewey & Co. are the publishers of this sterling paper. It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican.*

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their Inventions. tv16tf

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED..........................APRIL 30, 1868.
CAPITAL..............................$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	James Pollock,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON...............................President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..................................Secretary.
24v17-qy

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

Ayer's
Hair Vigor,

For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a

HAIR DRESSING,

nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.

Prepared by Dr. J. C. Ayer & Co.,

PRACTICAL AND ANALYTICAL CHEMISTS,

LOWELL, MASS.

PRICE $1.00.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, Wholesale Agents. 26v18-1y

---

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.

DIVIDED INTO 1,200,000 SHARES OF

TEN DOLLARS EACH,

FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President..........................SAMUEL MERRITT.
Vice-President.....................MICHAEL REESE.
Treasurer..........................J. SELIGMAN & CO.
Secretary and General Agent.........W. K. VAN ALEN.

BOARD OF TRUSTEES—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm. H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, SEVEN MILES IN LENGTH BY FOUR THOUSAND FEET IN WIDTH, EMBRACING FIVE THOUSAND AND TWENTY ACRES.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of ALL mines discovered by the Tunnel,

4th—A royalty forever of TWO DOLLARS on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of his great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast,

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
Secretary and General Agent,
625 Montgomery street
8v20-3m Opp. Montgomery Block,

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

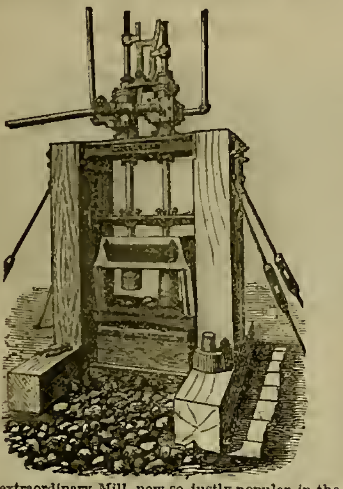
Thursday, February 17, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ₱ 100 lbs.; Bar, 1@1½c ₱ lb; Sheet, polished, 3c ₱ lb; common, 1½@1¼c ₱ lb; Plate, 1½c ₱ lb; Pipe, 1½c ₱ lb; Galvanized, 2½c ₱ lb.		
Scotch and Eng. Pig Iron, ₱ ton	$33 00	@$35 00
White Pig, ₱ ton	— —	@ 30 00
Refined Bar, bad assortment, ₱ lb.	— 03	@ — —
Refined Bar, good assortment, ₱ lb.	— 04	@ — —
Boiler, No. 1 to 4	— 04½	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
Copper.—Duty: Sheathing, 3½c ₱ lb; Pig and Bar, 2½c ₱ lb.		
Sheathing, ₱ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
Tin Plates.—Duty: 25 ₱ cent. ad valorem.		
Plates, Charcoal, IX, ₱ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ₱ lb	— —	@ — 42
Steel.—English Cast Steel, ₱ lb	— —	@ — 15
Quicksilver.—₱ lb	— 55	@ — 60
Lead.—Pig, ₱ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ₱ lb	— 10½	@ — 11
Borax	— —	@ — 45

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

Save your Boilers!

Save your Fuel!

Save your Temper!

BY USING

CHRISTOFFEL & BOOTH'S

PATENT

Boiler Scraper and Tube Cleaner.

The Most Complete and Perfect Instrument of the kind Invented.

SIZES TO SUIT ALL TUBULAR BOILERS.

They cost but a trifle, and are handy as well as economical. For further particulars, or for the purchase of Scrapers, address or call on

McAFFEE, SPIERS & CO.,
6v20 Howard street, near Fremont, San Francisco.

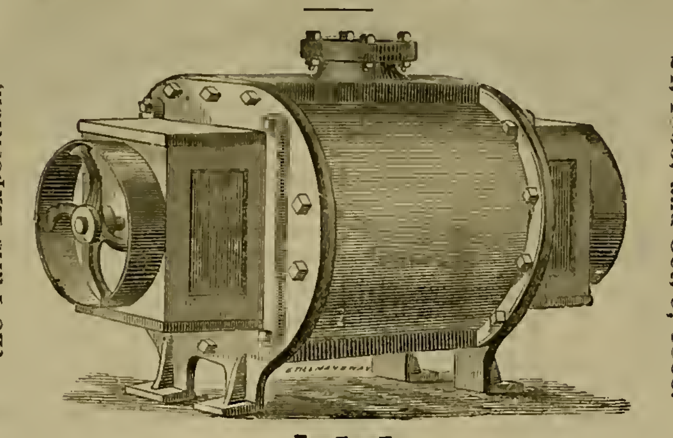
Scientific Press.—The title of the Mining and Scientific Press, published by Dewey & Co., has been changed to the Scientific Press. This is one of the most valuable of our exchanges, and we are pleased to notice the great improvements made in it the past year. On the 1st of January it began a new volume, entering upon its tenth year.—*San Bernardino Guardian.*

ROOT'S PATENT FORCE BLAST ROTARY BLOWER

MANUFACTURED BY KEEP & BARGION,

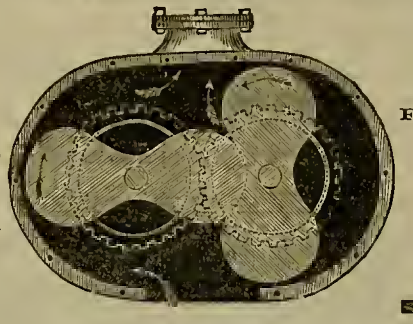
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.



REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.
4v16-3m

Rails, Newel Posts,

AND BALUSTERS,

Constantly on hand for sale, and shipped, together with all kinds of

STAIR WORK,

To any part of the coast. Practical workmen sent, when desired, to put up the same.

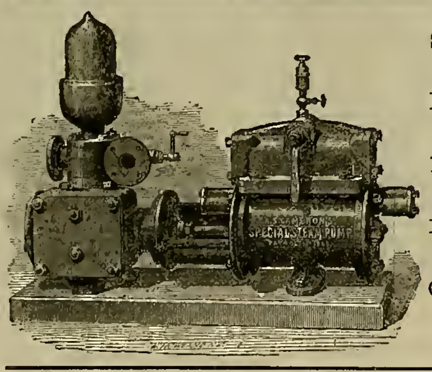
Work Warranted to Fit

by simply sending a correct ground plan of stairs, together with hight of story.

Wood-Turning and Scroll Sawing of all kinds promptly executed.

☞ Spanish Cedar, Walnut and California Laurel always on hand for sale.

Langland & Cameron,
STAIR BUILDERS,
309 Market street,
And 485 and 487 Brannan street,
SAN FRANCISCO.
16v16-1y



CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

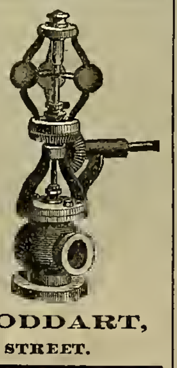
MARINE ENGINES.

SURFACE

CONDENSERS.

DAVID STODDART,

114 BEALE STREET.



VARNEY'S
PATENT AMALGAMATOR.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 220 Fremont street,
1v1 San Francisco.

Our Home Physician,

By GEO. M. BEARD, A. M., M. D., of New York. Its superior merits are endorsed by the Scientific American, Rural New-Yorker, leading medical journals and physicians of established reputation at the East and on the Pacific coast. Copyrighted 1869. The only complete Family Medical Book written since 1860. Send for circular containing extracts from author's introductory, testimonials, etc. Address, WESTERN PUBLISHING AGENCY, 411 Kearny street, San Francisco. Agents wanted; also for Dr. Dadd's Reformed Horse Book. 6v20-3m

---

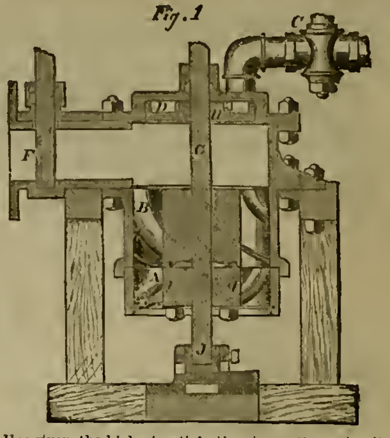
Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, Sacramento COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

---

Lind's Improved Water Wheel

Fig. 1

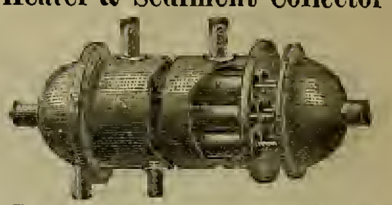


Has given the highest satisfaction to parties using it. We are now prepared to sell it at reduced prices. Will also contract for all kinds of Machinery—Flour, Saw and Quartz Mill. All our work guaranteed. We will send competent men to put up our Wheels and Machinery. We contract for or do it ourselves. Our extensive acquaintance with millwrights on this coast enables us to furnish millmen with the best of workmen at short notice. Drawings for contracts furnished gratis. Send for circular.

A. LIND, Millwright,
Pacific Iron Works, San Francisco.
Refer to John Sime and J. J. Haley. 19v19

CROSS' COMBINED

Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods cheaply, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent. off to the trade. Address,

HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

WONDERFUL

Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

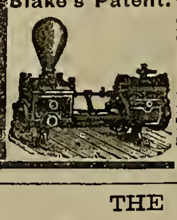
No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 28v19-3m

---

Blake's Patent.



THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's

Patent Steam PUMP

It is simple, compact and powerful, needs no expert to run it, and will start at any point. Is warranted positive under all circumstances. Send for a circular.

BERRY & PLACE, 112 and 114
California st., San Francisco.

THE GIANT

POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 25v16

One Per Cent. per Month

Allowed on Six Months' Deposite by the CALIFORNIA BUILDING, LOAN AND SAVINOS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

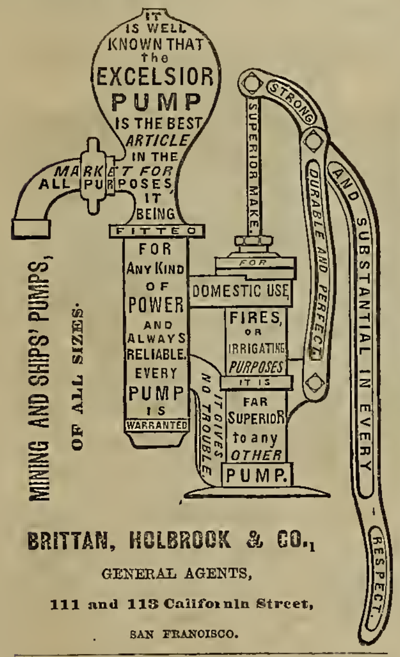
Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecnted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted,
ILLUSTRATED CIRCULARS FREE.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,

News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Nnmber.


IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE
FIRES, OR IRRIGATING PURPOSES
IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE.
SUPERIOR MAKE.
STRONG
DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

To Solicitors.

AGENTS WANTED.

One or two active and reliable Agents can obtain permanent and profitable employment by addressing or calling at this office.

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructore.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY, and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v16-1y16p

---

JOHN WRIGHT & CO.,

DEALERS IN PICKS AND PICK HANDLES.

Sole Agents for Washoe Tool Company.

Nos. 13 and 15 Fremont Street, at Nelson & Doble's, San Francisco.

LIST OF PRICES OF PICKS:

No.	Kind	Weight	Price	No.	Kind	Weight	Price
No. 1	Round Eye Surface,	4 lbs.	$16	No. 16	Drifting	4 lbs.	18
" 2	" "	4½ "	16	" 17	"	4½ "	18
" 3	" "	5 "	16	" 18	"	5 "	18
" 4	" "	5½ "	18	" 19	"	5½ "	20
" 5	" "	6 "	20	" 20	"	6 "	22
" 6	" "	6½ "	22	" 21	Poll	4 "	18
" 7	" "	7 "	24	" 22	"	4½ "	18
" 8	Flat Eye Surface	4 "	16	" 23	"	5 "	20
" 9	" "	4½ "	16	" 24	"	5½ "	20
" 10	" "	5 "	16	" 25	"	6 "	22
" 11	" "	5½ "	18	" 26	"	6½ "	24
" 12	" "	6 "	20	" 27	"	7 "	30
" 13	" "	6½ "	22	" 28	Coal	2 "	15
" 14	" "	7 "	24	" 29	"	2½ "	15
" 15	Drifting	3½ "	16	" 30	"	3 "	16

No. 31 Coal.............. 3½ lbs................. 16

Also, PICK EYES, ready for the steel, for the Blacksmiths, which will be sold cheap.

I wish to call especial attention to

MY NEW ADZE EYE PICK,

Which was made under my own supervision while in New York.

For Beauty, Strength and Durability they are unequaled.

JOHN WRIGHT.

WE HAVE A LARGE STOCK OF

Extra Number One White Hickory Drifting Pick Handles,

WHICH WE OFFER CHEAP.

CALL AND EXAMINE FOR YOURSELVES.

8v20-q1am3w

STEEN & CUSHING,

AGENTS FOR THE
PURCHASE AND SALE
—OF—

Patent Rights, Engines, Boilers,

— AND
MACHINERY OF ALL KINDS.
NO. 9 FIRST STREET, SAN FRANCISCO.

WE HAVE ON HAND IN GREAT VARIETY,

Engines and Boilers,
Steam and Hand Pumps,
Pipe,
Presses,
Shafting,
Pulleys,
Boxes,
Mill Stones,
Portable Mills,
Malt Rolls,
Injectors,
Lathes and Planers,
Governors,
Steam Gauges,
Quicksilver,
Gas Stocks and Dies,
Belting,
Water-tanks, etc.,

Which we will sel at a discount of 25 to 75 per cent. on cost of new, in this city. Parties having any kind of machinery for sale, may meet with customers by consigning to us. Purchases made on Commission, and prices guaranteed as low or lower than parties can make themselves.

STEEN & CUSHING,
No. 9 First street, San Francisco.

For Miners, Millmen and Metallurgists.

KUSTEL'S NEW WORK,

CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS,

For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price, - - - - $7.50

A liberal discount to the Trade. For sale by the Booksellers Sent to any part of the United States, postage paid, on receipt of the price. Address,

DEWEY & CO., Publishers,
Office of the Scientific Press, 414 Clay street,
1v16tf SAN FRANCISCO. 1868.

GEO. E. ROGERS,

(Successor to G. W. Bell.)

ASSAYER,

512 California st., San Francisco.
J. A. MARS, Assayer.

Ores carefully Assayed. Gold and Silver Ores worked.
23v16-qr10pnr

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturere of all kinds of

Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint. San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S. Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adue, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

W. T. GARRATT,

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,
MANUFACTURER OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

---

HUNTINGTON, HOPKINS & CO.,

—IMPORTERS OF—
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
—ALSO AGENTS FOR—
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY.
54 K Street, Sacramento.
7v20-ng

N W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect,
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

The Scientific Press,

Devoted to SCIENTIFIC AND MECHANICAL PROGRESS, MINING, FARMING AND MECHANIC ARTS, contains more VALUABLE READING MATTER than any other weekly journal west of the Rocky Mountains. It is the best printed and only finely-illustrated paper on the Coast. Its articles are able, timely and reliable, and written in a more interesting and easily comprehensive style than scientific papers in general. Now in its twentieth volume, it is printed on superior paper, containing sixteen pages, equal in size to the first-class journals of the Atlantic States and Europe. All our best citizens are interested in the new discoveries in the development and progress of the three great industrial pursuits named above, which are closely allied on this coast, and are jointly represented in the PRESS, rendering it a popular and influential journal with all industrial readers. Subscriptions reduced to $4 a year, Jan. 1, 1870.

To Inventors on the Pacific Coast.

OUR U. S. AND FOREIGN PATENT AGENCY presents many and important advantages as a Home Agency over all others by reasons of long establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or a description in the SCIENTIFIC PRESS. We transact every branch of Patent business, and obtain Patents in *all civilized countries.* The large majority of U. S. and Foreign Patents granted to inventors on the Pacific Coast have been obtained through our Agency. We can give the best and most *reliable* advice as to the patentability of new inventions. ADVICE AND CIRCULARS FREE. Our prices are as low as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior.

ENGRAVING ON WOOD, of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also, engraving on metals.

DEWEY & CO.

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

SCIENTIFIC PRESS.—The S. F. Mining Press has entered upon its twentieth volume with a change of name —Scientific Press. This is a journal devoted mainly to the interests of the miner, farmer and mechanic, and has well sustained its position in all respects. The price has been reduced to $4 per year, and we cannot too highly recommend it to all classes.—*Alpine Chronicle.*

SCIENTIFIC PRESS.

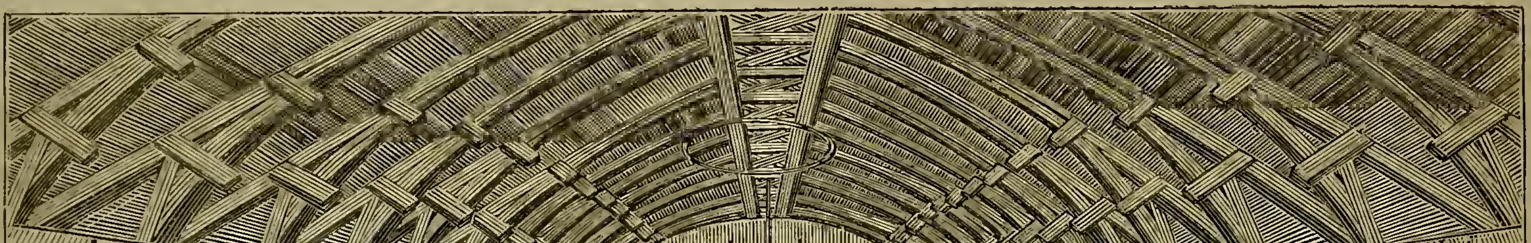
AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, February 26, 1870.

VOLUME XX.
Number 9.



GRAND MUSICAL FESTIVAL, S. F.—INTERIOR OF THE BUILDING.

The Grand Musical Festival.

With this present week commenccs a new era in California. Hitherto on this coast, bnsiness alone has occupied the whole time and attention of onr citizens, and there has been bnt little space given to any extensive cnltivation of the fine arts by the great majority of men. Not that we have had no artistic tastes or talent, for this is evinced by the spirit with which people have entered into this festival; but this ability has been suffered to lie dormant, while our whole attention has been given to the acquisition of wealth. But we believe that henceforth we shall hear more of musical festivals, of art galleries, and of similar evidences of awakened interest in the higher refinements of civilization. Mme. Urso has done more than merely to institute this one celebration. She has laid the foundation of others, and the Pacific Coast will learn to consider her one of the pioneers of high art.

Our Engraving

Presents as fair a representation of the great choir and immense audience as can be given in its space. Althongh execnted in haste, since the opening of the Festival, it enables us to convey a more trnthful idea of the scenes of the week than can be imparted to non-attendants and distant friends by a ay other means.

Origin of the Festival.

On her arrival in San Francisco in November, 1869, Madame Urso was received with the greatest enthusiasm. Surprised and pleased by the warmth of her reception, she determined to find some substantial way of expressing her thanks, and concluded that the best way to earn the gratitude of the people was by attempting to rescue from annihilation one of the proudest institutions of San Francisco—the Mercantile Library. And for this purpose she determined to gather together the talent of the coast aud institute a festival on a grander scale than ever before attempted or even practically thought of here. Within a week from the time when the plan had been fully formed and the offer made by Madame Urso had been accepted by the trustees of the Library, the choruses of this city were rehearsing, and the musical societies of interior towns were enthusiastically responding to the solicitations of Madame Urso's efficient agent, Mr. S. W. Bngbee, to whom mnch credit is due for his exertions in the conception and prosecution of the plan. From every quarter came cordial responses, and delegations frem Sacramento, Stockton, Marysville, San José, Gilroy, Vallejo, Redwood City, Petaluma, Napa, Placerville, and other towns have arrived to swell the numbers furnished from this city, and from even so far East as Virginia City camo a large number of trained musicians.

Chorus and Orchestra.

After summing up the amount of available talent, it was found that the chorus would amount to about 1,200, while the orchestra would number some 150. The orchestra is thns summed up: Condnctor, R. Herold; organist, A. G. Scott. String band: First violins, 16; second violins, 19; violas, 10; violincellos, 5; double basses, 4; flutes, 4; clarionets, 4; oboes, 3; bassoons, 2; horns, 7; cornets, 4; trumpets, 4; trombones, 5; tnbas, 2; kettle drums, 1 set; snare drums, 3; cymbals, 1; triangle, 1; big drum, 1; total, 96. Military bands: Piccolos, 4; E flat clarionets, 6; B flat clarionets, 14; obocs, 2; bassoons, 6; cornets, 8; trnmpets, 8; althorns, 6; French horns, 10; trombones, 8; tubas, 10; double basses, 3; drnms, 3; big drum, 1; cymbals, 1; triangle, 1; total, 91. Thero were, moreover, 30 anvils, which were efficiently manipulated by a detachment of red-shirted firemen, who were among the most enthusiastic. Two thousand children from the public schools, under the management of Prof. E. Knowlton and the leadership of Mr. W. Elliott, rendered several choruses with wonderfnl effect, their clear fresh voices harmonizing most delightfnlly, forming one of the most striking features of the Jubilee.

Ths Big Drum—Artillery Firing by Electricity.

This monster drum was manufactured by Mr. H. M. Balch, and is made of zinc, painted in imitation of California laurel. The head is composed of 23 sheepskins and two calfskins. On one of the heads is painted, "Grand Musical Festival, M. L. A. By Camilla Urso, Feb. 22d, 23d and 24th, 1870." It is eight feet and three inches in diameter, and cost $300.

[*Continued on page* 136.]

Communications.

Mills and Mines of Colorado.—No. VI.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

Georgetown is situated on a flat, and is surrounded on three sides by very high mountains, bold, though not particularly rugged. It is a place of some 2,000 inhabitants, and is new in appearance, as it is in fact, being only 3½ years old. In a mining sense, it is in the center of the silver mining region.

The Silver Ores.

The silver here is associated with a high percentage of lead, antimony, zincblende and copper, so the ores have to be generally treated by fire. From lots I have seen, the ore is unquestionably rich in silver, and, as a whole, carries a paying percentage, although all ore now worked here must necessarily run not less than $80 per ton to pay expenses of extraction and reduction. The rebellious character of the ore exceeds any that I have seen in Nevada or California. There are three reduction works in the vicinity.

Stewart's Mill

Is situated at the lower end of the town. It is not so particularly interesting as are some facts connected with a new 20-stamp mill to be built by him. We will take the mill first, and then the "facts."

This consists of two reverberatory furnaces, with hearths 8x10 feet, six stamps of 450 pounds weight each, with low mortars, and old-fashioned in every sense; two Blachly pans 5x2 feet; cleaning-up pans, four feet in diameter; retorts of California style; assay offices, melting furnaces, etc., in good and convenient shape.

Now for the facts. Mr. Stewart told me he was particularly desirous of getting machinery for his new 20-stamp mill from California, and sought estimates from there (Pacific Foundry); also from Chicago. The job was a $20,000 one, and he was willing to give a small percentage in favor of California; but when the estimates came in, there was just the difference between Chicago and San Francisco that there was between *currency* and *coin*. So Chicago got the job. But to carry out the estimates, the Chicago foundry had to *send to California for the drafts*.

California vs. the East.

The millmen of Colorado give California credit for building the best machinery, and they will give it the preference at 10 per cent. advance, and with some low figuring on the parts of the San Francisco foundries, there are many things they would order from there. Whether the trade of Colorado, as respects all mining machinery, is worth striving for, in view of the ready completion of the St. Louis & Denver Railroad, is quite a question, as when that is completed, then St. Louis taps Chicago's iron trade. Cheyenne is within three miles of being half way between Chicago and San Francisco. This is the shipping point for Denver and the Colorado mining region. Now, if freight can be so regulated as to be the same, then California will get many a dollar of trade from Colorado, even at a slight advance of cost, independent of Chicago or St. Louis competition. I have not as yet seen all Colorado mills, but I have got to see better ones than I have yet to see anything that comes within gun-shot of a first-class California or Nevada mill.

This sending drafts to Chicago to build California mills by, is using California brains to build up Chicago. Pretty good, when you look at it in that light.

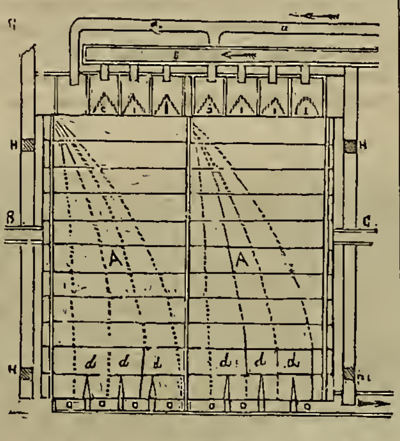
Mr. J. O. Stewart is one of the most successful millmen in this part of the country. He commenced with small works, and felt his way along prudently, and now steps into a big operation, and, I am satisfied, a profitable one, understandingly. The old works produced about $80,000 last year, which speaks well for this mining locality as well as for Mr. S. This country wants some of our dashing Nevada operators here, who have been accustomed to slash out their 300 and 500 tons per day, and having it off in bullion to San Francisco before the next twenty-four hours roll round. The mines are here, the metal is here, but the country wants electrifying by capital, population, experience and pluck.

Dressing of Ores—A Freiberg Process.

[Written for the Scientific Press.]

The Rittinger Percussion Table

Has been carefully experimented with at this mine, and gave very good results. The working, etc., may be understood from the accompanying cut, which gives a view from above. The double-table is divided into two parts, A, A, each of which is eight feet long and four feet wide. By means of four iron rods, it is suspended from the frame-work, H, H. The motion is given by a connection at C with the cams of a shaft, which throw the table to the left, while a spring at B throws it back and against an immovable block, giving it the required shock. The ore and water from the pointed boxes are conveyed through *a* and discharged upon the tables at *c*, *c*, while clear water is conveyed through *b* and discharged at *i*, *i*, *i*. The table being put in motion, and the ore and water introduced, the lighter particles will be carried in a more or less straight direction and discharged at the left hand, while the heavier particles will be thrown more to the right. The dotted lines show the direction taken by various grains. Small movable tongues of wood, *d*, *d*, *d*, are placed at the bottom of the table, and divert the various classes into the respective troughs, o, o′, o″, o‴.



According to the material to be worked, the amount of water, the number and force of the strokes, the inclination of the table, and the number of divisions (or of the tongues, *d*), must be regulated. At the Kur-Prinz five classes were obtained:—pure or nearly pure galena, nearly pure blende, valueless stuff, and two mixtures of galena and blende and of blende and pyrites. It is to be observed here that the galena and the blende are both sold to the smelting works, where zinc is now extracted as well as lead and silver. It was thought that the mixtures could be led upon other tables and readily separated. Very often only three classes are made:—pure ore, worthless earth, and a mixture.

Such a table demands careful attention, which being given, it does its work well. It can work from two and a half to four tons daily; but the middle products must be re-worked on other tables. If two double-tables are used, three of the half-tables can be used on the ore, while the fourth compartment will work their mixed product. The amount of clear water used is very considerable—from one-third to two-thirds cubic feet per minute for each half. It works best with ore-grains of a medium size. At the Kur-Prinz, the loss was reduced to about ten to fifteen per cent. One workman can attend to four or six of these tables, and, if skillful and attentive, can soon learn to regulate everything so as to suit the different kinds of ores, etc. But with a careless workman it is in vain to expect good results. The motive power necessary, and, in general, the expenses of running, are very small.

The experiments at the Kur-Prinz were conducted under the immediate supervision of the foreman, who is exceedingly well versed in all that pertains to his business. He worked separately the ore from the various pointed boxes, keeping, carefully, notes of all the results, and comparing them with the results of other processes. For the very coarse or very fine sands he found the results to be rather unfavorable; but for the medium-sized grains the table acted well. The economy in manual labor was, of course, very large, and the saving of valuable mineral, compared with the carefully-conducted but much more laborious and repeated processes of the common percussion table, was considerable. H.

The Gold Fields of Victoria.—No. 2.

It was thought, eight years ago, in Victoria, that the working of the mines had resulted in a way unfavorable to the miners, that their condition had grown worse instead of improving, that poverty abounded; and statements calculated to drive emigrants away from the colony were common. From figures given, it was calculated that it cost two dollars to extract one from the mines; that, dividing the reported yield of gold by the estimated number of miners, the laborers must receive but the smallest pittance for wages. Our author, to test this thoroughly, visited the oldest mining camps, where it was fair to expect that the worst condition of affairs would exist. His report illustrates the truth of Channing's remark—that, in the hands of an able manipulator, figures may be made to prove anything. Poverty existed—as it exists everywhere; but "improving means and increasing comforts were enjoyed by every industrious and moderately careful digger on every field visited."

Reduction of Wages.

The reduction of wages was held as a proof of the degeneracy of the laborers; but this had been accompanied by reduction in the cost of living. All the necessities of life had fallen largely in price, and luxuries had come within the reach of those to whom they were formerly almost debarred. For instance, in the four years previous to 1862, wages had fallen from $20 and $25, to $10 and $12½ per week. In the meantime, board (without lodgings) had fallen from $10 to $4 per week; milk, from 50 to 12 cents per quart; bread, from 37 to 14 cents per 2-pound loaf; butter, from $1 to 37 cents; cabbages, from 67 and 75, to 4 cents apiece; meat fell 50 per cent.; blankets, candles, tea, etc., 15 to 25 per cent.; articles of dress, 50 per cent.; coach fare, previously $32½, fell to about $5¾; machinery castings, from $300 to $120 per ton; the cost of milling from $25 and $30, to $2½ and 3½, etc. "The comparison, in short, reduced itself to this—that wages have fallen little, if at all, below the reduction which has taken place in the comforts and necessaries of life, and those incidental charges on the family purse, which occur, whether its owner is rich or poor.

Social Condition.

But wages alone do not determine wholly the social condition of the miner. In the earlier days, his life was of the very roughest sort; if piles of gold were often gathered, they were almost as often lost in a bar-room "shout," in the rough orgies in which there was little comfort and less of pleasant reminiscence. But a change had now taken place. There was no lack of employment for those who were willing to work. Wives and children were no longer rarities on the gold fields. In the place of hovels, cottages abounded, still partly of canvas perhaps, but yet presenting evidences of taste and comfort. There were gardens, with vegetables for the table; trim walks and beds of flowers denoted feminine influence; supplies of all kinds were easily obtained, roads and railways annihilated the long distances. Reading rooms, Mechanics' Institutes, friendly societies, cricket clubs, volunteer rifle companies existed for the miners' instruction, amusement and benefit. Schools were built and churches erected. "In everything essential to the enjoyment of a settled and contented life, there has been a steady and satisfactory growth. Less money may now pass through the miners' hands, but its purchasing power is as great," while the position and opportunities of the miner are vastly improved.

The State of Things in California.

We have a parallel case in California as far as the hue and cry about the exhaustion of the mines are concerned; and it does appear as if the price of labor would be reduced in the State, whatever our desires and inclinations may be. But on neither point have we just grounds for troubling ourselves. Our mines are *not* exhausted; and the reduction in wages, if it must come, will not prove in the end a real injury to the laborer. We believe that it will result in the opening of more mines, and thus give steady, instead of occasional, employment to the miners; it will cause a corresponding reduction in the cost of living, it will teach him to be less wasteful, and to use his money with more benefit to himself and to the public; it will bring him home comforts; it will tend to legitimate mining, and the *employee will be able to become an employer* to a much greater extent than is now possible, as the miner will be able to work his own mines. We may fairly judge, from what has been the effect in Victoria, of what will be the result on the Pacific coast.

Increase of Moisture on the Plains.

The *Inland Empire* is responsible for the following remarkable statements:

For some time past there has been a question before the people of this basin and of the plains east of the Rocky Mountains, that has as yet failed to be satisfactorily answered. It is—Why are the streams carrying more water than in former years? The great plains are fast losing their arid nature, and through them are running streams in places where twenty years ago there was not a drop of water; and where at that time there were small streams, they are very much enlarged. In many cases this change has been of great value, as it has given to the traveler a supply of water that had previously been denied.

When the first emigrants crossed the plains to California, the great objection urged to the trip was the scarcity of water on the greater part of the route. Within a few years this has been all changed, and in the beds of old streams that were dry when first found, there is now water for all the purposes required. The Laramie plains are not now destitute of water, whereas, some years ago, there was none, and travelers had to carry water when passing over them. There can be no doubt that for the last ten years there has been a continual increase of water throughout the whole desert country between the Missouri and the Sierra Nevada. The Arkansas was dry in 1862 from the Pawnee Fork to the Cimaron Crossing, and previous to that time the Pecos was dried up so that at many places the inhabitants were obliged to dig for water. And the Moro Valley and Plains were at that time almost destitute of vegetation. Now, the vegetation is luxuriant, and it is one of the best wheat-growing sections.

Denver was built on the banks of an extinct creek, which, it was supposed, would remain dry, but after the settlement, to the astonishment of the people, it became quite a stream, and is now crossed by bridges. The Huerfano, the Roya Pecos and others that were dry during the summer months, ten years ago, are now constantly running in fair streams. We are satisfied that along the whole line of the Union Pacific Railroad there is much more moisture in the air now than there was only a few years since. Again, Salt Lake is seven feet higher than it was ten years ago, and is constantly rising; and it has been urged by those who have paid attention to the subject, that the rise of water there would produce a solution of the Mormon question before Congress would act upon it. When the Salt Lake shall rise a few feet higher we shall look for its overflow to reach the Shell creek range, as evidently at one time water did cover what is now only an arid valley, not direct in its course, but cut up with ranges; still the continued valley can be traced. This great increase of water will work a great revolution in the opinions of people as to the capacity of the great plains for agricultural purposes.

The only reason why it has been supposed the great plains cannot be made into good farms has been the lack of water and timber, as the land in richness has no superior. The increase of water of which we have spoken will do away with one objection, and the discovery of coal over a distance east of Salt Lake for over 600 miles, will obviate the other. The man who travels over the Union Pacific roads twenty-five years from this time, will find that the sage brush has given way to crops of all kinds growing in the greatest luxuriance, and that the sturdy farmers with happy homes have taken the place of the wandering red men. In our own State this increase of moisture has been noticed, and the old settlers do not hesitate to say that in many places the streams have increased more than one-fourth in size during the past five years, and in some places where there was no water then, there is now small but constantly running streams.

Mechanical Progress.

Photographing on Canvas.

The *Photographic News* has seen some fine specimens made by Mr. Lothian with Mr. Davies' sizing solution of shellac and gelatin. This is used considerably diluted, for printing on canvas, as a thick film might exfoliate. The formula of Mr. Davies is as follows: "Take four to six grains of gelatin, soak it in an ounce of water for an hour, then melt it gently over a fire, hot plate, or water bath, using a clean earthen pipkin. When fully dissolved, add to it, while yet warm, and stirring it gently during the mixing, from four to six drachms of a solution of white lac in methylated spirit, if for white or pale surfaces; but orange lac will do if the surface be of a darker color. This is made in the proportion of six ounces of spirit to one ounce of lac, and digesting it till fully dissolved. The mixture of the gelatin and gum lac in spirits produces a creamy-looking emulsion, to which is added four grains of chloride of sodium, or a like equivalent of chloride of ammonium or barium, and, when fully dissolved, filter through fine muslin into a clean pipkin, and it is ready for use."

This is diluted with an equal bulk of water or of alcohol and water equal parts, and applied smoothly with a sponge to the canvas previously sponged with methylated spirit. It soon dries. The silver solution is applied with a tuft of cotton wool. The silvered surface being dry, the canvas is placed under a negative and exposed. When sufficiently deeply printed, the canvas is turned up at the edges, and secured at the corners by spring clips, so as to form a dish. Into the dish the hyposulphite fixing solution is poured, and suffered to remain about ten minutes.

Mr. Lothian states that he had arrived at a criterion of perfect fixation. When the surface is so thoroughly permeated by the fixing solution that it felt slightly soft and yielding when pressed by the finger, instead of being perfectly hard and rigid, experience has proved that the image is perfectly fixed.

When the image is fixed, one corner of the canvas is released from the clips; and, after pouring away the hypo., the surface is washed for a quarter of an hour by means of a flexible tube attached to the water pipe, care being taken at no stage of the proceedings to wet the back of the canvas. No toning is necessary, as the image, when fixed only, is of a rich, warm, purple brown tint, well suited to the purposes of the oil painter.

Glue.—The following hints are worth noting by those of our readers who work in wood. We find them in the *Journal of Applied Chemistry:* "Good glue is hard, clear, and free from bad taste and smell. Glue which is easily dissolved in cold water is not strong. Good glue merely swells in cold water, and does not dissolve until it has been heated to nearly the boiling point. One of the characteristics of good glue is its property of gelatinizing, or forming a stiff jelly when cold. The firmer the jelly the better the glue. Very white and colorless glue is by no means the best; but, whatever be the color, see that it is clear. The most common defect in glue is incipient putrefaction. This may occur either at the glue-factory or in the workshop; and in either case is fatal to the strength of the glue. It is easily detected by the smell when it is moistened. The preparation of glue demands care. It should be well soaked in water, but not too long. It should then be melted, great care being taken that it be not burned. Burnt glue is always weak. No more glue should be prepared at any one time than is to be used immediately, and whenever a job requiring extra strength is to be executed, it will always pay to prepare a fresh lot.

General Joiners.—*Engineering* closes an article on this subject,—written to describe a new machine called "Parkinson's Universal Joiner," and to show the advantages which have attended the substitution of wood-working machinery for hand labor,—with the following: "The cost of working this machine has, since its erection, averaged 50*l.* per month less than would have been paid for wages alone, if the work it performs had been done by hand labor at the ordinary piece-work prices. The general joiner and trying-up machine, also, have been found capable, in regular work, of preparing per day the stuff for seventy doors ready for putting together, the daily cost for wages in this case being 8*s.* 9*d.*, or only 1½*d.* per door."

Hardening and Tempering Steel.

At a recent meeting of the Polytechnic Association of the American Institute, this interesting subject was introduced for discussion. We quote some of the points from the *Artisan's* report:

Mr. Phin said: "It is laid down as a rule that all bright steel requires a coating of some description before putting it into the water, especially when the article to be hardened is of large size. Without this precaution it is liable to crack. An illustration of this is, that common turning-tools, hardened with the external skin left by the action of the hammer in shaping them, will always stand better and keep a finer and more certain edge than if ground before hardening, the precaution being taken to heat the steel to the exact temperature required to bring it when cooled to the desired hardness without subsequent tempering. The manner of dipping different articles must be varied according to their shape. Care must also be taken that the water be not intensely cold; for which reason it is best to throw into it burning coals or dip into it a hot iron rod to take off the chill before dipping the steel. In dipping, if the article has a thick and a thin part, the former must go into the water first, and preferably as near the center of the vessel as possible. In case the skin left by the hammer is not retained on the steel, it may be coated with soft soap, blacklead, plumbers' size, etc. For hardening in lead, any of those substances will answer a good purpose, but, when a common fire is used, prussiate of potash is to be preferred. The prussiate, powdered fine, may be sprinkled or sifted uniformly over the surface of the article. It may then be put into the fire, heated to the proper degree, and then plunged into the water, except when the piece of steel is large, in which case a second coating of the prussiate and a supplemental heating before dipping may be advisable."

Mr. Norman Wiard stated that he believed he had discovered the true theory of the hardening and tempering of steel; that these phenomena are due to a "tension" induced by the cooling of what he might be permitted to call the different "stratums" of the material. He instanced, as proving this, a careful experiment made by himself, in which a piece of sheet-steel that readily hardened when plunged edgewise into cold water, had refused to do so when clamped sidewise between two pieces of wet sponge.

Incautious Use of Anti-incrustation Compositions.—The *Mechanics' Magazine* says that the advice often given by the proprietors of boiler compositions, not to blow out the boiler, is dangerous. A recent case is cited, in which the engineer of a first-class boiler, then using one of these compositions, noticed, one morning, that both furnace-crowns were bulging down a little on one side of the center line, though, on looking at his water-gauge, he found that he had a depth of eight or nine inches of water over them. The engineer had the fires at once withdrawn and the steam blown off. It appears that the patentee of the composition had given directions that the boiler should not be blown out until cleaning-time. Therefore it had been worked on, all bottled up, for three hundred and forty hours. The water was drawn from the river, and left a sludgy deposit. This, combining with the composition—which was of a glutinous character—formed, in the absence of blowing out, a coating on the furnace-crowns of an inch thick. It was fortunate that the engineer detected this in time.

A "Variety Machine."—"A. S. Gear, of New Haven, Conn., has recently patented a machine that planes, molds, panels, tenons, and mortises straight and irregular wood-work, and, what is more astonishing, dovetails beautifully, making both tenon and mortise at the same time. It also carves in wood the duplicate of almost any pattern desired, such as images, scrolls, vines, etc. It is very simple in its construction, and is considered the most useful and wonderful invention that has been made in wood-working machinery for a long time."—*Artisan.*

Double Ratchet Brace.—A new brace of English manufacture has "double ratchet teeth pawls and levers, which on being moved from and toward each other simultaneously, impart to the ratchet wheels continuous motion, thereby enabling it to effect its work in half the time of a single brace and drill."

Scientific Progress.

Chemical Geogony.

Our readers will remember the article headed "A Final Zoic Catastrophe," which appeared in our columns some weeks since, condensed from a paper by Prof. Wurtz. The *Chemical Repertory* for Feb. 2d, contains a letter from Prof. T. Sterry Hunt to Prof. W., who has read the paper with much interest, and who agrees with most of the propositions advanced, having in fact maintained them himself for years. He says: "I have maintained that the condition of the cooling globe was one of thorough oxidation, and that all processes of reduction or deoxidation are either directly or indirectly dependent on organic life, to which I ascribed the formation of metallic sulphides and beds of iron ore in rocks then looked upon as azoic."

But upon the point to which we have referred he says: "As regards the final zoic catastrophe, to be brought about by the total elimination of carbonic acid from the atmosphere, its fixation in the form of carbonate of lime, and the consequent extinction of vegetable life, I may suggest that chemical changes going on in the depths of the earth are constantly liberating carbonic acid from its combinations, as shown, not only in volcanic regions, but in many other districts. May not this replace the amount removed from the atmosphere in the state of carbonate of lime, and thus maintain the equilibrium necessary for the preservation of the present order of life on the earth?"

Prof. Wurtz makes his rejoinder in the same number. After paying a high compliment to Prof. Hunt as a brilliant generalizer and illustrious chemist,—and disclaiming that there is no danger that his portion in these grand conclusions shall be overlooked, inasmuch as his discovery of the essential influence of Life in the processes of deoxidation is in itself immortality,—he goes on to claim that, although following in Prof. Hunt's footsteps to a certain extent, he has nevertheless pushed on farther in the path, taking a new point of departure, and seeing things from new points of view. He submits that any *hypothesis* must be a blind guide; and that the *known* should be taken as the starting point. He then names several things in which he differs from Prof. H., from which we quote the one especially in point: "I differ from him in his assumption of mysterious and inexplicable modes of liberation of carbonic acid from unknown materials in the telluric viscera; which liberation is assumed to be competent to compensate the mode of ceaseless exhaustion which I have for the first time pointed out. Even if his hypothesis could be admitted, and it could be shown that rocks not themselves sedimentary, or rather rocks antedating Life, now evolve carbonic acid, which seems incredible, it is still necessary that we admit an *indefinite* continuation of such hypothetical evolution, to establish the idea of the perpetuity of Life upon the Earth."

Anhydrous Nitric Acid.—A new method of preparing this, adopted by Messieurs Odet and Vignon, is described in the *Chemical News.* It consists in causing chloride azotyl to act upon perfectly dry nitrate of silver at from 60° to 70°. Chloride of azotyl is prepared by the action of oxychloride of phosphorus upon nitrate of lead, or nitrate of silver. It is a slightly yellow-colored liquid, boiling at 5°, and not frozen at 31° below zero; in contact with water it is decomposed into nitric and hydrochloric acids. The vapor of this fluid is applied for the decomposition of dry nitrate of silver, in a simple apparatus consisting of U-shaped tubes connected together by means of suitably bent glass tubes. The chloride of azotyl is prepared simultaneously with the anhydrous nitric acid, which is collected in a tube placed in freezing mixture at 25° below zero.

The Corona.—The *Philosophical Magazine* contains a letter from Mr. Winter, announcing his conviction that the polarization of light from the Corona of the Sun, as seen in the total eclipse of 1868, is of such a nature as to prove conclusively that it is due to the reflection of the splendor of the sun's body from a surrounding atmosphere.

Projection of Spectra on a Grand Scale.

Prof. Barker, of New Haven, recently lectured on spectrum analysis in Brooklyn, N. Y. A series of metallic spectra were projected on the screen—says the *Journal of the Franklin Institute*—with a success not before attained, we believe, in this county or abroad. We quote the account of an eye-witness: "The battery consisted of fifty cells of Bunsen, twelve inches high. A Duboscq lantern with his improved lamp, which gives two directions of motion in the carbons, was employed. For holding the substances, pieces of carbon one-half inch square and two inches long, fitting into the socket of the carbon-holder, were used, being hollowed out to receive the metal. The condensing lens was protected by a plate of glass from the fiery rain of melted metal. The slit had a length of one and a half inch and was nearly an eighth broad. The prisms were made of thick glass tube cut obliquely, so as to give prisms of 60°, and having sides of plate glass. They were filled with bisulphide of carbon. * * In this way, a splendid continuous spectrum ten feet long by eighteen inches wide was obtained, overlapping the screen nine feet by three at both ends. There were then projected the spectra of sodium, lithium, magnesium, copper, brass, iron, mercury and thallium, using the metals, except in the case of lithium, where the carbonate was used. The lines were as sharply cut as in the spectroscope. Six lines were observed with sodium, probably those noticed by Wolf and Diacon; three lines with lithium, the blue being gorgeous. The copper bands were beautiful and retained their identity perfectly when the zinc lines in brass were added to them. The numerous lines of iron came out with a surprising minuteness, the dark spaces between them looking in some places like fine black lines. Mercury gave three lines only; one a peculiar light orange-yellow—a sort of nankeen color—the second green, the third a splendid blue-violet."

Mixing Lignite and Crude Petroleum for Fuel.

Prof. Hayes, Massachusetts State Assayer, contributes to the *Chemical Repertory* an article on the Italian lignites. We quote and condense:

Prof. Cassola proposes to mix or saturate the porous lignites with the crude natural bitumens, and burn the nearly dry artificial mixture thus made as coal.

The lignites readily absorbed about twenty per cent. of the semi-fluid hydrocarbon, and the result was not adhesive, and could be quite as comfortably handled as softer varieties of coal. This mixture, by estimation, had a high practical value, and presented the utilization of crude petroleum as fuel, under a new and inviting aspect. * * The bitumens of Southern Italy resemble those of California generally, though their petroleum oil has been drawn from tolerably deep wells, and the latter are therefore adapted to this new use; becoming valuable, not as fuel *per se*, but conferring on a poor hydrous combustible a greatly increased power in producing heat. * * In California, where semi-fluid bitumens exist, the increasing facilities for transportation may allow the value of lignites of that and other States to be greatly increased by the absorption of bitumen, so as to form an artificial fuel, in which the combined water of the lignite will be utilized to form a strongly heating flame, in the otherwise smoke-producing vapors of the bitumen."

Antidote for Carbonic Acid Gas.—Dr. Limousier, of Paris, lately resuscitated a woman who by inhaling the gases of a charcoal fire, had become asphyxiated, or poisoned to a state of insensibility, by causing her to inhale pure oxygen. He made her inhale three gallons the first day, at intervals; on the second day she inhaled six gallons; and on the third day she was completely restored, her blood circulating freely, and every trace of carbonic poisoning having disappeared.

This would seem to suggest the use of pure oxygen as a sanitary agent, in all cases of vital degeneration caused by breathing impure air, and when from any cause the circulating system has become loaded with carbon, whether by breathing impure air, or by the impurities thrown into the circulation by the waste of the system.—*Gas-Light Journal.*

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Mining Items.—*Miner*, Feb. 12th: Globe tunnel is making good headway, the rock being the best for working yet found. ....Mr. McCarty has perfected his purchase of the Good Hope, and is making arrangements for mining and milling the ore....Schenectady Supt. is putting in sluices, and getting ready to reduce by concentration....M. C. Tunnel No. 3 continues to turn out ore.

Mountain No. 1.—*Chronicle*, 12th: The report of the Supt. for January, shows the length of the tunnel to be 1,795 feet. Thirty feet made during the month.

AMADOR COUNTY.

The Mines.—*Dispatch*, 19th: The Kennedy and Onsida mills continue to hammer away as usual, while the Coney remains in *statu quo.*

BUTTE COUNTY.

Cherokee.—Oroville *Record*, 19th: The placer mines of this section have lain almost entirely idle during the winter. The whole of Table Mountain, from Cherokee to Thompson's Flat, is valuable mining ground, but lacks a full supply of water.

CALAVERAS COUNTY.

No Water.—*Chronicle*, 19th: Those miners who threw up gravel during the summer, out of reach of ditch facilities, relying upon nature for water, have thus far been disappointed, and the prospects are that they will be forced to postpone washing up until next season.

Palomo.—The mill is kept running day and night. The main shaft is sunk to the depth of 300 feet, developing the fact that the vein increases in size and richness.

Angels.—We are informed that all the quartz mills are constantly employed and paying well.

Petticoat.—After a short run, during which second-grade ore was crushed, 150 ounces of amalgam were obtained from the mill recently. First-class rock is now under the stamps.

Nugget.—A nugget of gold, weighing over three dollars, was picked up in Lafayette street, by a little boy, one day this week.

Lower Rich Gulch.—Alexaoder & Co., whose claim is below the Palomo, are working away with energy. Their battery of 10 stamps is kept in constant operation, crushing ore that pays fairly.

EL DORADO COUNTY.

The Placerville *Democrat* of the 19th urges the call of a miners' meeting and the election of a Recorder. The present loose tenure of mining ground retards development, for no one knows how many "original claimants" may spring up if he prospects a lead and strikes anything. So no one prospects.

Improving.—Melton & Morey, from last week's run of their mill at Grizzly Flat, sent down $800 in bullion. This is double the amount sent any previous week.

FRESNO COUNTY.

Quartz.—Mariposa *Gazette*, Feb. 18th, The mill of Harbert & Co., 33 miles from Mariposa, has been in successful operation since December. The company have a 10-foot vein and are down 40 feet. The mill is a 10-stamp steam, situated 400 yards from the mine, with an abundance of wood and water. The rock averages from $15 to $20 to the ton.

MARIPOSA COUNTY.

Started Up.—*Gazette*, 18th: The late rains have furnished sufficient water to set the water-wheel quartz mills in operation. A great deal more rain is needed before many of the placer miners can work for any length of time.

INYO COUNTY.

A Los Angeles telegram of the 19th says 10 tons of base bullion arrived to-day from Cerro Gordo.

NEVADA COUNTY.

Excitement.—Grass Valley *Union*, Feb. 17th: Night before last E. C. Webster & Co. struck bed-rock in their mining shaft on Bunker Hill, near the Randolph House. The lead was found to be very rich, $81 being taken out in one pan of dirt. As a matter of course, this news spread around the town, and people became excited. Adjoining ground was immediately located. This lead is an old river bed, and is supposed to be same as the Alta Co. worked.

Penn Mine.—18th: Wednesday a contract was let to sink 100 feet of the ledge. The company have concluded to get below all surface disturbances before they take out rock for crushing.

Eureka.—20th: The mill was yesterday cleaned up. The result was about the same old thing—$2,000 per day, not counting the sulphurets. The run of six days gave a trifle over $12,000. The batteries are cleaned up only occasionally.

Spring Hill.—Machinery is to be put on the ledge without delay.

McClellan.—The crushing of 48 tons of rock gave $11 to the ton. The rock now coming out is estimated at from $15 to $20.

Bowery.—The company are about putting up steam hoisting machinery upon their ledge, on Squirrel creek, preparatory to developing. The mine has so far proved rich, the quartz averaging $75 to the ton.

Red Jacket.—Samples of the blue cement and gravel indicate that the Sucker Flat and Smartsville lead exists in the Red Jacket Hill, and the work done demonstrates that the deposit is very large.

Mutual.—*National*, 15th: This morning we saw a lump of gold, which was brought down from Eureka yesterday, valued at $2,500, the result of two or three day's run of the 5-stamp mill of the Mutual Co.

The same of 18th has a long article giving a history of the rich gravel claims just opened by Webster & Co. at Bunker Hill, and confirming the reports. W. & Co. own 1,200 feet front to the center of the hill.

Items.—Same of 18th: Webster & Co. prospected another pan of dirt this morning. A specimen of gold weighing four ounces, was taken out....The Orleans Co. on Gold Flat, struck a ledge two feet thick yesterday. The specimens we saw are very rich, and it is estimated that the rock will pay from $50 to $75 per ton.

Lost Hill.—*Gazette*, 16th: Archibald Nevius is making preparations to open extensive mining claims at the northwest corner of the corporation limits. He will use 2,000 feet of 11-inch iron pipe.

Fair Yield.—18th: A crushing of 40 tons of rock from the McClellan mine, at Stiles' mill, cleaned up Wednesday, yielded $448.

Bunker Hill.—Same of 19th: The excitement over the recent discoveries continues to increase. The gravel struck is six feet thick. On the top of this bed it prospects from 10 to 20 cents to the pan, and at the bottom as high as $50 to the pan.

A Quartz Strike.—*Transcript*, 18th: A rich strike has been made in the Star mine near Washington. This company sometime since made a lease to Lee Garthy & Co., who were to take out rock to be crushed at the mill. These parties struck the ledge, 3½ feet thick, and have taken out about 150 tons of rock. The lowest estimate placed upon it is $25 per ton.

Omega.—19th: We learn from a gentleman who came down yesterday, that the miners have plenty of water and are busy at work. The prospects were never better.

More Bunker Hill.—A dozen companies will soon be at work. The strike has given a great impetus to mining. These rich channels are being better and better understood. With the same evidence of rich mines as Nevada county possesses, the Sandwich Islands would carry off half the people of the State.

Nuggets.—20th: We learn that quite a number of nuggets have been taken out of the claims of Webster & Co. One piece is worth $35, another $17, another $12, one of $7, and numerous smaller ones. Proposals have been made by capitalists to erect machinery on the Grant ground for an interest.

A Grass Valley telegram of 19th says the gravel strike at Randolph Flat is likely to result in many lawsuits. All the ground vacant when the strike occurred, has been located—some of it three or four times over.

PLACER COUNTY.

St. Patrick Ledge.—Auburn *Herald*, Feb. 19th: Joseph McLaughlin sold his claim on the 5th inst. to C. F. Eaton, of Graes Valley, for $3,000, reserving 10 tons of quartz which he had out. Out of these 10 tons he had taken $1,500 in specimen gold; the refuse has since been milled, and yielded $1,544, making $3,044 from 10 tons, or over $300 per ton. If McLaughlin had known that this refuse quartz would mill $150 a ton, it is doubtless whether he would have parted with the claim for twice $3,000.

PLUMAS COUNTY.

Crescent.—*National*, 12th: We are informed that 30 men have made a strike, and refuse to work or let anybody else work in the mine. The cause is the number of hours they are required to work. Mr. Bransford, Supt., is now below, to procure laborers.

SAN DIEGO COUNTY.

Mines.—*Union*, Feb. 10th: About 60 miles from this city, in the vicinity of the San Jacinto mountains, placer deposits have been struck which have prospected from one to fifteen cents to the pan. This section is at present unavailable, owing to the want of water. A gentleman has just returned from a trip up Soledad creek, out by Johnson's ranch, to a point 40 miles from this city. Here, all through the country, and in the vicinity of San Pasqual, the gulches indicate the existence of placers. There is considerable water, and ditching could be easily made available. In quartz, more important discoveries have been made. A party of prospectors have discovered a ledge which is from six to eleven feet wide, and has been traced nearly two miles. The locality has not been made public.

A letter from Sweetwater Valley to the Downieville *Messenger* says that a ledge has recently been opened which capitalists have agreed to prospect, paying all expenses, for one-third of the rock taken out. A test made from the croppings last week in San Diego, resulted in $375 per ton.

SIERRA COUNTY.

Items.—*Messenger*, 19th: Work is progressing on the Good Hope to develop the ledge....Ned Leonard's quartz mill is running on good rock, though the quantity is limited.

Morristown.—Cor. of same: Work has commenced in a small way. Jones & Co. have made a clean-up, paying them five dollaps per day to the hand for all labor done. The American Co. is working 20 men, but water is scarce. They are fortunate, however, in having a large amount of drift dirt.

SISKIYOU COUNTY.

Water Plenty.—Yreka *Union*, 11th: The ditches about Oro Fino and Mugginsville are "swimming full" of water, and every man is at work.

Quartz.—H. T. Sheppard has some good specimens of rock from the Knapp ledge at Oro Fino. The rock is soft and easily crushed, but the gold is not always easy to save. The mill will be running in four weeks.

TRINITY COUNTY.

Corral Diggings.—McCollum, Tinsley & Co. are making preparations to develop the recently-discovered mining district. The mines are high up in the mountains and can't be worked through part of the winter, because of too much snow. The returns are flattering.

McGillivray's.—The suspension flume is working finely. The proprietor says that the pipe will carry 30 sluice heads across the river.

TULARE COUNTY.

Prospecting.—*Times*, 12th: We have been shown some specimens of ore that compare favorably with those from mines hundred of miles away, found within a few miles of Visalia.

Arizona.

Big Bug.—Prescott *Miner*, Feb. 5th: The result of a six days' run of the mill was a bar of gold worth $1,200. The mine was looking first-rate; from 10 to 12 tons of pay ore was being taken out every day, and there were, when Messrs. Gray and Hitchcock left, about 125 tons of ore at the mill.

The Eureka mill at Walker's is idle. So are the Chase and Sterling mills, in Hassayampa district. The Vulture Co's 40-stamp mill, near Wickenburg, is, we believe, paying well.

Mohave County.—Cor. of same: Mr. Otis recently came down from El Dorado cañon with 350 pounds of bullion. The company has been embarrassed all the fall by the difficulty in procuring wood. Capt. John Moss and a large party of prospectors are now out in Clarke, and judging from samples brought here, that is a rich district. Prof. Palmer, of Nevada, says it is the richest silver district he has ever seen. Prominent San Francisco capitalists have become interested, and Moss says they mean work.

Colorado.

Briggs.—Central City *Herald*, Feb. 9th: This mine has produced another monthly retort, weighing 420 ounces, valued at $8,500. During the milling of the ore from which this was produced, there was sold for smelting 40 tons, worth $3,000.

Graes Valley Co.—This company, working the Prize lode, under lease from the Central Co., shipped $500 to New York last week. This lode is turning out fine looking ore, at the rate of five cords per week. The first quality sells to Prof. Hill at $35 per ton.

Quartz Hill Tunnel.—The tunnel has been run 490 feet, and has reached a depth of 275. It has crossed 11 distinct veins, the value of which has not yet been tested. The head of the tunnel has reached a distance of 90 feet from the last vein crossed.

Major Anderson.—Georgetown *Miner*, Feb. 10th: We learn of a contract having been let to sink a shaft 50 feet on this lode This completed, the main shaft will have been sunk 128 feet.

Idaho.

Golden Chariot.—*Avalanche*, 19th: Main shaft 400 feet deep; vein from two to three feet; richer than ever in silver, not so rich in gold. Everything in fine order—shaft well ventilated, and machinery works admirably.

Ida Elmore.—New engine house and appurtenances of the most substantial kind. Greatest depth, 407 feet. Main shaft will go down 20 feet further, and stopeing will then commence. The deeper the shaft, the wider the lode.

Items.—Good pay rock is being taken from the Home Resort. Judge McDaniel and party have leased the mine. Baxter shaft is down 220 feet, and yielding ore scarcely inferior to any. Corduroy is worked by contract. Quite a sensation has been produced by a rich strike just made. Peck & Porter is actively worked. These two mines will doubtless prove rich as the Chariot and Elmore. Mr. Peck is getting the Potosi in shape. Poorman is being worked as usual, also the Empire. The Sands Bro's are prospecting a discovery on the mountain—said to be rich. Crane & Driggs will be re-opened. The Surplus Oro Fino will be worked again soon.

Montana.

Philipsburg—Cor. of Helena *Gazette*, Feb. 10th: The mines are looking better than ever. The shaft on the Speckled Tront is 30 feet deep and rich quartz is coming out. The ledge will assay six feet. Mountain Queen shaft is down 100 feet and a tunnel is being run into the hill from it. Plenty of good rock coming out of Comanche Extension No. 3. The Cole-Sanders Co. have 14 men employed. The mill commenced operations on Saturday, on Mountain Queen ore. The yield is expected to be about $60 per ton.

French Gulch.—Cor. of Deer Lodge *Independent*, 5th: Several men have been rocking in the gulch during the winter, with flattering results, and the prevailing opinion is that the Gulch will employ more men and yield more gold than in 1865. About a mile above town, on First Chance gulch, some twenty-five Mexicans are located, a number having exceedingly rich ground, which extends into a swamp on top of the mountains.

Latest.—A Helena telegram of the 19th says: The mail from Cedar Creek to-day brings a report of still further important gold discoveries in that camp. Stampeders are still on the move.

Nevada.

COPE DISTRICT.

Mountain City.—Cor. of Elko *Independent*, Feb. 19th: The M. C. Co. are taking out very rich ore, to be crushed at the Atchison & Drew mill. The Columbus shaft is down 60 feet; first-class ore coming out. The Argenta is from five to eight feet wide at a depth of 55 feet. The tunnel will tap the ledge 100 feet from the surface. There are 300 or 400 tons of ore on the dumps, worth, on an average, $400 per ton. The Crescent owners are taking out 10 to 15 tons every 24 hours. The ore works $250 per ton.

REESE RIVER.

Silver Bend.—*Reveille*, 16th: It is rumored that the claim of the S. B. Co. has been relocated by Belmont parties. Some $8,000 has been expended upon the mine, and it is an important question whether the local regulations, which regard a claim abandoned if no work has been done upon it for one year, can oust a company under such circumstances.

Same of 18th, says: We learned last evening that the trouble about the Silver Bend Co's mine has been adjusted, the jumpers having withdrawn their claim. It appears that the mine is patented, but the jumpers declared that they were ignorant of the fact. They had taken out several tons of ore, which were sent to mill and reduced. The 10-stamp mill of the Belmont Co. is reducing ore and tailings. The charge for ore is $45 per ton, the mill guaranteeing to return 70 per cent. of the silver. The Highbridge claim of the Belmont Co. (Col. Buel's) is under lease, and has developed a fine body of ore, estimated to yield $500 per ton. The property of the Combination Co. will shortly receive development.

Hot Creek.—*Inland Empire*, 18th: Mr. Perkins, recently from Hot Creek, reports the mines looking well. Four tons of ore from the Reveille mine have been taken to the Zottman mill for reduction. Pulp assays average $500 per ton.

Lander Hill.—*Reveille*, 16th: The hill is lively with "chloridizing" parties, and they make the business pay well.

MINERAL HILL.—A 10-stamp mill is on the way from San Francisco. The *Enterprise* of 20th gets these items from a Mineral Hill correspondent: Smith and Hensley have made a location of black sulphuret and chloride ores, that promise to make them rich. Snyder and Hensley have sent six tons of fine ore to Reno for reduction. Bernard and Maun have shipped three tons from the Chollar lead. The Live Yankee shafts are down 45 feet, at which depth they find plenty of rich ore. The Austin Co. are working their lead by shaft and tunnel, and find fine ore.

BULLION.—*Reveille:* The Manhattan Co. shipped on the 18th, overland, six bars of bullion, valued at $8,342.11. This makes $25,601.94 shipped by that company in three days.

WASHOE.

OPHIR.—*Enterprise*, 20th: Still bailing and pumping. There is 90 feet or more of water in the main shaft.

VIRGINIA CONSOLIDATED.—Drifting will be commenced to-day in rock that can easily be worked with picks. They have their new cage in operation. But little water is coming in.

OCCIDENTAL.—The rock is favorable, and good progress is made. A winze is down 200 feet in the North Occidental, and a "rise" to connect with it is up some 125 feet. Between the winze and rise there remains 190 feet to be excavated, when the two will be connected.

SEGREGATED BELCHER.—This mine is yielding 25 tons of ore per day. They have between 2,000 and 3,000 tons of ore on their dump, which they will begin shipping as soon as the switch from the railroad is completed.

CALEDONIA.—The ore from the upper level has paid expenses so far, and another good streak was found further west last week on the same level.

BELCHER.—This mine is yielding 75 tons of ore per day, mostly from the upper levels. The drift on the 730-foot level is in good-looking quartz.

SUTRO TUNNEL.—Day before yesterday the Sutro Tunnel was in 770 feet in a hard trachyte formation. The water is increasing at the bottom of the tunnel, but as yet none comes overhead.

OVERMAN.—Daily yield 140 tons, all from the upper levels. The winze between the 400 and 500-foot levels is completed.

SACRAMENTO AND MEREDITH.—They expect to have a mill running in two months, and the ore now taken out is piled up ready for reduction.

SIERRA NEVADA.—During the past week this company have taken out 56 tons per day. The mine looks as well as usual, and the mill is kept in constant operation.

HALE & NORCROSS—Is yielding about the usual quantity and quality of ore. The main shaft for the opening of a new level was commenced day before yesterday.

WHITE PINE.

WEEKLY MINING REVIEW.—*Empire*, 20th: Amount of bullion shipped during the week, is $30,388.11. The Aurora Consolidated, Eberhardt and Hidden Treasure are working the usual number of men, and extracting the usual amount of ore.

ITEMS.—In the Blackfoot mine, Blue Hill, on the 19th, the workmen came upon ore equal in richness with the best found on Treasure Hill, showing a great amount of chlorides and horn silver, besides sulphurets. The ledge is eight feet wide.... The Imperial has contracted to furnish the Alsop Co. 1,000 tons of ore at $20 per ton on the dump....Treasure Hill Co. has a shaft 80 feet deep on the Post-Hole; ore improves as they go down....Big Treasure mill runs through daily 54 tons of tailings, besides doing custom work....Aurora South employs 40 men; the mine looks better than ever....On Friday the Nellie Mack struck a body of ore four feet thick which will mill from $50 to $100 per ton. ....Swansea mill will start again this week on Silver Wedge ore....Oswego had a crushing last week which yielded $90 per ton....Consolidated Chloride has been attached for $9,000.....Montgomery has plenty of good ore in sight....Shermantown mills all busy.

San Francisco Prices of Copper Ores.

SAN FRANCISCO, Feb. 24, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

	Per ton.		*Per ton*
12 per cent. ore......	$24 00	18 per cent. ore......	$41 40
13 " "	26 65	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

San Francisco Mining Stock Market.

Notwithstanding the Grand Festival interruptions of the past week, the transactions at the Board were large, and extended over a considerable range of stocks. However, prices were a shade lower.

With reference to the White Pine District, we extract the following from the *News* of the 21st inst.: "Since the reduction in the price of milling, there is noticeable activity in mines of low grade ores. Work has been resumed upon a number, long idle, and many are being actively worked which were never touched before, save to fulfill the requirements of the law. In consequence of bad roads, some 64 stamps are now idle. The milling capacity of the District aggregates 207 stamps. This large number of stamps has brought about competition, and milling is now down to $12 per ton. The amount of ore in Treasure Hill which can be profitably worked at these figures is inconceivably great, and the result of this reduction is the commencement of work upon a large number of mines which would have remained idle so long as the mills charged $20 per ton for crushing."

CHOLLAR-POTOSI—has been in large request, particularly early in the week, and has maintained very uniform rates. For the week ending February 18th 1,013 tons of ore were extracted, against 1,220 tons the previous week. During the past seven days portions of the Blue Wing stopes have improved. The eighteenth floor of the northwest drift has developed a body of good ore that promises to afford a large amount of ore. It is reported that the 27th floor shows much better ore than the floor immediately under it did, and that the main tunnel west from the Grass Valley section is an excellent ore. The west drift was increased 67 feet, making the total distance from the shaft 190 feet. On the 22d inst. they sent forward bullion to the value of $20,052.

BELCHER—was less active than during the previous week, and sold at a lessened price. Up to the 17th inst. the Rhode Island mill had been supplied with 320 tons of ore. It is said they are taking out about 70 tons of ore per day from the stopes above the 152 level. On the 730 level south of the shaft, they are cleaning out the drift, which had caved by the flow of water, and they intend to continue the drift to the southwest.——CROWN POINT was in the market to a tolerable extent, selling at a considerable recession at the close. During the week closing Feb. 13th, 280½ tons of ore were extracted, showing a 65 per cent. assay value of $3,660 74, equal to $13 05 per ton. The 1,000 level winze has attained a depth of 60 feet.

GOULD AND CURRY—though small sales were effected, exhibits a very fair advance. For the week ending February 21st, 189¾ tons of ore were extracted, against 195 tons the previous week. In the vicinity of the 20th floor of the old mine, (says the Superintendent), eighty feet east of the old timbers, a body of ore has been developed that is much superior to any ore obtained from the mine for years, the assay value of two average samples showing $602 45 per ton. At the point that this body was cut by the drift, the ore measures six feet in width, and will undoubtedly furnish hundreds of tons of ore equal in value to that of the above samples. At the seventh station, the drifts—north and northwest—all have a mixture of clay, porphyry and quartz, and altogether the prospects in that section show an improvement.

HALE & NORCROSS—was moderately dealt in, at a decline from prices obtained the previous week. The ore product for the week ending February 19th was as follows: Upper mine, 175 level, 213 tons; 300 level, 88½ tons; lower mine, sixth station level, 700¼ tons; making a total of 1001¾ tons. On hand, 6,262 tons, of which 2,485 is low grade. They are continuing the shaft to a greater depth, and the bullion yield of the present month will equal that of January.——OVERMAN was not in the market during the past week. During the week ending February 20th, they extracted 818 tons of ore, and shipped 841 tons to the reduction works.——SIERRA NEVADA met with considerable purchasers at a slight decline. The estimated ore product for the week ending February 21st, amounted to 379 tons.——AURORA CONSOLIDATED levied an assessment of $3 per share, on the 23d inst.—*Commercial Herald.*

* * *

Latest Stock Quotations.

AT THE S. F. STOCK AND EXCHANGE BOARD

THURSDAY, February 24, 1870.

WASHOE DISTRICT, NEV.	*Bid.*	*Asked*
Alpha	10¼	10¾
Belcher	16	16½
Bullion, G. H	5	—
Crown Point	16	16¼
Cole (Va.)	—	—
Confidence	—	10
Chollar-Potosi	20	20½
Daney	—	50c
Exchequer	6½	7
Empire M. & M. Co	15	—
Gould & Curry	65	70
Gold Hill Quartz	10	15
Hale & Norcross	125	128
Imperial	20	—
Julia	—	50c
Justice and Independent	1	2
Kentuck	82⅛	83
Lady Bryan	3¼	3¾
American	—	—
Occidental	10	—
Ophir	10½	11
Overman	60	65
Segregated Belcher	6	6½
Savage	33	34
Sierra Nevada	6½	7
Yellow Jacket	43	44
MISCELLANEOUS DISTRICTS.		
Amador (California)	326	330
Aurora, White Pine	3	4
Eureka, (California)	235	—
Golden Chariot (Idaho)	10	13

* * *

ORE SAMPLING.—Last week we gave the wrong name to the Wheeler crusher, used at S. W. Howland & Co's crushing and sampling works, No. 413 Mission street. In another issue we shall speak more specially of the matter of selling ores in this market.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alameda Coal, Feb. 16, 30c	March 30	April 22*
Alleghany, Sierra co., Dec. 30, 50c	Feb. 7	Feb. 28*
Bullion, Storey co., Feb. 8, $4	Payable immediately	
California, W. P., Jan. 18, 50c	Feb. 21	March 14
Cons. Chloride Flat, W. P., Dec. 14, $1	Jan. 29	Feb. 24
Crown Point, Storey co., Jan. 5, $7 50	Feb. 8	Feb. 28
Cons. Virginia, Storey co., Jan. 7, $2	Feb. 12	March 5
Columbia, Cope, Jan. 29, 50c	March 5	March 25
Cordillera, Mexico, Feb. 17, 25c	March 25	April 11*
Cherokee Flat, B. G., Feb. 17, $5	March 22	April 8
Daney, Lyon co., Feb. 9, $1	March 14	April 2
Dutch Flat G. & C., Feb. 11, 75c	March 18	April 8
Empire M. & M., Storey co, Jan. 7, $10	Feb. 11	March 7
Glenwood, El Dorado, Feb. 4, 25c	March 7	March 28*
Gould & Curry, Jan. 12, $15	Feb. 10	March 9
Hartwell, W. P., Feb. 19, 6c	March 25	April 21*
Imperial, W. P., Jan. 5, 25c	Feb. 10	Feb. 28*
Imperial, Storey co., Feb. 15, $10	March 22	April 14
Lady Bryan, Storey co., Jan. 12, $2.50	Pay. immed'ly	
Mammoth, W. P., Jan. 4, 20c	Feb. 14	March 7
Meadow Valley, Jan. 29, 50c	March 3	March 22
Nevada L. & M., Feb. 8, 2½c	March 15	April 5*
N. Bloomfield, Nevada co., Jan. 16, $6	Feb. 12	Feb. 28
Noonday, W. P., Jan. 20, 30c	March 2	March 23
Ophir, Storey co., Jan. 8, $2	Feb. 11	March 2
Pinto, W. P., Jan. 3, 15c	Jan. 15	March 7*
Savage, Storey co., Feb. 7, $10	March 14	April 2
Silver Wave, W. P., Feb. 19, 20c	March 21	April 11
Taylor, El Dorado co., Jan. 5, 60c	Feb. 7	Feb. 28*
U. S. Grant, Nev. co., Jan. 19, 50c	Feb. 21	March 12*
West Point, W. P., Feb. 22, 50c	March 20	April 18

MEETINGS TO BE HELD.

Continental	Meeting March 15
Dancy	Annual Meeting March 7
Golden Chariot	Annual Meeting March 7
Hale & Norcross	Annual Meeting March 9
Hall & Van Dyke	Annual Meeting March 9
Mohawk & Montreal	Annual Meeting March 9
Peytona	Annual Meeting Feb. 22
Silver Vault, White Pine	Meeting March 9
Virginia	Annual Meeting March 12

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable Feb 7, 1870
Chollar-Potosi, div., $1	Payable Feb. 10, 1870
Eureka, div., $7.50	Payable Feb. 7, 1870
Hale & Norcross, div., $6	Payable Feb. 10, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1370

——*Advertised in this journal.

* * *

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, Feb. 12, 1870.

IRON.		
Pig, Scotch, No. 1 (cash), per ton..	$37 50 @	$42 00
Pig, American, No. 1 (cash)	42 00 @	— —
Pig, American, No. 2	38 00 @	39 00
Swedish, ordinary sizes	140 00 @	155 00
Common	87 50 @	92 50
Refined	95 00 @	— —
Rods	100 00 @	155 00
Horse-shoe	115 00 @	— —
Hoop	126 00 @	180 00
Scroll	110 00 @	145 00
Nail-rods, per lb	— 8¼@	— 9¼
Spring	— 9¼@	— —
Tire	— 9¾@	— —
STEEL.		
Bars, best cast, warranted, per lb...	— 23 @	— 23½
Sheet, best cast	— 23 @	— —
Sheet, second quality	— 20 @	— —
Sheet, third quality	— 18 @	— —
Saw-plates, circular	— 27 @	— —
Double-shear, warranted	— 23 @	— —
Single-shear	— 19 @	— —
Montague & Co. (cast bars)	— 18 @	— —
Machinery, round	— 16 @	— —
German, best	— 16 @	— —
German, goat	— 13½@	— —
German, eagle	— 12 @	— —
Blister, warranted	— 16 @	— —
Blister, common	— 15 @	— —
Jessop & Sons', common	— 17 @	— —
Double-refined	— 26½@	— —
Stone-ax shapes	— 26½@	— —

* * *

THE MANUFACTURER AND BUILDER.—This excellent publication, devoted to the practical interests of industrial progress, is rapidly and deservedly increasing in circulation. Its pages are filled with the most interesting matter, well chosen and simply written, and the extremely low price ($1.50 per annum) places it within the reach of the poorest. The mechanic will find in it matter to benefit him in his every-day work, and to interest him as to what has been done in his profession, and the more scientific reader will be able to glean much valuable information from its columns. It has much of the value without any of the dryness of an encyclopedia which keeps up with the every-day progress of the age.

* * *

CONRAD WIEGAND delivered an address before the Board of Brokers on Monday last, which was listened to with great interest. The speaker enumerated several *presumptions* which have caused lack of confidence in the management of several mines at Virginia City, pointed out the troubles and suggested the remedies. Mr. Wiegand is evidently intent on reform, in which we wish him all success.

* * *

FLAX CULTIVATION.—We see it stated in an exchange that from four acres of flax, cultivated at Tomales last season, $80 was obtained from the sale of the seed and $400 for the fiber, making $120 per acre, gross receipts.

The Wilson Steam Stamp Mill.

After a mining experience of seventeen years in California, Mr. F. R. Wilson returned to New York, and there, in 1866, worked out the idea of a new stamp mill. The first machine was built in Philadelphia, and gave satisfaction in experimental workings. Feeling, however, that the only way to introduce a new machine was by showing that it could be made useful by *practical* tests, Mr. W. bought the Russell mine in North Carolina, and there ran his mill for seven months. The average amount crushed in this time was at the rate of thirty-five tons per twenty-four hours, while in special instances, when the capacity of the mill was tested, it was run several hours at the rate of three tons per hour. The rock was a tough, blue quartzose shale impregnated with pyrites. These results, which were better than had been expected or claimed, paved the way for the general introduction of the mill.

In our issue of December 11th, 1869, our readers will find an illustration of the mill and details of its construction, the localities where it has been in use, etc. The San Francisco public will have an opportunity in a couple of weeks of seeing one tested at the Pacific Foundry, where three machines,—one for the Overman mine, Virginia City,—are being built.

It is claimed that the Wilson mill will easily accomplish the work of a 20-stamp mill, and can be erected for half the cost. For mines situated in positions where the item of freightage is a large one, the economy in using this mill is still more apparent, as a complete mill weighs only about 5,500 pounds, and, moreover, as one can be set up ready to run in three days. A 15-horse-power engine suffices for this mill, and for fuel about two cords in twenty-four hours. There is one in operation at the Vigilance mine, Nevada, Cal., and the reports which are received here with regard to it are highly satisfactory. In fact, wherever the mills are located, the owners, in letters which can be seen, speak of them in the highest terms of praise. It is stated, moreover, that as a result of the operation of the mill at Nevada, the miners have been so favorably impressed with its economical value, that they have commenced prospecting on ledges which previously have been neglected as too poor to pay under the old system.

* * *

New Incorporations.

The following have filed articles of incorporation with the County Clerk, S. F.:

HALEY & O'NEIL TRACT HOMESTEAD ASSOCIATION.—Feb. 11th. Capital stock, $204,000; divided into 400 shares. Directors: E. B. Clement, Wm. L. Duncan, H. G. F. Cofahl, Victor David and J. C. Duncan.

LAKE BIGLER WATER CO.—Feb. 14th. Capital stock, $10,000,000; 20,000 shares of $500 per share. Trustees: James Clark, D. Murphy and W. P. Humphreys.

MAUNTAUCK S. M. CO.—White Pine. Capital stock, $1,600,000; divided into 16,000 shares. Trustees: Washington Ayer, Geo. Hearst, Justus Struver, E. J. Ryan and B. C. Hodge.

The following have been recorded in the Secretary of State's office, Sacramento:

THE SANTA BARBARA WATER CO.—Feb. 15th. Capital, $100,000. Trustees: S. B. Brinkerhoff, Wm. Ord and E. T. Cooper.

SANTA BARBARA GAS CO.—Feb. 15th. Capital, $100,000. Trustees: T. R. Bard, S. B. Brinkerhoff and Chas. Fernald.

SAN FRANCISCO AND NORTHERN COAST RAILROAD CO.—Feb. 16th. Object: to construct a railroad from San Rafael to Healdsburg and Sonoma, with branches to Bloomfield and Tomales. Capital stock, $2,000,000. Directors: David D. Colton, Tyler Curtis, Geo. W. McNear, Geo. A. Worn and Chas. Clayton.

* * *

SCIENTIFIC PRESS.—The title of the Mining and Scientific Press has been changed to the above. It is devoted to mining, farming and mechanic arts, and is a paper worthy of a large support. Terms, $4 per annum.—*Sutter Banner.*

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Diversity in California Climate and Soil.

While the southern coast and much of the interior valley country in this State frequently suffers from drought, so that cattle and sheep perish there from hunger, and crops either fail entirely or come far short of ordinary yields, the coast country along the bay of San Francisco is green with an abundance of rich grasses and of forward grain fields, and the farmer is expectant of full harvests.

Here we have cool, moist breezes beneficial to vegetation, while inland and down the coast the winds are drying and blighting. Here, even in seasons of extreme drought, dews, and sometimes refreshing showers, moisten the earth and refresh the growing vegetation, there a drying air robs night of its dews, and disappointing clouds vanish with fleeting hope.

The differences of climate on this coast, north and south, and in the various sections of the interior valleys, as also along the Sierra foot-hills and among the mountain valleys, is so great, so varied, so strikingly different, as to mislead the calculations of one not thoroughly conversant with each section, and able to comprehend the nature and reason of things. A plowed field along the coast in Alameda county would actually condense water from the air during several months in the year, while a similar field in some of the interior counties would yield up what little moisture it contained to a drying atmosphere. A system of cultivation beneficial to certain plants here, would prove to be a total failure there to the same kinds.

And then the difference in soils also, and seasons, too, is so great, between mountain and low lands, adobe soils, sandy soils, interior meadows, tule lands, salt marsh soils—chemically and mechanically—all in connection with dry and moist, hot and cool winds, sun and shower, that wise indeed must be the one that dares to set himself as teacher for all.

With the accumulated experience of years, men of good sound common sense will assure you that they are frequently at fault—are constantly finding out and adopting better ways of culture suited to their surroundings, and are getting rid of preconceived notions and theories, which have frequently cost them dearly; in short, they are *learning* and *conforming* to the facts.

Farmers will tell you that they have learned *here* all that they know about managing their farms on this coast, and that they know more and better how to do it, than can be told them by other than experienced farmers here. There is much force in such assertions. Facts are what we all want. The results of various methods of culture and treatment on various soils, and under various conditions, are what Californians must depend upon. Facts practical in their application here, facts clearly stated, easily comprehended, are what we all need. Let theories whistle for the dogs. Give us facts. And it is to you, practical farmers, that we, as the conductors of this journal, look for such information. Bring facts, and let us "reason together."

Sherman and Twitchell Islands.—The owners of these islands have given leases of about one-half the same, in small areas, to farmers, who are now busy in preparing the land for planting. The lands will be chiefly sown with wheat and other grain. Perkins, the seed man, is putting in a large area of sugar beets for seed, counting on a large demand for the same for parties who will next year engage in beet culture, for the new sugaries, the erection of which has been more or less definitely determined upon.

Agricultural Improvements—The Tule Lands.

California is a country peculiar to itself; whether in the mine or upon the farm, old processes and old machinery require, for their adaptation here, numerous modifications to suit them to the local work required of them. The improvements and modifications in mining machinery which have been brought out in California, are almost innumerable. Inventors of agricultural implements have been equally busy in devising new machines and modifying old ones. The Standish plow may be referred to as one of the most important and promising of the latter. The same may be said of the Locher and several other plows.

In the process of reclaiming the tule lands, it is found that a new plow is needed. The soil of these lands is a light black alluvium, with a spongy surface, mostly made up of fine peaty roots. The ordinary plow is entirely useless for such a soil, until it becomes pretty thoroughly rotted, after the lapse of a series of years. Some attempts have been made to cultivate it immediately after reclamation, by burning over the dry surface in summer, and sowing or planting in the ashes, as soon as the ground is moistened with the first rains of winter. But burning the surface has numerous objections.

A new machine is being devised to prepare this soil for cultivation, which will be hauled over the soft, spongy surface by one of Thompson's celebrated road locomotives, which works upon very broad wheels, with india-rubber tires. Mr. Robert Watt, the well-known mining engineer of Grass Valley, while on a recent visit to Scotland, carefully examined this locomotive, and pronounced it practical for the purpose intended, and one of the locomotives is now on its way here, having been ordered by Mr. George D. Roberts, a gentleman largely interested in tule land reclamation.

The machinery which will be employed to break up the land is a combination of powerful cutters. The first of these will consist of a simple axle, studded with knives, which rotate upon the axle, and cut up the spongy mass into shreds. This will be followed by another set of knives, working on the principle of the Standish plow, which will rotate horizontally and with a forward movement. The effect of this double action will be to cut and break up this tangled mass of vegetable fiber into a finely comminuted soil, admirably fitted for the production of crops. When so prepared, the tule lands will constitute the most valuable agricultural soil in the State.

Why Cows should be Carded.—There is perhaps but little need for carding cows which run all the time in the field, for the reason that they card themselves—employing their tongues, hoofs, fences, trees, etc., for that purpose; but when a cow is kept tied in a stable, or in close yards, as city dairy cows often are much of the time, carding is indispensable. The same is true of fattening animals. Horses are always curried and carded. Carding is a luxury to any animal, if gently performed; and besides being a merciful thing, it is economical also. It increases the flow of milk by aiding digestion, and keeping up a loose, lively and healthy skin. It makes beef for the same reason. It is economical, because, by aiding digestion, it obtains the maximum of benefit from the food eaten, and, therefore, saves food. Carding is to the animal what bathing is to man, and should never be omitted, especially when the animal is kept in anything like close confinement.

One would think that a kind-hearted man, when he sees how grateful this operation is to a cow, would be willing to spend a few moments, at least two or three times a week, in carding her. It is no stupid idea of a fancy farmer, for it pays, and there's money in it.

Butter from Whey—Economy in Cheese Manufacture.

However much the cheese-maker may desire to fix in his cheese all the butter in the milk, its complete retention is impossible by any known method—much of the butter will run off with the whey. This butter usually goes to the hogs—excellent food for them, but a wasteful policy for the proprietor.

Does any cheese-maker dispute the possibility of making butter from whey? If so, we can assure him that he has a pleasant and profitable lesson to learn; at least, such is the abundant evidence recently placed on record, by practical men. The precise *modus operandi*, however, we are not able to give, although we would cheerfully undertake to secure it, should any of our California cheese-makers especially desire such information. The process is said to be very delicate; yet those who have had experience in the matter hold that, especially in connection with large cheese manufactories, it leads to a very great economy.

Mr. Kenney, of Cortland county, N. Y., in 1868, made 288,000 pounds of cheese, from the whey of which he saved 9,000 pounds of butter—equivalent to a gain of 18,000 pounds of cheese. His cheese brought the highest market price, and his average was full as large as though no butter had been made from the whey, and the whey thus treated lost no appreciable value as food for swine.

The flavor and richness of cheese depends but very little on the amount of butter which it contains; but almost exclusively on the healthiness of the milk and rennet employed in its manufacture, the cleanliness and skill of the manipulating processes, and the nice admixture of moisture among the particles. An analysis of the best English cheese shows less butter, but more moisture, than a corresponding quality of American cheese. The difference in moisture alone is set down at seven per cent. The English manufacture an equally good or better article than we do, with less butter (a costly ingredient) and more water (an ingredient which costs nothing).

The fact that the quality of cheese is not largely dependent on the butter it contains, is leading to the practice of skimming the night's milk and mixing the skimmed milk with the unskimmed morning's milk, and depending on care and skill rather than butter for quality. The yield of cheese to the pound of milk is somewhat less; but the greater value of the butter leads to an important saving. It is claimed that, as a nation, we are now sacrificing millions annually in our cheese manufactories, for which we get no equivalent.

The Original Potato—Going Back to Avoid Disease.—It was a favored theory with many two or three years since, that the potato disease was due to the degeneration of the plant, and that if growers would go back to the original wild plant, obtained direct from Peru, healthy varieties would be produced. To test this theory, several prominent growers of this esculent have obtained both seed and tubers from this original source; but the results of the enterprise have not been satisfactory, and the theory is now, we believe, well nigh abandoned.

A flock of blackbirds, winging its way southward, estimated to have presented a column in line of at least four miles, and about 20 feet in depth, passed over Sacramento on the afternoon of Wednesday of last week.

Butter Test.—Good butter should cleave from the knife, and show particles of moisture, like dew. It is better that it should not "come" in less than twenty minutes.

What I Know of Farming—No. 6.

Mr. Greeley devotes No. 6 of his series under the above head to "Laying off a Farm and Pasturing," from which we condense as follows: The first thing to be attended to by a person taking possession of a farm is to study well its character, determine its capacities, make himself acquainted with its peculiarities of soil, etc. One year should be devoted to this study.

This is as important on the Western prairies as amid the rugged scenery of New England, for the prairie is by no means an unbroken meadow, but is more or less diversified by water courses, "sloughs," elevated "swales," timber, brush, etc. While a young man, just starting on a farm, must devote at least an average of five days out of the week to the growing or earning of present bread, yet he should none the less carefully study the capacity and adaptability of each acre of his farm, and gradually mature a comprehensive plan for ultimately bringing the whole to its best and most useful condition.

Mr. Greeley dwells at considerable length on the selection and location of a pasture, which is so essential to Eastern farms. This, instead of being in an out of the way place, should, on the contrary, be located as near the center of the farm as possible, so as to be convenient to barn. Natural shade, shelter, and water for stock, should be secured, if possible—if they do not exist naturally, they should be artificially provided. A small pasture, well cared for, is better than a larger one poor in quality and illy provided.

The young farmer should always bear in mind the impossibility of obtaining something out of nothing. Some endeavor to get something for nothing, by allowing their cattle to browse over the hills, or upon their neighbors' fields, in quest of needful food. Against this Mr. G. most vehemently protests. Under the unnatural conditions which environ the squatter upon the lone prairies, something is sometimes gained in this way for a while; but this condition of things is transitory, and at war with the exigencies of civilization. The universe was framed on a plan which requires so much for so much; and this law will not, as a rule, submit to defiance or evasion.

A good farmer will run a mowing machine over his pasture twice each summer, to cut down the weeds in blossom, and prevent their going to seed and multiplying. If, in consequence of the topography of the land, or for other reasons, the use of the machine is not practicable, the scythe should do the work. Cutting off and killing noxious plants in blossom, will benefit the soil, which their growth uselessly taxes. Mr. Greeley dwells with much force upon the necessity of shelter for stock from both sun and storm. Even the climate of Texas requires sheds where cattle may keep dry and warm in long, cold rains.

California farmers would do well to consider this advice. Few appear to realize how much cattle shrink and suffer from such a pelting rain as we have had throughout the past week. The man who is merciful to his beast in this respect, will find the same a good paying investment, as well as a humanizing act.

Corn and Wheat.—The corn crop throughout the Union for 1868 was more than four times as great as that of wheat. The former aggregated 905,000,000 bushels, while the latter reached only 224,000,000. Illinois was the largest producer of both wheat and corn, that State having reported 138,363,000 bushels of corn, and 28,560,000 bushels of wheat. The product of California for that year was 20,000,000 bushels of wheat, and 1,220,000 of corn. Illinois and Wisconsin are the only two States that exceeded California in the yield of wheat.

Cheaper than Chinamen.—We understand that Mr. Geo. D. Roberts has contracted with the inventor of a new ditching machine, now being constructed, for the reclamation of some 30,000 acres of tule land. The contract price of ditching and embanking is ten cents per cubic yard, some forty per cent. less than the cost of Chinese labor for the same work.

Plants Suited to the Arid Plains of Southern California.

There is a region in the interior of Southern Africa subject to almost continual summer drouths, that corresponds in a remarkable degree to the arid plains and valleys in the southern part of California. Nature, however, has been more lavish in providing the former locality with plants suited to its climate than she has with the latter. Thus creepers there abound which, having their roots buried far beneath the soil, feel but little the effects of the scorching sun. The number of these plants which have tuberous roots is very great; and many of them exhibit a structure evidently intended to supply nutriment and moisture to man and animals, when, during the long droughts, it could be found nowhere else. Several of these plants are described in a late English publication, by Dr. G. Hartwig, entitled "The Tropical World," from which we extract as follows:

One of these blessings to the inhabitants of the desert is a small plant named *Leroshua*, with linear leaves, and a stalk not thicker than a crow's quill; but on digging down a foot or eighteen inches beneath, the root enlarges to a tuber, often as big as the head of a young child, which, on the rind being removed, is found to be a mass of cellular tissue, filled with fluid much like that in a young turnip. Owing to the depth beneath the surface at which it is found, it is generally deliciously cool and refreshing.

Another kind, named *mokuri*, is seen in other parts of the country, where long-continued heat parches the soil. This plant is an herbaceous creeper, and deposits under ground a number of tubers, some as large as a man's head, often in a circle, a yard or more horizontally from the stem. The natives strike the ground on the circumference of the circle with stones, till, by hearing a difference of sound, they know the water-bearing tuber to be beneath. They then dig down a foot or so and find it.

But the most wonderful plant of the desert is the Kengwe, or Këme *(Cucumis Caffer)*, the watermelon of the Caffres. In years when more than the usual quantity of rain falls, vast tracts of the country are literally covered with these juicy gourds, and then animals of every sort and name, including man, rejoice in the rich supply. Crossing the desert, Mr. J. Macehe found them in such profusion that his cattle lived on the fluid contained in them for not less than *twenty-one days;* and when at last they reached a supply of water, they did not seem to care much about it.

On the west coast, along the banks of the dry bed of the Kiusep, Anderson found almost every little sand-hillock covered with a creeper, which produced a kind of prickly gourd of the most delicious flavor. The *naras*, as it is called by the natives, is about the size of an ordinary turnip, and, when ripe, has a greenish exterior, with a tinge of lemon; while the interior, which is of a deep orange color, presents a most cooling and inviting appearance, and for three or four months in the year constitutes the chief food of both man and beast.

The *naras* contains a great number of seeds, not unlike a peeled almond in appearance and taste, which, being easily separated from the fleshy parts, are carefully collected, dried in the sun, and then stored away in little skin bags. When the fruit fails, the natives have recourse to these seeds, which are equally nutritious, and perhaps even more wholesome.

Thus even in the desert the bounty of the Almighty provides sustenance for men and all His creatures. Would it not be well for some of the enterprising ranch-owners of Southern California to take measures to procure some of the seeds of these useful plants for growth upon our own arid plains? We presume the seeds might readily be obtained through the Agricultural Department at Washington, if the attention of Commissioner Capron was called to the importance of such a project. There is no doubt but that they might be easily cultivated, and spread by natural growth throughout all the lower valleys and plains of this State, Arizona and Lower California. Many useful foreign plants have recently been introduced into this country; but we are not aware that any attempts have yet been made to acclimate here any of those above referred to. The propagation of all that is useful or beautiful in nature from other countries to this, so far as this portion of the world is adapted to their growth, is now being made a special work by our National Agricultural Department, and by many of the prominent agriculturists throughout the country.

How to Test the Richness of Milk.

It is of no little importance to have at hand a convenient and reliable mode for testing the richness of milk. This is usually done by the mere rule of "guess." We will give a more reliable way, within the reach of all, and one whereby any person may safely govern himself in deciding upon which of any number of milkmen he will patronize, or of which of any number of cows he will purchase.

Procure any long glass vessel—a cologne bottle or a long phial. Take a narrow strip of paper, just the length from the neck to the bottom of the phial, and mark it off with one hundred lines at equal distances; or, if more convenient, and to obtain greater exactness, into fifty lines, and count each as *two*—and paste it upon the phial, so as to divide its length into a hundred equal parts. Fill it, to the highest mark, with milk fresh from the cow, and allow it to stand in a perpendicular position twenty-four hours. The number of spaces occupied by the cream will give you its exact percentage in the milk, *without any guess-work.*

Now, if you wish to carry the experiment further, and ascertain the percentage of butter in your cream, set the milk in a large dish, and collect, say 100 or 200 ounces of cream; make your butter, and you will know the percentage of butter in the cream by ascertaining the number of ounces of butter you have made from it. Thus, if one hundred ounces of milk give ten ounces of cream, and ten ounces of cream give five ounces of butter, you will know that one hundred ounces of milk will give five ounces of butter.

Such experiments are worth being made, and made carefully. In no other way can you know what you have in a cow or milk, or what you are buying. In this way also you may test the exact nutritive value of different kinds of milk from your cows—a very important matter. Farmers may derive much benefit by making a few simple experiments, now and then. They need not interfere with any of the regular duties of the farm; and nothing but a spirit of habitual indolence of thought and action will keep them from doing so. Such experiments often lead to important results, and evoke interesting and instructive facts.

Paper Packages for Preserving Butter and Lard.—Experience and common observation show that butter and lard deteriorate mainly from contact with the atmosphere. Butter, in sealed packages of tin, has been sent from Ireland to China and kept good for two years. Air-tight packages cannot be made of wood, unless especially prepared at considerable expense. It has recently been proposed to make packages for butter and lard of *papier mache*, which is perfectly air-tight and impervious even to kerosene. Kerosene cans have already been made of this material.

The Next Wheat Crop.—Returns to the Department of Agriculture during the month of January indicate a decrease in the breadth of wheat sown in Indiana, Illinois, Michigan, New York, New England and the cotton States. Kansas, Arkansas, West Virginia and California have increased their average. The decrease in the breadth sown throughout the entire Union has, no doubt, been very large. This result has been brought about by the low price which has ruled in the wheat market the past season.

Farming and Gardening in Alameda.

Of all the many sections of country that I have visited in this State and adjoining Territories, for varied culture, a rich and easily worked soil, a certainty of good harvests, a ready market, a temperate and even climate, and the advantages of civilization, I know of no place more desirable for a home than this valley along the Bay of San Francisco.

Every sort of fruit with the exception of the grape—which requires a hot dry climate—will grow almost to perfection. The grain and hay crops, with proper culture, cannot be excelled. All vegetables yield prodigiously. While much of the State is suffering from drouth, I am assured by farmers in the hills along the bay that good cows are averaging a yield of sixty-five pounds of butter per month on grass alone. For the dairy business, this section of country, close to the best market in the world, is unrivaled. With a proper cultivation of hay and grain, vegetables and green feed, a small quantity of land would suffice to support many cows. Yet I see few dairies, and very little system among that few.

Why will farmers persist in sowing grain, year after year, on the same ground, till the soil is impoverished, and weeds possess the land, filling the grain with filth that makes it unfit for market, when the expense of such culture nearly equals or exceeds the profits? Yet many do so, when by plowing under a green crop with the stubble, and summer fallowing thoroughly through the dry season, they could kill out the weeds, enrich the soil, and raise good clean grain and hay. Then by cultivating vegetables, etc., and converting their produce into horses, cattle, butter, pork, chickens, etc., the farms would improve, and their owners grow rich with prosperity. When farmers complain of losing money, and of bad luck, I always find a reason in poor management. There is no theory about this; but an incontrovertable fact. Why not see it and profit by it?

Fruit Culture.

A careless system of fruit culture has resulted in poor fruit that has rotted on the ground in many cases, and discouraged some owners of orchards. Although apples and pears are low in the market, yet such orchards as were properly trained and cultivated have yielded fair returns. Instead of cutting down the trees, as some are doing, more attention should be given to thorough cultivation. Good fruit may either find a market or be utilized in some other way. In the Eastern States nothing of the kind is wasted, and why such unthrift here? It is better to feed fruit to stock than to let it decay.

Cherries

Have paid better here than any other tree-fruit for some years. Everybody has found it out, and everybody is going into cherries, expecting to get rich at it. So we may look for cherries to be plenty in a few years more. Like the strawberry, this kind of fruit is of little account out of its season; and if once overdone will result in loss to all.

Gooseberries and Currants.

There appears to be no end to gooseberries and currant plants put out this season. The fine yield and good prices of these fruits have excited everybody. But as these fruits are valuable the year round, prepared for use in cans etc., the demand will grow with, and meet the supply. The hot interior valleys cannot succeed in producing these fruits, but must be dependent upon the mountains and the coast for currants and gooseberries. Many

Blackberries and Raspberries

Are also being planted. These are valuable fruits, and can be utilized in many ways. Indeed, too little attention has been given heretofore to the culture of these small fruits.

Strawberries.

Very few are planting strawberries. The rush to get rich raising strawberries received its death-blow last season, and is finished. Said "rush" is now planting cherries for the coming generation. Probably the man that continues to stick to his legitimate strawberry bed will prosper.

Nut Trees.

Many almond trees are also being planted. This is a good thing. Though not as prolific of fruit here as in some other localities, yet they yield fair and grow vigorously. After the few years' growth necessary to the maturity of the tree, they promise much. More attention should be given to the cultivation of all sorts of nut trees. The reason that more have not been planted, appears to be the time it requires to bring them into bearing. But taking into account the increase of value resulting from each year's growth of a nut tree grove, it will pay as a speculation merely—to sell again.

The High Prices of Land

In this vicinity appear to deter all but capitalists from purchasing farms, and capitalists buy more for speculative purposes than for permanent improvements. They design to lay out streets, set out a few street shade trees perhaps, and they anticipate realizing four times in selling house lots. Some of them do make money. But this thing is run to extremes like many others in California, and taxes, you know, must be paid. The land is much of it rented, and at pretty high figures, to tillers of the soil. Of course the man that cultivates such land tries to get all he can from it, with as little expense as possible, and cares little what condition the soil is left in. This engenders a habit of unthrift and negligence that is reprehensible in a settled farmer, and accounts for much poor management.

The principal improvement that a capitalist thinks of making is, to plant a park of magnificent design and expense, and erect a grand palatial residence, a little better than anything around. He then either fails, or marries some rich heiress, or goes "East," and leaves some agent to manage things, while he fails to come back, goes crazy, commits suicide or something equally romantic.

What looks more cheerless than a grand mansion standing alone and unoccupied—a cold mockery to extravagence and pride? And what more pleasant than a frugal farmhouse with its well tilled acres and its clustering barns, its trees and fruits and flowers, its varied plenty from a generous soil? The animals that know the tender care and kindness of its occupants, meet with mild eye the intelligent glance of an independent man. Happiness fills such busy homes, and children laugh with very joy; books there are relished for their worth.

If the capital that is put to idle speculation to support luxury, or gratify the ambition of miserable pride, was economically employed in encouraging permanent industry, it would never fail to reap reward, and help the progress of the world. H.

The influence of the agricultural press has increased ten fold in twenty years.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, February 25, 1870.

Flour, Extra, ⅌ bbl	$5 00	@	$5 50
Do. Superfine	4 50	@	4 75
Corn Meal, ⅌ 100 ℔s	2 00	@	2 25
Wheat, ⅌ 100 ℔s	1 30	@	1 65
Oats, ⅌ 100 ℔s	1 15	@	1 60
Barley, ⅌ 100 ℔s	1 15	@	1 30
Beans, ⅌ 100 ℔s	2 50	@	3 50
Potatoes, ⅌ 100 ℔s	1 00	@	1 15
Hay, ⅌ ton	11 00	@	17 00
Live Oak Wood, ⅌ cord	9 00	@	14 00
Beef, extra, dressed, ⅌ ℔	7	@	12½
Sheep, on foot	2 50	@	3
Hogs, on foot, ⅌ ℔	6	@	9
Hogs, dressed, ⅌ ℔	8	@	8½
GROCERIES, ETC.			
Sugar, crushed, ⅌ ℔	13½	@	14
Do. Hawaiian	8	@	11
Coffee, Costa Rica, ⅌ ℔	18½	@	19
Do. Rio	—	@	18
Tea, Japan, ⅌ ℔	75	@	90
Do. Green	60	@	1 25
Hawaiian Rice, ⅌ ℔	8	@	9
China Rice, ⅌ ℔	5½	@	6
Coal Oil, ⅌ gallon	42½	@	45
Candles, ⅌ ℔	16	@	20
Overland Butter	25	@	37½
Ranch Butter, ⅌ ℔	30	@	35
Isthmus Butter, ⅌ ℔	25	@	37½
Cheese, California, ⅌ ℔	18	@	22
Eggs, ⅌ dozen	30	@	35
Lard, ⅌ ℔	12½	@	13
Ham and Bacon, ⅌ ℔	16	@	18
Shoulders, ⅌ ℔	10	@	12

Retail Prices.

Butter, California, fresh, ⅌ ℔	45	@	50
do. pickled, ⅌ ℔	35	@	40
do. Oregon, ⅌ ℔	25	@	—
do. New York, ⅌ ℔	40	@	—
Cheese, ⅌ ℔	20	@	25
Honey, ⅌ ℔	25	@	30
Eggs, ⅌ dozen	45	@	50
Lard, ⅌ ℔	20	@	25
Hams and Bacon, ⅌ ℔	22	@	25
Cranberries, ⅌ gallon	1 00	@	1 25
Potatoes, ⅌ ℔	2	@	5
Potatoes, Sweet, ⅌ ℔	—	@	2
Tomatoes, ⅌ ℔	2	@	3
Onions, ⅌ ℔	3	@	5
Apples, No. 1, ⅌ ℔	4	@	5
Pears, Table, ⅌ ℔	5	@	
Plums, dried, ⅌ ℔	10	@	12
Peaches, dried, ⅌ ℔	10	@	15
Oranges, ⅌ dozen	50	@	75
Lemons, ⅌ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ⅌ ℔	—	@	25
Soap, Pale and C. O	10	@	12
Soap, Castile, ⅌ ℔	18	@	20

Scientific Press.

W. B. EWER........................Senior Editor.

A. T. DEWEY. W. B. EWER.

DEWEY & CO., Publishers.

GEO. H. STRONG. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance	$4 00
One copy, six months, in advance	2 50
Delivered by city carriers, per month	50

Rates of Advertising.

One square (ten lines agate), one week	$ 1 00
One square, one month	3 00
One column, one month	40 00
One column, one year	400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, Feb. 26, 1870.

The Rain of the last few days has reached every portion of the State, and fully removed the last lingering fear of "short crops." A fair average of the usual showers of March and April, which never fail, is all that can now be asked for. Considering the increased breadth of land which has been sown the present year, we may now look with the utmost confidence for fully as large a surplus of grain for next year's shipment, as has come forward at any time in the past.

There is an evident improvement in business generally. The commercial derangements growing out of the opening of the Pacific Railroad are fast being settled, and the gloom of the past few months has nearly passed away. The farmer, the mechanic, and the merchant all now wear a cheerful look, and feel confident of a prosperous future.

The mining interests are also looking up again. Our leading mines are doing well, and new and important discoveries are constantly being announced. The hydraulic mines were never more prosperous or more extensive than now. The rivers and ditches are full of water, and the usual supply of dust from the rivers, gulches and placers is beginning to come in. This is good news to all, and should confirm, more than ever, our faith in our resources and enterprise.

* * *

The Freiberg Process.—In connection with the concluding remarks on this subject in a communication on another page, a few figures may be given to enable our readers to compare the circumstances (and, therefore, the relative values of any process) of Germany with our own. The total amount of ore treated in the processes described, is about fifty tons daily. For working this amount in the ways described (but not with the Rittinger table) 32 men are employed, whose wages amount to about $6¾ (coin) per diem. The cost per ton of raw ore is about 30½ cents. About 1,260 tons of slimes are yearly produced, which contain 1,121 pounds silver and 631 3-20 tons lead, valued at $42,099. The scale of prices for ore bought at the smelting works is arranged in such a way that it is for the advantage of the mills to dress the ores to as high a degree as is possible. Our crowded columns prevent our giving more than the bare details.

* * *

The Potter Fire Arm.—Mr. A. F. Potter, of Oakland, the inventor and patentee, of the new projectile, which secures the advantages of the rifled gun when employing a "smooth bore," has gone to Washington to make an exhibition of its advantages at the National Capital.

* * *

A Brief report of the Commissioner of Patents for 1869 is received. It is a good document, and we shall publish it in future numbers of the Press.

* * *

Hooker's new force and lift pump will be illustrated next week.

Our City Foundries.

There seems to be a better feeling in general among the foundrymen with regard to the prospects, and there are indications of livelier times. Some foundries are employing a rather larger number of men, and with the spring it is hoped that there will be a greater demand for work.

At the Pacific Iron Works, three of Wilson's steam stamp mills are to be built, and one is in course of construction for the Overman mine, Virginia City. At these works there is also a fine working model of the Chambers' brick-making machine, which is in extensive use at the East. This machine takes the clay as it comes from the bank and forms it into bricks at the rate, it is said, of fifty to eighty per minute. In connection with this machine it is proposed to use the Adams' steam kiln, a diagram of which will be shown at the works.

At the Ætna Works, a large lot of castings for columns, etc., is being made for the Jewish Synagogue, to be erected on Taylor street. An extensive order has been received for work for the Roman Catholic Orphan Asylum, which is to be built at Bay View, as the building on Market street is to be sold. The work on the machinery for the Jo. Walker mine is nearly completed.

At the Risdon Iron Works, the castings were made for the Wickersham street sweeper, which has just been built for Mr. A. Weed, and of which we made mention in our last issue. Other work is being done, and several large orders are coming in.

At the Vulcan Works, a locomotive for the San Quentin and San Rafael Railroad is undergoing a thorough overhauling. Stewart & Lloyd's patent anchors, weighing 1,600 to 1,800 pounds, are being cast. A boiler for mining machinery and one for a sawmill are being made; also a large one for the steamer Rabbona. The shell of this is 90 inches in diameter and 12½ feet long behind the fire-box. There are 10 direct flues (of 11 and 13 inches diameter) and 46 return tubes, five inches in diameter. The weight, when completed, will be about 16 tons, and the material is the best ⅜-inch No. 1 charcoal hammered American iron. There are two furnaces. The boiler will bear with safety a pressure of 175 pounds. The gold rolls of the San Francisco Refining Works are being repaired. The Hepburn pans are working ore from the Pioche ledge, Meadow Valley. This ore is quite peculiar, and is said to contain sulphide and chloride of silver, carbonate of lead and oxide of iron as predominating minerals. About 5½ tons have been worked, of an average value of about $680, the average yield in the pans being about 80 per cent. of the fire-assay.

* * *

Cheaper than at the East.—Messrs. Savago & Co., of the Empire Iron Foundry, 294 Howard street, in this city, inform us they are making all kinds of castings, as low as they can be turned out at the East. The attention of contractors and marble workers is called particularly to their grates and fenders, which are said to be furnished much below New York prices. For the different kinds of work done, reference may be made to advertising columns.

* * *

The Accident at the Pavilion, whereby the rammer had his right hand shattered, and a boy was struck in the abdomen by the ramrod, is said to be due to the carelessness of the rammer in not sponging out the gun properly. The boy will recover, it is thought. The explosion was not caused by the electrician of the festival, as the wires were not attached at the time to the gun.

* * *

One Thousand extra copies of the Scientific Press are published this week, and may be had of news agents in the city or county at ten cents per copy.

[*Continued from page* 129.]

The guns, which accompany the chorus in the Star Spangled Banner and the Anvil Chorus, are fired by Mr. C. E. Valentine, of the Western Union Telegraph Co. The electrical machine is placed in the building near the organ. The guns, six in number, were furnished by the California Guard (Bluxome's Battery).

The Mechanics' Pavilion,

Where the festival is held, stands on Union Square. The main building is 277x180 feet. It is built very strongly and will easily bear all the weight which it is required to sustain. At the east end are the raised seats for the chorus; in front of these is the stage for the orchestra. The decorations, under the charge of M. Denechaud, are very tastefully arranged. The front of the galleries are decked with hangings of various colors, and with wreaths of flowers, and between each panel is placed a medallion with some musical or classical emblem or the name of some famous musician or man of science or art. At the western end is the grand box, named "Washington," festooned with lace and with the American and French flags. From the roof depend streamers and garlands. Wreaths and flowers and various other decorations abound, and the whole effect is exceedingly fine. The liberal action of the Mechanics' Institute in kindly offering the use of the building was most kind and praiseworthy. It may be remarked that the box (with seats for seventy persons) was sold for $3,200; and that the highest price paid for seats was by Mr. R. B. Woodward, who gave $120 apiece for five seats. Mr. R. B. Swain gave $100 apiece for three seats.

Camilla Urso,

The queen of the festival, whose spirit pervades every department, and has rendered success certain, was born in the city of Nantes, France. Her father was an organist of considerable celebrity. At the age of seven years she appeared at a public concert, where she received a perfect ovation. Soon after she entered the Conservatory of Music at Paris, where she studied for three years under the best of masters. She then visited the United States in 1852, and created a *furore* everywhere she went. She remained in seclusion for five years after her American tour, and when she returned to public life her success was even more decided. She visited France, giving concerts during a space of fourteen months, and then returned to the United States, where she has since remained.

The Mercantile Library

was established in 1863, and began life with a collection of 2,500 volumes. It has hitherto been supported by subscriptions of members, without having received a single gift or bequest from outside quarters. It has grown and prospered however, until it collected some 28,000 volumes, besides several historical paintings and portraits, marble busts, and a cabinet of minerals. In 1867, at a period of great business activity, the association, feeling the need of more convenient quarters, and encouraged by promises of assistance, resolved to erect its own building, and a lot on Bush street was purchased, and the handsome building erected on it. But the cost was much larger than was expected, and amounted—for building and lot—to $236,000. The remarkable depression in business occurred, and the donations promised were not given. For these and other reasons, the Library has suffered, and finds itself deeply in debt. We hope, however, that the exertions of Madame Urso will stimulate our citizens to lend further assistance and save what is, or ought to be, the pride of the city. The officers of the Association for the year are: President, R. B. Swain; Vice-President, W. H. L. Barnes; Corresponding Secretary, D. Wilder; Recording Secretary, T. R. Hayes; Treasurer, W. C. Ralston; Trustees, W. G. Badger, Isaac Wormser, Dr. J. M. McNulty, Samuel Hubbard, Wm. Ashburner, A. M. Ebberts, F. B. Reynolds, A. P. Elfelt. Libarian, A. S. Stebbins.

SUGDEE. DEL.
SHOURDS. SC.

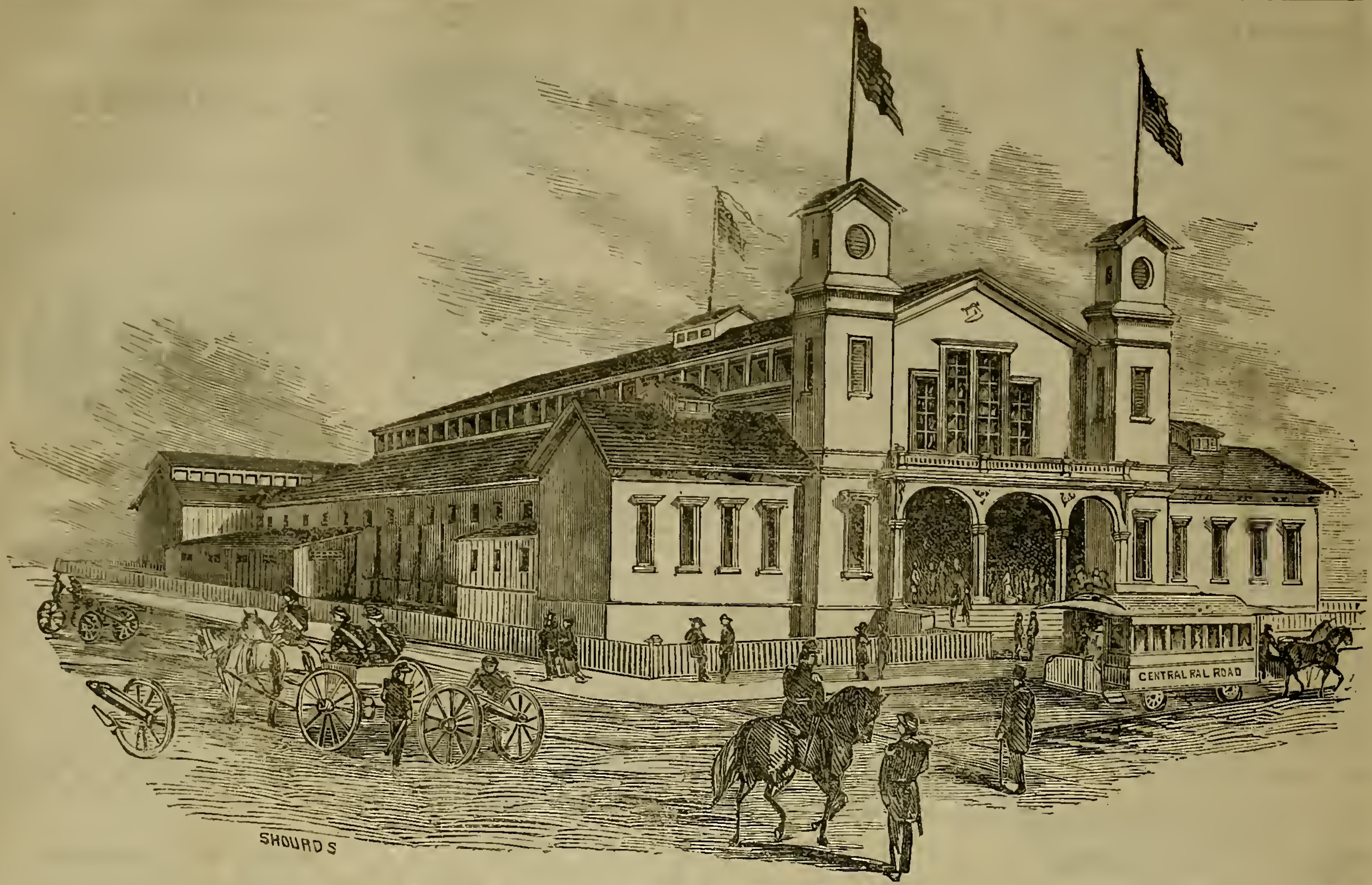
MADAME CAMILLA URSO.

The Concerts.

The sight on entering the Pavilion was most inspiring. The decorations were so exceedingly tasteful that the interior had been transformed into quite a fairy palace. The effect of the dresses of the ladies of the chorus was that of a grand flower garden, and the blending and intermixing of the bright colors was most beautiful, backed as it was by the dark fringe of sober-clad male singers; and, as during a chorus, the leaves of the singing books were simultaneously opened, it was as if a breeze had for a moment upturned a thousand white petals. By no means unimpressive is the grand gathering of the audience below and in the galleries, filling every seat, and every available standing place.

The First Day.

The 22d of February had been very appropriately chosen for the initial concert, and the pieces all had a national character. Promptly at the appointed time, at the wave of the conductor's baton, the grand military band commenced Weber's Jubilee Overture, and with this appropriate piece, the festival was commenced. The overture was followed by Zoelners Prayer of the Earth rendered with fine effect, by the German societies of California. Then after the lady singers, who had hitherto remained outside, had taken their seats, the orchestra commenced Conradis *pot pourri*—a Tour round the World. As the piece progressed, and national hymn after hymn rolled forth, the audience became more and more excited, and when the chorus rose, and the voices poured forth the grand harmony of "America," amid the crash of the band,



GRAND MUSICAL FESTIVAL BUILDING—MECHANICS' INSTITUTE PAVILION.

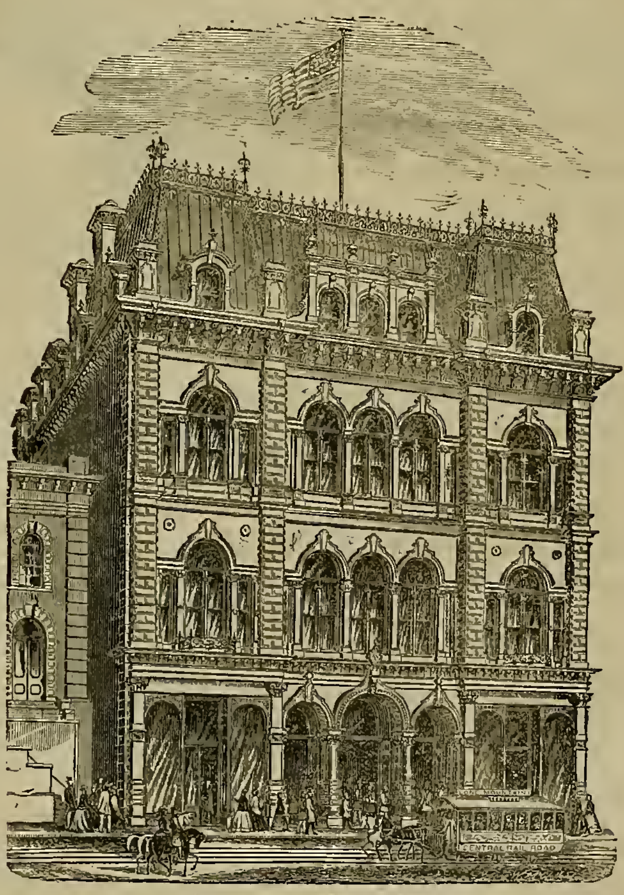
the rolling of the drums, and the deep base of the cannon, an electric thrill passed through the audience, and the enthusiasm knew no bounds. The effect was supremely grand, and the power of music, aided by the concomitant of patriotism, never more fully vindicated. As the piece ended, one prolonged burst of applause followed, the audience waved their handkerchiefs and hats, screamed, pounded with umbrellas and canes and feet, and would not be quieted until the piece was repeated with the same grand effects. "Night shades no Longer" (from Moses in Egypt) followed, and was enthusiastically encored.

Part second commenced with the overture to Fra Diavolo, rendered by the military band. Then came the quieter, rich full music of the Hunters' Chorus, from Euryanthe, sung well by the German Societies, notwithstanding the discordance of the accompaniment. The rendering of the Anvil Chorus by the twelve hundred voices, the full orchestra and band, the ringing tones of the anvils sounding out clear and metallic, and the booming of the cannon again brought the audience to their feet and rounds of deafening applause followed until the piece was repeated. Then came the full harmonies of Wagner's March (from Tannhauser) and another grand effect from the chorus in the Star Spangled Banner, and then the vast multitude dispersed to spread their enthusiasm throughout the whole city.

The Second Day

The programme was more classical, but still the interest and excitement were unabated. Thousands were unable to obtain entrance to the building, and it was decided by the management to give a fourth concert on Friday, and an announcement to that effect was made.

The first piece was the overture to Ali Baha, which was given with great skill by the orchestra, and reflected great credit on them and on the conductor. Mozart's "Gloria" from the 12th Mass followed, and it seemed as if the reception on the proceding day had nerved the chorus to greater efforts. Certainly, they excelled in the cadences and in time. Gade's exquisite symphony in C (andante and allegro movements) followed, and was, perhaps, the best rendered of any orchestral piece given.



THE MERCANTILE LIBRARY BUILDING.

The grand chorus of the most exquisite of masters, "Sleeper's Awake," from Mendelssohn's "St. Paul," with its richest of harmonies, was finely rendered by the grand chorus. The melting of one chord into another, and the blending of the four parts, one, then another, rising prominently and then sinking into the rich choir, renders it one of the finest of compositions. The Prayer in "Moses in Egypt" followed, and called for an encore, notwithstanding the weakness of the bass solo parts.

Then came *the* event—the first and the only appearance of Camilla Urso. As the little lady appeared, the vast audience and the chorus rose and welcomed her with a genuine tribute of admiration. Again and again the applause died away, only to swell again in huge volumes of sound. Finally, quiet was restored, and the queen of the violin was allowed to play. The theme was a Grand Concerto by Beethoven. Any description of the wonderful rendering of the magnificent piece by the charming *artiste*, would be far too weak. The fullness, precision, and richness of tone produced by the most exquisite touch and finish, can only be appreciated when heard. The lowest tones, unfortunately, were inaudible to the majority of the audience. With characteristic modesty madame Urso declined giving a second specimen of her skill, although enthusiastically urged by her hearers.

The celebrated chorus from the Creation —"The Heavens are Telling," was, as a whole, exceedingly well given, with perhaps one weak place. Then followed the overture to Der Freischutz—the delight of the multitude, and with the "Anvil Chorus" and "America," the enthusiasm of the audience was again raised to its height, after a most surprisingly excellent rendition of that most difficult of choruses, the "Hallelujah." This may be regarded as the test piece for the chorus, and its fine performance is the measure of their success.

The Third Day

Was the children's festival. The stage was completely filled with the enthusiastic little ones, and the effect was similar to that of previous days. The pieces were all taken from the books used at the schools, and were all sung very nicely, the youthfu voices ringing out clearly and filling th whole of the building. The programme opened with the overture to William Tell, finely performed by the grand orchestra Then followed "America," sung in unison by all the children, "Come, Boys, be Merry," by the boys, and "Where the Warb-

[*Continued on page* 140.]

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City and Idaho Ter.—Sam. Heidelberger.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Henson & Menet, 41 Park Row, New York.
A. O. Knox, City Soliciting and Collecting Agent.

The large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of Dewey & Co., publishers of the Scientific Press. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil'

PATENT CANS.

5v17-tf **414 Front street, San Francisco.**

OCCIDENTAL

Insurance Company,

OF SAN FRANCISCO.

Cash Capital, - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

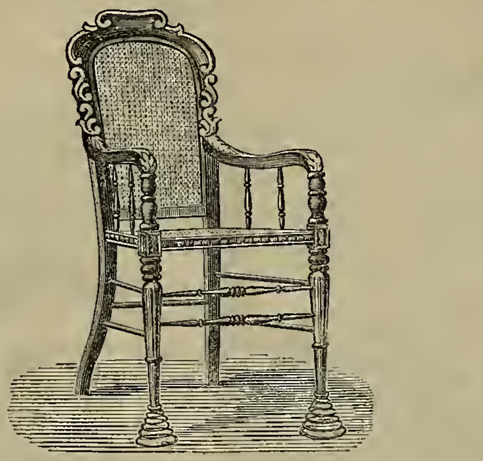
Fire and Marine Insurance.

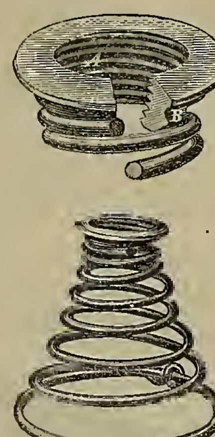
All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 20v17

The Mining and Scientific Press, published at San Francisco, California, by Dewey & Co., is a handsome illustrated sixteen-page weekly, and one of the most valuable and interesting exchanges that comes to our table. Subscription price, $4 per year.—*Inventors' and Mechanics' Journal.*

PATENT CHAIR SPRING.





PURINGTON & MAYOUX'S PATENT, NOV. 30, 1869.

This is the best Chair Spring yet invented, and will undoubtedly supersede all other devices of the kind, as it is SIMPLER, CHEAPER, AND MORE DURABLE. As a simple article of comfort and ease, it has no superior, and only needs to be tried to commend itself to universal and lasting favor. The Springs seen attached to the front legs of the chair in the engraving enables the person sitting in the seat, with very little effort, to give themselves

A Gentle and Easy Rocking Motion,

And also to rest themselves by change of position, by a very slight movement. It renders a common chair, at a trifling expense, equal or superior, in many respects, to a rocking chair.

The advantage of this Spring over all others consists in the manner of attaching it to the chair by the simple turning of a nut, which nut is also securely, easily and quickly adjusted to the Spring in a manner impossible for it to become inadvertently detached. The engravings show the parts both detached and as adjusted to the chair.

The nut is made of metal, and is provided with a screw thread, so that it can be screwed to the leg of an ordinary chair; and instead of weakening and splitting the leg, as in the case where a hole is bored and a screw inserted to hold and attach the nut, this method strengthens it The nut can also be very quickly and easily put on or removed.

The ease and convenience in applying the spring to the nut is readily seen. The top of the nut is provided with a collar or shoulder, and also an incline groove around the outer surface, so that the smaller end of the pan can be screwed to the nut; and its top coil being brought firmly against the shoulder, all oscillation from side to side is prevented. When the nuts are taken off, the chair is uninjured in its original form.

THIS IS A CALIFORNIA INVENTION,

And a superior article is now being manufactured. For particulars apply to

A. MAYOUX, Marysville,

Or inquire of PAUL N. ROTH, No. 809 Montgomery street, San Francisco. 9v20-1amq4

H. S. CROCKER & CO.,

Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM

PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

SAN ANTONIO

PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of

STONE WARE,

Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also

Chemical Ware, of Sorts Made to Order.

We manufacture to order

Terra Cotta Equal to the Best French.

Samples on hand.

FIRE BRICK.

A No. 1 article made to order, warranted superior to any imported.

Flower Pots and Ornamental Vases

Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

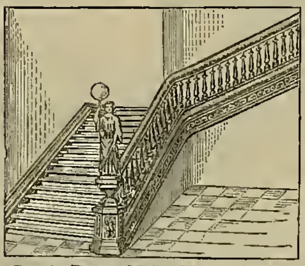
☞ Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.

8v20-tf

HIBBERD, SANBORN & CO.,

STAIR



BUILDERS.

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods cheaply, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent. off to the trade. Address,

HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

WONDERFUL

Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

SCIENTIFIC PRESS

BOOK AND JOB PRINTING OFFICE,

No. 414 Clay Street,

Below Sansome, - - - San Francisco.

SPAULDING & BARTO,

PROPRIETORS.

EVERY VARIETY OF

PRINTING,

FOR

Business Men, Corporations

AND ALL

Branches of Industry,

EXECUTED IN THE

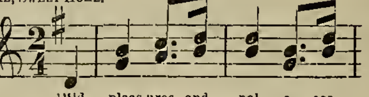
BEST MANNER,

AT REASONABLE PRICES.

Music Printing

Executed correctly and with dispatch.

Home, Sweet Home.



"Live and Let Live,"

Is a good old adage, and we shall adopt it as our own. We do not pretend to do work at "less than cost," as some people advertise to do; but we do claim to do all kinds of printing as cheap as it can be done on this Coast—and we believe as cheap as it is done in Chicago. Customers, in the country or city, are invited to call in person at our office, or send their orders by mail or express, and they will be fairly dealt with.

SPAULDING & BARTO.

Scientific Press Office,
414 Clay Street

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street............................San Francisco

(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing, Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.
2v15-1qy

J. VAN O. HORNER,
DENTIST,
Cor. J and Third Streets, Sacramento.
☞ All work warranted. 7v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

DR. R. R. ROBERTS,
The Great Magnetizer,
Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all curable Chronic Diseases by Animal Magnetism and the Swedish Movement Cure. 2v20-1y

Business Cards.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

Farmers and Mechanics
BANK OF SAVINGS,
No. 325 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.
24v18 1m

W. C. CAMPBELL,
PATTERN AND MODEL MAKER,
No. 20 Fremont street, over Phœnix Iron Works, San Francisco.
Particular attention given to MODELS for the Patent Office Brands and Pattern Letters Cut. 4v18mtf

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

EVENING DRAWING SCHOOL
— BY —
N. P. LANGLAND,
(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 536 Market Street, over Occidental Market. ☞ School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3v20-3m

W. C. & JOHN DENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line promptly attended to.
Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v20 6m

FROM The WEED Sewing Machines—the WHOLE WORLD being Judges—as they are the LAST, so also are BEST! Why? Because the WEED **$65** **WEED** Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Aut. TO **$500**

STEAM
FIRE-PROOF
SAFES
SANBORN'S PATENT.

Perfectly Dry in Use;
ACTUALLY FIRE-PROOF.
GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

☞ Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by
ROSS, DEMPSTER & CO.,
105, 107 and 109 California street,
5v20-3m San Francisco.

Metallurgy.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at

No. 36 FREMONT STREET,

And WORKS at H. J. BOOTH & CO'S FOUNDRY, northeast corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.

Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.

By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public. ☞ Mines Examined and Reports made.

References.—William Bosworth, Thomas Varney, Egbert Judson, E. T. Steen, Wm. Bellshaw, P. Reichling, W. O. Sleeper, J. L. N. Shepard, Norbert Landry.

CHAS. PLETZ & CO.
Chas. Pletz, Analytical Chemist.
Fred. Morris, Amalgamator and Millman. 25v19-3m

S. W. HOWLAND. J. W. THURMAN.
S. W. HOWLAND & CO.,
Crushers and Samplers
— OF —
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

☞ All work done at the shortest notice. All orders promptly attended to.

References—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co., Assayers. 7v20qy

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

H. W. GRAY. J. ROSEBERRY. D. S. LOOMIS.
Ores of all Kinds Crushed and Sampled.
H. W. GRAY & CO.,
YOLO MILLS.
Corner Market and Beale Sts., San Francisco
24v19-3m

SILVER AND LEAD ORES
Of every description purchased or worked at
The Oreana Smelting and Refining Works.
JOSEPH MOSHEIMER,
Oreana, Humboldt County, Nevada.
Office in San Francisco, 328 Montgomery street. 6v20

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT³ Etc., Etc,,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent. and upwards. 23v17qr

Real Estate for Sale.

Valuable Stock Ranch For Sale IN ALAMEDA COUNTY.

The attention of miners, "new-comers," or others, who wish to buy desirable real estate, is called to

675 ACRES
— OF —
Excellent Pasture, Grain, Garden
— AND —
ORCHARD LAND,
FOR SALE AT A BARGAIN.
TERMS EASY.

This Ranch comprises hill and valley, is supplied with an abundance of good living water, is well fenced, buildings good, and is stocked with implements and animals. It is one of the best DAIRY RANCHES in the State, and is near the Railroad. Inquire of
JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

Real Estate For Sale

In a romantic and desirable locality near the Railroad, in Alameda County. ONE HUNDRED AND TWENTY ACRES, in a body, of level, rich and superior soil, fit to produce everything. One of the finest gardens and nursery sites in the State. Rarely equaled as a homestead. For sale for $15,000—less than one-half its real value. Miners or city residents will find this a good opportunity to buy land cheap. A good cottage, with substantial outbuildings and fences, are upon the place. Call on
JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

Scientific Press.—The S. F. Mining Press has entered upon its twentieth volume with a change of name—Scientific Press. This is a journal devoted mainly to the interests of the miner, farmer and mechanic, and has well sustained its position in all respects. The price has been reduced to $4 per year, and we cannot too highly recommend it to all classes.—*Alpine Chronicle.*

DR. ABORN,
Oculist, Aurist,
AND
CATARRH, THROAT
AND
Lung Physician.
No. 22 KEARNY STREET,
SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox, Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.
San Francisco (Cal.), Jan. 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street, San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.
San Jose (Cal.), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California

To whom it may Concern.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.
WILLIAM BEARDSLEE.
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.
VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869. 7v20-3m

California Steam Navigation COMPANY,

Steamer CAPITAL..........................CAPT. E. A. POOLE
" CHRYSOPOLIS..................CAPT. A. FOSTER.
" YOSEMITE.................. —
" CORNELIA.....................CAPT. W. BROMLEY
" JULIA..............................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.
B. M. HARTSHORNE,
13v12 **President**

The Aerial Steam Navigation Company.

At a meeting of the stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cazneau, Henry F. Williams and Simon L. Jones were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars, said shares to be *unassessable*. The funds thus raised are to be devoted exclusively to the construction of the first aerial steam carriage, and to be deposited in the Bank of British Columbia, to be disbursed upon requisition of Mr George K. Gluyas, Engineer of Construction. The working, drawings, etc., can be seen at the office of Gen Thomas N. Cazneau, No. 321 California street, where subscriptions will be received. No invention for navigating the air has before received such positive indorsements from engineers of reputation, or so liberal encouragement from prominent capitalists' as Marriott's Avitor, which now seems sure of being thoroughly tested on large scale. 2v20-my

[Continued from page 137.]

ling Waters Flow," by the girls. The boys were perhaps a little more accurate in the time than the girls, who, however, received a rather larger share of applause. "Full and Harmonious," was in fact the next chorus, and "Home, Sweet Home," was encored. We noted, by the way, that in the first line the popular idea was followed instead of the composer's.

Camilla Urso now appeared amidst the applause of the audience, while the children greeted her with the waving of flags, which produced an exceedingly pretty effect. The kind little lady played Yankee Doodle, as if the spirit of fun were holding the bow, and then, more partial to the little ones than she had been to the big people the day before, gave them "Home, Sweet Home," on the encore.

The second part opened with the Coronation march from the Prophet, by the full military and reed band. Than came the "Mocking Bird," an alternate chorus with whistling responses—an original arrangement for the festival. There the boys were in their glory, and whistled away with surprising accuracy, and, of course, the greatest of spirits, calling an encore from a delighted audience. "Tell Me Where Do Fairies Dwell," by the girls, "Happy Land," by the full chorus, and "Come, Cheerful Companions," by the boys alone, were next in order, and "Star Spangled Banner," by the full chorus, the orchestra, the big drum, and the waving of flags by the children, was so well rendered, and with such fine effect, that the audience called for a repetition, notwithstanding that it was the last piece on the programme. A most curious, but pleasing effect was produced by having the children hum, instead of sing the second stanza.

Fourth and Fifth Day.

We go to press before Friday's concert, and can therefore give no description. The programme on this day will contain the choicest of the pieces already produced: Overture to Der Freischutz, by the grand military band; "Night Shades No Longer," from Moses in Egypt, grand chorus; the "Hallelujah," from the Messiah; overture to William Tell, grand orchestra and military band; "Sleepers Awake," the grand choral from St. Paul; the Anvil Chorus and Conradi's "Tour Round the World," ending with "America." On Saturday the children repeat their concert.

Names of Choristers.

We give the list of singers as we find them in the *Alta*, the only daily which attempts to give a list:

San Francisco Delegation.

SAN FRANCISCO MÆNNER CHOR.

John C. Sack, President; H. Holzhauer, Leader. Fifty singers.

First Tenor—Adler, Bourguin, Billermann, Russ, Craners, Damm, Fricke, Helgesh, Huber, Hilgeloh, Meyer, Reisemeier, Schuhart, Seitz, Steffens, Steinmetz, Karther.

Second Tenor—Cron, Heizmann, Hoffmann, Holtz, H. Otto, Romelt, Sack, Sein, Wille, F. Zech, Engees.

First Basso—Boje, Forsriede, Hubach, Heinzenberger, Hirsch, Lehnhardt, Noubert, Schnabel, Sell, C. Trausner, Edelmann, Neumann.

Second Basso—Claussenius, Friedrichs, Heltmann, Schick, Schilling, R. Otto, Zahn, Sarcauder.

SAN FRANCISCO HARMONIE,

Louis Schmidt, Director—Fifty singers.

First Tenor—A. Bruntsch, C. Bruns, L. Daunheimer, G. Grozinger, C. Hinz, C. Braun, F. Nutz, C. Leighter, A. Kunast, T. Holmken.

Second Tenor—A. Braner, W. Conradi, C. Friedburg, H. Felge, O. Jordan, C. Shafer, E. Robte, R. Ott, F. O. Wagner, P. C. Erzgrader, H. Molins.

First Basso—H. Brand, C Bundschu, A. Fuhrmann, H. C. Jordan, B. A. Schlingheyde, A. Stake, F. H. Rosenbaum, G. Nelle, M. Measdorffer, O. Kaltschmidt, C. Kenitzer, A. Wissel, A. Wiel, A. Mayrisch, G. Staake.

Second Basso—W. F Drabtman, H. Royer, G. Muecke, W. Schmidt, R. Jansen, E. Wenzel, R. Mayrisch.

TEUTONIA.

W. Crocker, President; H. Holzhauer, Director. Twenty-four singers.

First Tenor—E. Hartmann, C. Werner, L. Wicht, M. Land, Mr. Horn.

Second Tenor—J. Heizmann, B. Triebe, E. Borlfeld, H. Uecker, Th. G. Kohler, W. Crocker.

First Basso—J. Wehr, Mr. Schiller, L. Triebel, D. Kraus, C. Didle, R. Neubert, F. Steinert, E. Schnabel.

Second Basso—G. Trautum, A. Staaeke, L. Pockwitz, E. Zeltfuchs, F. Duenwald.

SAN FRANCISCO SCHWEITZERBUND.

W. Hardmeyer President. Twenty singers.

First Tenor—M. Feustermacher, W. Fritschi, L. Ordner, C. Jenny, Mr. Oertli, T. Kallenberg.

Second Tenor—T. Gingg, W. Trumpeler, G. Meyer.

First Basso—W. Hardmeyer, J. B. Golly, J. Simon, A. Gollig, R. Hanser, J. Riegger J. Fritschi, J. Kesseling.

Second Basso—J. Forreet, R. Trub, J. Schwicardie.

FIDELIA.

E. Fried, President. Fifty singers.

First Tenor—H. Staenger, W. Wustefeld.

Second Tenor—H. Ebeuritter, N. Cremer, — Bernzolt, G. Gebhardt, G. Schirtz, — Jerrtram.

First Basso—Herberger, J. Russ, A. Camploni.

Second Basso—D. Fried, H. Freitag, H. Schulte, —Salinger.

SAN FRANCISCO TURN-VEREIN SINGING SECTION.

Philip Reuter, Director. Thirty-one singers.

First Tenor—Mebden, Pracht, Uteblg, Levy, Thetent, Linne, Merrit, Jansen, Sunutenhausen.

Second Tenor—Koch, Hortz, Schneider, Armach, Henne, Hinricht, Lemcke.

First Basso—Muhlner, Hertz, Moock, Kraus, Diehle, Barker, Triebel, Slagemann.

Second Basso—Muller, Franzen, Roesller, Plagemann, Cassuber, Althig, Fecklenburg.

SAN FRANCISCO AT LARGE.

Soprano—Mrs Marriner, Mrs Putnam, Mrs W C Little, Miss Fannie E Moore, Mrs Sam D Mayer, Mrs Lyons, Mrs R B Swain, Mrs Shively, Miss Fanny Daniels, Miss Mary S King, Mrs Emelie Lyons, Miss J Canfield, Mrs A H P Smith, Mrs Charles T Lipman, Miss Virginia De Salla, Miss Jane Longwell, Miss Marie Rachel Shellard, Mrs E Pique, Mrs James M Pierce, Miss Jessie Russell, Mrs Mary E Crutcher, Miss Bessie Hancock, Mrs Johanna Enehosky, Mrs E L Wilson, Miss Dora Bridges, Mrs Alice Moyle, Mrs H P Livermore, Miss Banks, Miss Eva M Tibbetts, Miss Josie Roberts, Mrs J C Trask, Mrs J Y Ayer, Mrs J K Hammond, Miss Cora Fike, Mrs Virginia Vassault, Mrs P V Gabs, Mrs Ward, Mrs T A Stevens, Mrs E Lenfest, Mrs Anderson, Mrs M Tazier, Miss Alice McMonagle, Mrs Wilson, Mrs R Moore, Mrs Jabens, Miss Flora Williams, Mrs S G Leavitt, Mrs R O Davidson, Miss Louisa Raschel, Miss Mary Burke, Mrs C M Conro, Mrs William Snow Green, Mrs T T Daigle, Mrs L S Clark, Mrs A M Rice, Miss Garber, Miss Slocumb, Mrs Hooker, Mrs Hamilton, Mrs J Chelsen, Mrs Elizabeth McComb, Mrs D W Whittemore, Miss Lelia Curtis, Miss Magruder, Mrs Richardson, Mrs M C Ish, Miss Clara S Bergatrom, Miss Ella F Nichols, Miss Martinez, Miss Florence, A Linekin, Miss Brooks, Mrs Sanchez, Mrs Dayton, Miss Robinson, Miss Mary Hutchinson, Miss Jane E Taylor, Miss Maria Wehrley, Miss Mary Withrow, Mrs Kellogg, Mrs Maguire, Mrs H H Ellis, Miss Emily Rand, Miss A Ciprico, Mrs Ynnke, Miss E Lenfest, Miss E Loomis, Miss A Richards, Mrs R D Stevens, Miss E Morgenstern, Mrs C Brockmann, Miss S France, Mrs McKenzie, Mrs Field, Mrs G Alphonse, Miss Clark, Mrs E H Stansfield, Mrs M A Merchant, Miss M C Johnson, Miss S A Rightmire, Miss A A Hazard, Miss S C Johnson, Mrs D Cronan, Mrs J Siekel, Miss F Livingston, Miss J Buckolsky, Miss B Hinchman, Miss A Squire, Miss Louisa Little, Miss J Clarke, Miss S Williams, Miss F Sarle, Miss S Rlaney.

Contralto—Miss Whitney, Mrs Knight, Miss Stone, Miss Etta A Center, Miss Angelina A Wilder, Mrs W M Searby, Miss Rosa Levinson, Mrs Caroline M Janes, Mrs Josephine Lloyd, Miss Rebina Longwell, Miss D Hopkins, Miss Ida Doyle, Mrs C H Brown, Miss Eva Turner, Miss Maggie Oger, Miss Lizzie Waite, Mrs S Hilton, Mrs D B Gray, Mrs L A Wood, Mrs H Stevens, Mrs S A Rightmire, Mrs J S Scott, Mrs Clement, Miss Maggie Mason, Mrs Eddy Schleifer, Mrs Hayden, Miss Mary Pennie, Miss Fannie Davis, Mrs M Bernard, Miss E Moll, Miss S Brucck, Miss Minnie Locke, Miss Fannie H Brown, Miss Morse, Mrs E Winnie, Miss Bertha Frost, Miss N Fisher, Mrs W H Sears, Miss Atkinson, Miss Whitney, Mrs McKay, Miss H R Taylor, Mrs H R Taylor, Mrs Rose, Mrs Huddard, Miss Alice Summerfield, Mrs Emily Daggett, Miss Christina Kunery.

Tenor—Samuel D Mayer, S O Lewis, Daniel Knight, S D Baker, Dr G H Powers, Wm M Galloway, T C Gore, J W Bartlett, Frederick Edwards, L Van Den Mehden, John Longwell, D W Orant, W W Mitchell, S B Alden, E R Waterman, W C Randolph, T G Saunders, E W Clarke, W Johnston, S O Cheever, A C Lowell, Mr Heitslin, J C Galvin, S A Stevens, William Toepke, Thomas Marshall, Mr Wilson, H Rosecrans, Mr Bellanger, S B Leavitt, J W Cherry, B F Wellington, James Geary, W F Joyner Harry Breed, C Newhall, L S Clark, G C Train, J W Kingswell, William McGarrahan, J F Henderson, S J Bacon, Wm D Murphy, H R Taylor, Thomas Hosmer.

Basso—R Wunderlich, Jacob Stadtfeldt, W C Camphell, S O Putnam, Winslow Battles, Charles B Stone, Charles Low, Charles Lenver, L R Townsend, J R Penfield, N C Gould, E J Delaney, V W Lincoln, Henry H Mayhew, Wm J Edminster, E Pique, Edward Carlson, Charles S Peltit, M Russell, Wm J Quinn, J F Palmer, J L R Ringo, James E Ager, O H Wells, H Nelson Wright, N C Gould, M Gillis, E A Hannaford, F A Nickerson, A Bannister, Mr Clement, S G S Rosecranz, H F Thompson, Robert Beeching, R J Davisson, L Bly, P Davenport, P Denny, J L Bibbins, N L Sykes, Horace Davis, James M Pike, Dr Corbett, G H Wells, T Murphy, G Brett, G L Maxfield, E F Maxfield, Joseph Dauphin, Frank Scholle, J Phelan, John Taylor, Mr Rose, H A Dana, M Witheron.

HANDEL AND HAYDN SOCIETY.

Soprano—Mrs Julia Cameron, Mrs E M Kingsley, Miss M T Buckle, Mrs I M W Gwynneth, Mrs G H Parker, Mrs Chas E Wilson, Miss Fannie E. Moore, Mrs Frank Smith Mrs M B Horton, Mrs N Edwards, Mrs S B Leavett, Miss Alice B Richards, Miss Clara Seiders, Miss McQueston, Miss Louisa Pidwell, Mrs James Vance, Mrs Nellie Hurley, Mrs. A K P Smith, Miss J Belding, Mrs Atkinson, Miss Almira Flint, Miss Fronie Clapp, Mrs Wm Loring, Mrs J D Wheeler, Miss M Griswold, Miss Mary A Walker, M S McMonagle, Mrs R Moore, Mrs Whittemore, Miss M L Bollene, Mrs R M Streetes, Mrs Arnold, Miss Nellie Storrs, Miss Emma Storrs, Mrs S Soren, Mathilda E Coates, Marie Shellard, Elizabeth Floyd, Miss Ida Brearly, Silecla E Coates.

Contralto—Miss Lella Curtis, Mrs Large, Mrs Angis A Wilder, Mrs Nellie Gifford, Mrs W M Searby, Mrs W A Washburn, Miss Sarah L Addison, Mrs S Washburn, Mrs E Weston, Miss Eva Turner, Miss Florence Ames, Mrs Frank Clapp, Mrs Mary B Smith, Master Albert Knowl, Mrs N S Cuiler, Mr C L Parent, Jr, Miss Emma Tabor, Mrs H M Traufmann.

Tenor—Jas E Damon, Wm P Harrison, Edward Moore, M Spencer, J M Prince, Judson Burns, Geo C Richards, S B Leavitt, J N Baldwin, Charles Steadman, George H Morris Charles E Wilson, G Thompson, P George, S C Gray, W H Porter, John R Taylor, James F Swift, Robert Moore, A D Halch, I W W Gwynneth, I G Hurley, S G Cheever, C G Wilkins, W B Bullard, Charles McCormick, G T Brown, J E Gordon, D P Roberts, C E Montuth, D H Penne, S L Townsend, P S Hibberd, John M Crocker, Thomas Marshal, Geo T Barker, F S Truett, A H Mancr, S D Barker.

Basso—E A Cutting, Wm F Kellett, S P Cook, John C Gore, C S Parent, Jr, C Makin, R H Belcher, James C Shafter, Z H Cunningham, J P Davenport, F W J Holbrook, Henry Large, H C Clement, D B Hanson, H W Huestis, E P Swift, Neal Donovan, M Armes, J F Champlin, J H Culver, J C Blair, R Blair, R H Monck, E Savory, A P Merrill, A S Cutler, C S Kellogg, F Prichard, Dr Henry E Knox, Sig John Cogill, C W Sears, J Newman, J R Winterton, Joseph Dauphin, J W Kingwell, M I Phelan, Geo P Rogers, Horace E Pope.

DELEGATIONS AND CHOIRS FROM HIGH SCHOOLS.

Soprano—Misses Florence Cornwall, Bertha Cornwall, Gertie Benehley, Dora Bridges, Carrie Mills, Fannie Ivers, Louise P Nichols, Carrie Moore.

Julia Randle, Georgia Daley, Camella Randle, Mary Bucklin, Alice L Rice, Amanda M Pierce, Eva M Tibbetts.

Emma Henderson, Mary Donnelly, Ida Champlin, Ella Landon, Mary Lenorr, Flora A Shaw, Maria L Sublett, Altona Wallingford, Alice White, Miss Daniels, Sarah J Boyle, Mary E Lewis, Ina St John, P V Oabbs, May Borie, Miss R M Streeter, J C Wellington, Lizzie Cox, Clara Popper.

DELEGATES FROM NEVADA CITY.

Mrs A H Hanson, Mrs J Barker, Mrs S P Davenport Annie Glasson, Prof C H Chase, Prof Ed Muller, C C Leavitt, Charles Grimes, A A Stiles, Charles S Sairs, J R English, W W Cross, Wm M Graham, A M Allen, J Blum, J Dikeman, M M Blum, Mrs G W Welch, Misses A M Palmer, Addie Davenport, M Schofield, Mattie Deal, Annie Little, Jennie Van Bergen, Alice Davenport.

Sacramento Delegation.

Soprano—Mrs Moore, Mrs L Bell, Mrs Morton, Mrs Jenks, Mrs Werne, Mrs Cooper, Mrs Hayden, Mrs McCallum, Mrs Sheehan, Mrs Gallitan, Miss S Waterman, Miss Goodell, Miss How, Miss Benn, Miss Rudolph, Miss Brooks, Miss Starr, Miss Lowell, Miss Goom s, Miss Ryan, Mrs Robinson, Mrs Brewer, Mrs Bell, Mrs G flins.

Contralto—Miss Peterson, Miss Haynie, Miss Heber, Miss Lannagan, Miss J Waterman, Miss Clark, Mrs Blackwood, Mrs Luce, Mrs Hopkins, Mrs Messinger, Mrs Snow, Mrs Hurlbut, Mrs Carter, Mrs Anderson, Mrs N J Miller.

Tenor—Israel Luce, P K White, J N Young, H K Snow, J Thompson, C Meyer, W Mansen, W Glade, C K Krebs, W Bartels, J Hall, G Hamilton, J Hill, J Shrogg, A Klaebe, B F Bell, L Bell, A T Reynolds.

Basso—J Fritz, J T Griffits, W H H Willey, J F Cooper, M C Gales, J G Hogan, W D Crowe, A Hill, L Latthammer, C F Backman, R Noble, A Heilbron, Alfred Hossack, Major Werne.

C Winter, Director. Seventy-two singers.

Placerville Delegation.

Soprano—Mrs H S Morey, Mrs P Mitchell, Miss G Congdon, Mrs C Brown, Mrs George Chalmers, Miss Addie M Belden.

Contralto—Mrs A G Stewart, Miss Cromwell, Mrs A Devoe, Miss G Kinney.

Tenor—M G Griffith, Director; H S Morey.

Basso—A G Stewart, Paul Mitchell, W H Hill, O I Keis, Russel Bronson, H Freeze.

Violinist—R S Hernandez.

San Jose Musical Union.

Soprano—Mrs Hamm, Miss Pluard, Miss Hall, Miss Bills, Mrs McKee, Mrs F Lanchison, Mrs S B Hunt, Miss Ella Cook, Miss Sarah Smith, Miss Ida Cook, Miss P Stanton, Mrs Hermann, Miss Caldwell, Mrs Bailey, Mrs J D Treat, Miss Eva Bassett.

Contralto—Mrs J C Potter, Miss Ella Bassett, Miss Metcalf, Mrs Churchill, Miss Herrman, Mrs Julia Pomeroy, Mrs E S Bradley, Mrs R B Hall, Mrs F A Wilcox.

Tenor—E Pomeroy, David Moody, A T Hermann, C E Cook, G Pomeroy, C A Bills, A L Hamm, G P Newell, J H Flickenger, W Crowther, S Lyman, S Grummer, F M Bacon, B F Lewis.

Basso—Jacob Linzen, B F Caswell, L P Tidball, O W Parker, C H Newell, H A Kelnath, A N Hamm, S B Hunt, O P Wyman, Elliot Reed—Fifty singers. E Pomeroy, Conductor.

Gilroy Delegation.

Soprano—Miss M Johnson, Mrs J Eardley.

Alto—Mrs F B Smith, Mrs S P Sanders.

Tenor—G M Johnson, J R Eardley.

Basso—J B Johnson.

Leader—S P Saunders. Organist—Miss F Severance.

Virginia City Choral Society.

Contralto—Mrs O J Hillyer, Mrs H Summers, Mrs James McGinniss, Mrs O W Whitaker, Mrs Wm Hayden, Miss Ida Knapp, Miss Emily Fish, Miss Emma Kibbe, Miss Belle Toussig, Mrs R S Day.

Soprano—Mrs G J Gee, Mrs Dorrin, Mrs O N Eells, Mrs C H Fish, Mrs T B Storer, Mrs Wm Crutcher, Mrs Jno McNeil, Mrs J B Dayton, Mrs R B Sanchez, Mrs J D Treat, Miss Clara Sperling, Miss Sarah Graham, Miss Hattie Emory.

Tenor—Rt Rev O W Whitaker, Charles H Fish, George W Pease, Joseph Maguire, Frank Fredericks, Charles Strong, Cole Foster, John McNeill, Tom Eells, Roger S Day.

Basso—Hon E W Hillyer, G W Donin, Geo N Eells, A Hull, W A Walters, N A H Ball, Mr Doolan, Dr Chapin, J S Bern.

Forty-two singers. Prof O T Oce, Director.

Delegation from Petaluma.

Mrs H L Weston, Mrs Grover, Mrs G H Jenks, Mrs M B Haskell, Mrs J E Woodworth, Miss A Branniff, Miss J Symonds, Mrs B Knell, Mrs E M Pritchard, Mrs S M Chandler, Mrs Holton, John Knell, J Grover, Mr Quinn, H Smith, S Green.

Delegation from Marysville.

Mrs Sherman, Rogers, and Kendall. Misses Wadsworth, Seeward, Belcher, Johnson, Thomas and Barnes. Messrs. Goodwin, Speer, Haskell, Stratton, Belcher, Brown, Dow, Totmann, Jenkins, Cutt, Schwarzmann, and Wright (flutist.)

Delegation from Redwood City.

Miss Mary Livingston, Mrs E A Worden, Mrs Celia Bean, Mrs Wm R Smith, Miss Flora Littlejohn, Henry E Jowett, B A Rankin, J W Bartlett, Prof H W Nuttlug.

Delegation from Oakland.

Soprano—Mrs W C Little, Mrs Eva J Smith, Miss Mary Haste, Mrs Bangle, Mrs Chase, Mrs Voorhees, Mrs Zovisler, Miss Eliza Brown, Mrs Walter Hudson, Mrs Laing, Mrs Graves, Mrs Bolton, Mrs Button, Mrs Thompson, Mrs Prouse, Miss Betancue, Miss Mary Abba Schribner, Mrs Passmore.

Alto—Miss Lawler, Miss L Haste, Miss S N Jewett, Mrs Northey, Mrs D W Pratt, Mrs Dunn, Miss Igust, Miss M Shepperd, Miss Shepperd, Mrs I W Sims, Mrs Corner, Mrs Clinton.

Tenor—A W Burrell, F King, P R Sheehan, N Kelsey, F P Bacon, D A Morse, James N Olney, E D Farrington, G E Whitney, E J Passmore, V S Northey, E Hunt.

Basso—O Button, Amos Hersey, F E Mueller, O H Carleton, W Walker, C W Hilton, D W Pratt, George Chase, W F Poor, R F Wise, W O Moody, W B Treadwell, John O Watkins, Stephen Smith, J B McChesney, J W Sims, J Farleton, Israel Knox. Whole number sixty.

Howard Choral Union.

Soprano—Madame Andreas, P A Atkinson, Fannie Bruce, E D Bridges, C M Chapman, E D Clow, Lizzie Cocks, M Chapman, Fronie Clapp, Julia Clark, Jennie Collver, Anita Ciprico, Mrs R H Christopher, Sarah Crossett, Mrs Julia Cameron, Ella Cornell, Mary Chipchase Virginia Deck, Almira T Flint, Mrs W A Grover, Mrs E Gilmore, E F Gwynneth, Mary Gass, Carrie S Hooke, Katie Havens, S C Johnson, Mrs Loring, Ella Landon, M S Moulthrop, Alice McMonagle, Fannie E Moore, Annie Maguire, Louisa Murdock, M L McNee, Estelle Nichols, Annie Norman, Appie W Riddell, Mary J Rioton, Katie Scudder, Laura Sheldon, A K P Smith, Emily Stone, R Sutherland, Alice St Johns, Maria Sublett, Clara Selders, Lizzie Selders, Mrs S Soren, Emma Storrs, Eva M Tibbetts, Mollie E Tozer, Belle Thompson, R Williams, Mary A Walker, Mrs C E Wilson, Stella Whittemore, V M Whigham, Florence Ames, L L Addison, Mrs O M Blake, Mary Burke, Susan Clarkson, N M Chamberlain, M Carleton, Ida Champlin, Emma Crocker, F D Cottle, Emma Dixon, Annie Dixon, Georgie Daley, M L Davenport, Mrs Eastham, Susan France, E W Freeman, Ellen G Gifford, Mrs W H Hooke, Medora Hodgdon, Nellie Hirley, Mary Howard, Hattie A Hill, Phœbe J King, Rosette Lang, Ella M Loomis, Mrs Lenfest, Mrs Geo McDonald, Miss McKenzie, Mary E Morgan, L Monmonier, Mrs McLane, Mrs Frank Nelson, Mrs C L Parent, Mrs Prince, Mrs Parsons, F E Roynolds, Belle Robertson, Abbie Ross, Florence Shaw, Ella H Stickney, Emma Tabor, F M Tennent, R Townsend, N A Washburne, M R Williams, Annie Wight, Ellen Wight, Belle Winterton.

Tenor—Simon Anderson, G T Brown, G M Blake, W B Bradbury, J W Bean, S D Baker, M B Bullard, W H Cain, Jno H Crocker, S G Cheever, H Carlton, A Elder, A B Falkingbourgh, A A Franklin, Jas E Gordon, W Getchell, W T Galloway, J M W Gwinneth, D B Hanson, W Hodgdon, E P Hill, P S Hibbard, W S Havens, E Kernode, J T Kingwell, C W Moulthrop, L P McCarty, A P Merrill, J M Prince, T Pritchard, C L Parent, F Richards, Jr, H M Rosenkranz, S G H Rosenkranz, J L R Ringold, Robert T Rodgers, M M Spencer, Thos Stevenson, M Stephenson, C W Tozer, Wm P Thompson, C G Wilkins, R E Williams, C W Weston, Chas E Wilson, E Waters, F Warden, Victor Yelmina, George Young.

Basso—Winslow Battles, M B Butler, George Bordwell, G W Chapman, S W Clough, R T Christopher, Jos Dauphin, Alfred Deek, E R Drew, W P Edwards, S F Freeman, W A Grove, Dr Gibbons, Jr, George W Hooper, W H Hooke, Geo Hogle, E Hudson, Geo P Kimball, S P Kane, W B Lamb, G S Lovery, John Longwell, George McDonald, James McAlder, Dr W B McAllister, George H Murdock, W D Monmonier, C J Pillsbury, W J Phelan, Hugh Roberts, H M Scudder, Jr, John L Scudder, W D Stocking, C W Sears, P R Woodman, J C White, G B Willey.

Officers—President, Col Geo S Mann; Vice President, Jas E Gordon; Secretary, W L Getchell; Treasurer, G T Brown; Librarian, C W Moulthrop; Conductor, Prof G A Scott.

SOLOISTS.

The leading soloists at the Festival are:

Soprano—Mrs O Putnam, Mrs R K Marriner, Mrs Robert Moore, of San Francisco; Mrs W C Little, of Oakland.

Contralto—Mrs Hayden, of Virginia City; Mrs Clements, Miss Fisher, Miss Mason, of San Francisco.

Tenor—Samuel D Mayer, Daniel Knight, of San Francisco; James Maguire, of Virginia City; Mrs Rogers, of Cincinnati.

Basso—J Stadtfeldt, R Wunderlich, W Campbell, and Mr Schwicardi, of San Francisco.

The Grand Ball.

The trustees of the Library decided to give, as a mark of their deep gratitude to Madame Urso, a grand ball for her benefit. This occurs on Friday evening in the Pavilion, and will probably be one of the grandest events of the kind ever known in this city. The appearance of the building and of the decorations by gaslight is said to be perfectly enchanting. One hundred musicians will furnish the music, sixty for the dancers and forty for the promenaders.

The Result

Is of course not known as yet, financially, but in every other point of view it must be proclaimed a grand success. The crowded houses attest the ideas of the hearers. There were 9,000 present the first day, and not less than 12,000 the second, according to careful estimates, a larger number than ever before collected together at any one time in the State. When one considers the obstacles to be overcome, the difficulties in getting together and training so large a number of voices and of instruments, especially for the first time, and the character of the music given, the highest praise must be awarded to the management. To have been one of the chorus (or orchestra) at Camilla Urso's Grand Festival in 1870, will be one of the proudest reminiscences hereafter. We hope a permanent organization will be effected, securing the repetition of similar and even larger festivals at regular seasons in the future.

◆

The Chamber's Brick-Making Machine in use at the East, and a model of which is to be seen at the Pacific Iron Works of this city, appears to be a most excellent device. The clay is taken from the bank and put into the machine, where it is submitted to a method of grinding and kneading, which mixes and tempers it more perfectly, it is claimed, than is possible by any other process yet discovered. It is then caught in the grooves of a screw and pressed through a rectangular die, in the form of a continuous bar of the thickness and width of a brick. It is then carried on an endless belt to a cutter, and cut into proper lengths. The bricks thus formed are carried by another endless belt through a chamber—the dusting machine—where a cloud of dust or fine sand is thrown on them by a blast of air, and the coating, thus formed, renders them nice to handle and improves their color when burnt. It is proposed to use the Adams steam kiln in connection with the machine. This kiln, which uses super-heated steam to prevent the overheating of the bricks nearest the fire and to diffuse the heat thoroughly throughout the kiln, and, moreover, economizes the fuel used, has been endorsed by Professors Horsford and Cooke, of Harvard University. We recommend these machines to the attention of builders.

◆

Scientific Events of 1869.—Hon. C. P. Daly, the new President of the American Geographical Society, enumerated in his annual address some twenty of the most notable events of the year. Among those which have not been especially laid before the readers of the Press, are the following: The invention and successful practical use of a self-registering compass by which every motion of a vessel can be recorded and preserved from the beginning to the end of her voyage. The discovery of trees of enormous height and magnitude in Australia, one of which was found to be sixty-nine feet in circumference. The discovery of great deposits of valuable coal throughout the whole of New Zealand, and the finding of coal upon the borders of the Caspian, verifying a prediction of Humboldt; both of which discoveries are of the highest importance to commerce. The assembling at Copenhagen last August of the International Congress of Pre-historic Archeology, under the auspices of the King of Denmark. The completion of the French exploration of the River Cambodia to the province of Tunan in China, the official details of which have not yet appeared. The expedition of the Russian merchant Soidorow in his own steamer around the coast of Norway and through the Polar Ocean to the mouth of the Pitschora.

◆

Death of a Famous Chemist.—Frederic Julius Otto, well-known from his excellent works on chemistry, died Jan. 4th of this year, at Brunswick, Germany. He was one of the most famous of the scientific men of the old world, and was an undoubted authority in his specific branch. In his death the whole world has sustained a great loss.

◆

The Mining and Scientific Press of San Francisco, Cal., has taken off half of its double name, and now appears as the Scientific Press. The Press is one of our very best exchanges, we read its columns with an avidity and pleasure, which would, we doubt not, be pleasant to the publishers to see. Its publication price, $4 per year, with the amount of reading matter, makes it worthy of support. We commend it to our friends. Messrs. Dewey & Co. are the publishers.—*Lake Superior Miner.*

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the SCIENTIFIC PRESS and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the SCIENTIFIC PRESS office, postpaid, for $1.—*New Age.*

TREATMENT OF REBELLIOUS SILVER ORES, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. HOWLAND.

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

RETURNED.—Dr J. H. Paine. Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

MICROSCOPES of all kinds can be had at Muller's spectacle emporium, 205 Montgomery street.

New Mining Notices.

Cordillera Gold and Silver Mining Company, Morelos Mining District, State of Chihuahua, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company No. 321 Washington street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.
Office, 321 Washington street, San Francisco, Cal.

Hartwell Mining Company.—Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of February, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Treasurer, at the office of the Company in San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Saturday, the twenty-first day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-first day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

fy26 A. J. HOYT, Secretary.

U. S. Grant Mining Company.—Location of Works: Carlisle, Nevada County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the nineteenth day of January, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Jno Gillig	4	218	$109 00
J E Squire	35	10	5 00
J E Squire	36	10	5 00
J E Squire	42	10	5 00
J E Squire	43	10	5 00
J E Squire	44	20	10 00
Jno Vail	34	20	10 00
F Pauson	52	35	17 50
N H Wilson	53	8	4 00
Samuel Goshen	54	8	4 00
W H Kinder	56	95	47 50
C C Brogan	57	50	25 00
W D Aplin	not issued	200	100 00
D E Martin	not issued	300	150 00
W L Tisdale	not issued	160	80 00
J Biggs	not issued	4	2 00
McFarland	not issued	16	8 00
Sarah Snyder	not issued	32	16 00
N M Baxter	not issued	20	10 00

And in accordance with law and an order of the Board of Trustees, made on the nineteenth day of January, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by J. C. Merrill & Co., at 204 California street, on Saturday, the twelfth day of March, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

ENOS TAYLOR, Secretary.
Office, 226 Clay street, San Francisco. fy26

Mining Notices--Continued.

Alleghany Consolidated Gold Mining Company. Location of Works: Sierra County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the thirtieth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
W H Tompkins	34	1000	$500 00
A L Whitney	32	185	92 60
John J Rorho	4	15	7 50
Chas Adams, Trustee	12	1000	500 00
I N Thorne	13	125	62 50

And in accordance with law and an order of the Board of Trustees, made on the thirtieth day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room 37 New Merchants' Exchange, on the twenty-eighth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.
Office, No. 37 New Merchants' Exchange, third floor, California street, San Francisco. feb5

Alameda Coal Mining Company. San Francisco and Alameda Counties, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of February, 1870, an assessment of thirty (30) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 409 (first floor) Battery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the twenty-second (22) day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

M. PHILIPP, Secretary.
No. 400 (first floor) Battery street, between Clay and Merchant streets, San Francisco. fe19

Glenwood Mill and Mining Company.—Location of Works: Greenwood, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the seventh day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of March, 1870. to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.
Office, 418 California street, San Francisco. feb52

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of February, 1870, an assessment of two and one-half cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the fifteenth day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fifth day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5 No. 302 Montgomery street, San Francisco, California. feb12

North San Francisco Homestead and Railroad Association:—Location of Property: City and County of San Francisco, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Association, held on the ninth day of February, 1870, an assessment of seven dollars and fifty cents was levied upon the capital stock of said Association, payable immediately, in United States gold coin, to the Secretary, at his office, No. 415 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the ninth day of March, 1870, shall be declared forfeited, and duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the thirtieth day of March, 1870, to pay the delinquent assessment thereon, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

EDWARD C. LOVELL, Secretary.
Office, 415 Montgomery street, San Francisco. feb12

Pinto Mining Company.—Location of Works: Silverado, Pinto District, White Pine County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the third day of January, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
R Beverly Cole...bal. of	Nos. 112 162	1243⅓	$186 50
R Mayrisch	unissued	1843⅓	276 50
Julius Hausmeister	46	30	4 50
Julius Hausmeister	47 to 71	100 ea.	375 00
D H Jackson	76 to 81	100 ea.	90 00
D H Jackson	82	65	0 75
D H Jackson	83 to 94	60 ea.	90 00
Adler & Gallinger	33	65	9 75
Adler & Gallinger	34 to 45	100 ea.	180 00
Henry G Langley	171	1610	241 60
G E Barnes...bal. of	166 157	1156⅔	173 50
P B Forster..bal. of	153 to 165	536⅔	80 50
A H Ward, Jr	111	805	120 75
T J Reed	unissued	536⅔	80 50
John A McQuaid	104	600	90 00
John A McQuaid	105 106	250 ea.	75 00
John A McQuaid	107 108	50 ea.	15 00
John A McQuaid	100	40	6 00
John A McQuaid	110	25	3 75

And in accordance with law, and an order of the Board of Trustees, made on the third day of January, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the seventh day of March, 1870, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary.
Office, 426 Montgomery street, San Francisco. fe19

Taylor Mill and Mining Company.—Location of Works: Georgetown District, El Dorado Co., State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the fifth day of January, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bell, Josiah	16	1000	bal. $300 00
Baily, D	20	990	bal. 297 00
Bishop, T B	18	500	300 00
Coy, Frank	12	1000	500 00
Gibbs, W T	1	1000	bal. 300 00
Kentfield, J	22	1000	bal. 300 00
Mastick, S L	23	2000	bal. 600 00
Mastick, L B	24	1000	bal. 300 00
Murfey, S S	19	1000	bal. 300 00
Murfey, S S	17	500	300 00
Creighton, F..	2 to 11 inclus.	1000	bal. 300 00

And in accordance with law and an order of the Board of Trustees, made on the fifth day of January, 1870 so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of John Middleton & Son, No. 310 Montgomery street, San Francisco, on Monday, the twenty-eighth day of February, 1870, at the hour of two o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

SAM'L S. MURFEY, Secretary.
Office, No. 520 Montgomery street, over Sather's Bank, San Francisco, Cal. feb12

New Advertisements.

D. SAVAGE. D. E. DORAN.

SAVAGE & CO.,
Empire Iron Foundry,
No. 204 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices. 9v20-3m

FITLER, QUIGG & CO.,
RAILWAY ADVERTISING AGENTS,
— AND —
Railway Supply and Insurance Brokers,
Continental Hotel, Philadelphia.

☞ Subscription and Advertising Agents for the SCIENTIFIC PRESS. 9v20

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn,
9v20-6m

DEWEY & CO.
San Francisco.
Scientific Press
U. S. & Foreign
PATENT AGENCY.

DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

REFERENCES.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

FRANCO-ITALIAN MANUFACTORY.
NEW CALIFORNIA
Chocolate and Coffee Steam Mills.
DESCALZO, LASTRETO & CO.,
526 WASHINGTON STREET.
MANUFACTURERS OF
Hygienic Chocolate of Every Variety,
Ne Plus Ultra Ground Coffee,
And sole manufacturers in California of the world renowned Coffee,
"CAFE DES GOURMETS,"
CORCELET PROCESS. 9v20-q

A Fine Country Residence
AND EXCELLENT FARM

Containing two hundred and eighty-five acres—seventy-five acres hill and two hundred and ten acres valley land—within one mile of the railroad, near Haywards, in Alameda County, for sale at a bargain, by the Administrator of the Estate. The house is a fine and substantial one, erected at a cost of $10,000, and magnificently located. An excellent orchard of six acres, well-fenced fields, good barns, etc. Price, $35,000, For particulars, inquire soon of

JAS. F. CROSETT,
9v20-tf 304 Montgomery street, San Francisco.

To Solicitors.
AGENTS WANTED.

One or two active and reliable Agents can obtain permanent and profitable employment by addressing or calling at this office.

Notice to Miners,
Well-Borers and Water Companies

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
8v18 ly Stove Store, No. 1 Clay Street, below Davis,

The Pacific Insurance Company.
No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.
FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,096 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.
9v20-qy16p

"The Manufacturer and Builder."
A PRACTICAL JOURNAL
— OF —
INDUSTRIAL PROGRESS.
PUBLISHED MONTHLY.
NOW IN ITS SECOND YEAR.

Every Manufacturer and Builder should have it. Every Operative and Mechanic should have it. Every Architect and Mason should have it. Every Painter and Plumber should have it. Every Carpenter and Blacksmith should have it. Every Counting-room and Library should have it. Price within the reach of all.

Subscription only $1.50 per year.

32 Large Quarto Pages for 15 cents.
348 Large Quarto Pages for $1.50.
Filled with valuable reading matter.

It costs less than Three Cents per Week!

A single hint in this paper may be worth hundreds of dollars, or prove a fortune to many.

"The Manufacturer and Builder"

Is splendidly illustrated with engravings of everything new relating to manufacturing and building.

Get Your Clubs Together.

PREMIUMS.

We are induced to offer the following CASH PREMIUMS to those who will work to get up those clubs: $5, $10, $15, $20, made in as many minutes! READ! READ! READ!

On every club of 4 names, at $1.50 each, $ 1 cash.
On every club of 10 names, at $1.50 each, $ 3 cash.
On every club of 15 names, at $1.50 each, $ 6 cash.
On every club of 20 names, at $1.00 each, $10 cash.

Including twenty and for every additional name obtained above that number, fifty cents each.

Where from ten to five hundred men congregate daily, there is no difficulty in raising these clubs. If the money be forwarded to us with a list of names, the amount of premium may be deducted from the same.

Push the good work, and make glad the hearts of your fellow-workmen.

CLUBS IN VILLAGES AND TOWNS may be procured by any enterprising man or woman. Send for specimen copy, circulars, instructions, etc., free. Take them and go among your friends and neighbors. In a half day you will often accomplish the task, and five, ten, or fifteen dollars will be earned, together with the satisfaction of knowing that you have benefited your fellowmen. Adress your orders plainly,

WESTERN & COMPANY, Publishers,
P. O. Box, 5969. 37 Park Row, New York.
☞ For sale by all newsdealers. 9v20-4w

For Miners, Millmen and Metallurgists.
KUSTEL'S NEW WORK,
CONCENTRATION
Of all kinds of Ores, and the
CHLORINATION PROCESS,
For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price, - - - - $7.50

A liberal discount to the Trade. For sale by the Booksellers
Sent to any part of the United States, postage paid, on receipt of the price. Address,

DEWEY & CO., Publishers,
Office of the Scientific Press, 414 Clay street,
1v16tf SAN FRANCISCO. 1868.

VIRGINIA, NEV., Jan. 27, 1870.

MESSRS. DEWEY & CO., *Patent Agents*—Dear Sirs:—I have your favor of the 24th inst., informing me that my application for patent of "Improved Roofing and Flooring" has been allowed, and I thank you for the attention and dispatch used in executing this business for me. Yours truly, PATRICK N. MACKAY.

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

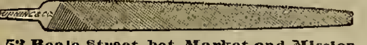
GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.
21v16-3m W. McCRINDLE. Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.
2v17-3m **T. G. DURNING & CO**

ALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL.
9v13-1y

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of Housesmith Work; Bridge, Prison,

FORGING AND MACHINE WORK,

FIRE AND BURGLAR-PROOF SAFES,

BANK VAULTS,

Improved Monitor Safes,

Constructed of Welded Steel and Iron, fastened with conical steel bolts.

Safes Let by the Month.

Manufacturer of the

Duplex and Excelsior Combination Bank Locks.

Agent for the ISHAM KEY REGISTER BANK LOCK.
1v17-tf

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and **15** Fremont street, near Market, San Francisco.
10v14qr

SAN FRANCISCO
Pioneer Screen Works.

JOHN W. QUICK,

203 Fremont street, near Howard, San Francisco.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at greatly reduced rates.

ORDERS SOLICITED AND PROMPTLY ATTENDED TO.

I would call special attention to my slot cut and slot punched Screens which are attracting much attention and giving universal satisfaction, both as regards their efficiency and durability. This is the only establishment on the coast devoted entirely to the manufacture of Screens. It has furnished screens for the principal mills and firms on the coast for many years. 10v19tf

---

GEO. T. PRACY'S
MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

1tvl SACRAMENTO CITY

SACRAMENTO BOILER WORKS,

I Street, between Front and Second,

SACRAMENTO.

All kinds of Marine and Stationary Boilers, Wrought Iron Tanks, Girders, Bridges, Gasometers, and all kinds of Sheet Iron Work, etc. All work warranted. Millmen and Grain Threshers are cautioned to look to the safety of their boilers. Repairing promptly attended to at the lowest possible terms. Refers to Huntington, Hopkins & Co. and H. Adams, Esq.

J. V. HALL, Practical Boiler Maker,
6v20-3mnuf Proprietor, Sacramento.

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

---

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS. J. BURKE.

NEW FILES OF EVERY DESCRIPTION

ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended to. 9v19-qy

---

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

FOUNDRY FACINGS.

BENJAMIN ELLIOT,

No. 483 Brannan street..........................San Francisco,

Manufactures Foundry Facings constantly, from choice coals. Bituminous, packed in tight sacks. Anthracite and Charcoal ground together or separate, packed in barrels Black Lead, Coke and Soapstone ground to order.

☞ Foundrymen located far from choice material, can rely on having superior Facings forwarded to order.
10v18qr

☞ ☞ ☞ ☞ ☞ ☞ ☞ ☜ ☜ ☜ ☜ ☜ ☜ ☜

TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. C. ALLEN & CO., Augusta, Maine. 5v20-3m

---

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED..............................APRIL 30, 1868.
CAPITAL..............................$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	James Pollock,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON..............................President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..............................Secretary.
24v17-qy

CALIFORNIA TOOL WORKS,
Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.
21v17-qy **J. WEICHHART, Proprietor.**

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

Ayer's Sarsaparilla,

FOR PURIFYING THE BLOOD.

The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this *SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears,* and other eruptions or visible forms of *Scrofulous* disease. Also in the more concealed forms, as *Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia,* and the various *Ulcerous* affections of the muscular and nervous systems.

Syphilis or *Venereal* and *Mercurial Diseases* are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. *Leucorrhœa* or *Whites, Uterine Ulcerations,* and *Female Diseases,* are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. *Rheumatism* and *Gout,* when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also *Liver Complaints, Torpidity, Congestion* or *Inflammation* of the *Liver,* and *Jaundice,* when arising, as they often do, from the rankling poisons in the blood. This *SARSAPARILLA* is a great restorer for the strength and vigor of the system. Those who are *Languid* and *Listless, Despondent, Sleepless,* and troubled with *Nervous Apprehensions* or *Fears,* or any of the affections symptomatic of *Weakness,* will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 7v02eow-4m

---

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.

DIVIDED INTO 1,200,000 SHARES OF

TEN DOLLARS EACH,

FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President..............................SAMUEL MERRITT.
Vice-President..............................MICHAEL REESE.
Treasurer..............................J. SELIGMAN & CO.
Secretary and General Agent.........W. K. VAN ALEN.

BOARD OF TRUSTEES—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm, H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, SEVEN MILES IN LENGTH BY FOUR THOUSAND FEET IN WIDTH, EMBRACING FIVE THOUSAND AND TWENTY ACRES.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of ALL mines discovered by the Tunnel.

4th—A royalty forever of TWO DOLLARS on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of his great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast,

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
Secretary and General Agent,
625 Montgomery street
3v20-3m Opp. Montgomery Block,

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, February 25, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ₱ 100 lbs.; Bar, 1@1¼c ₱ lb; Sheet, polished, 3c ₱ lb; common, 1½@1¾c ₱ lb; Plate, 1½c ₱ lb; Pipe, 1½c ₱ lb; Galvanized, 2½c ₱ lb.

Scotch and Eng. Pig Iron, ₱ ton	$33 00	@	$35 00
White Pig, ₱ ton	28 00	@	30 00
Refined Bar, bad assortment, ₱ lb.	— 03	@	— —
Refined Bar, good assortment, ₱ lb.	— 04	@	— —
Boiler, No. 1 to 4	— 04¼	@	— —
Plate, No. 5 to 9	— —	@	— 04½
Sheet, No. 10 to 13	— 04½	@	— 05
Sheet, No. 14 to 20	— 05	@	— 05½
Sheet, No. 24 to 27	— 05	@	— 05½

Copper.—Duty: Sheathing, 3½c ₱ lb; Pig and Bar, 2½c ₱ lb.

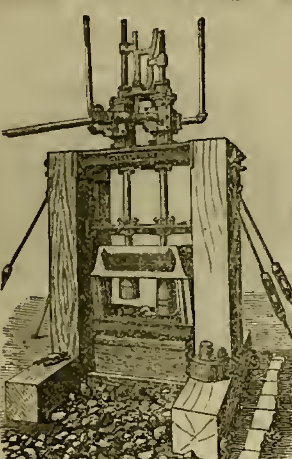
Sheathing, ₱ lb	— —	@	— 26
Sheathing, Yellow	— 20	@	— 21
Sheathing, Old Yellow	— 10	@	— 11
Composition Nails	— 21	@	— 22
Composition Bolts	— 21	@	— 22

Tin Plates.—Duty: 25 ₱ cent, ad valorem.

Plates, Charcoal, IX, ₱ box	12 00	@	— —
Plates, I C Charcoal	10 00	@	10 50
Roofing Plates	10 00	@	10 50
Banca Tin, Slabs, ₱ lb	— —	@	— 42
Steel.—English Cast Steel, ₱ lb	— —	@	— 15
Quicksilver.—₱ lb	— 55	@	— 60
Lead.—Pig, ₱ lb	— 7½	@	— 8
Sheet	— 10	@	— —
Pipe	— 11	@	— —
Bar	— 9	@	— 9
Zinc.—Sheets, ₱ lb	— 10½	@	— 11
Borax	— —	@	— 45

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

☛ The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for hemselves, at the office, **229** Fremont street,
1v1 San Francisco.

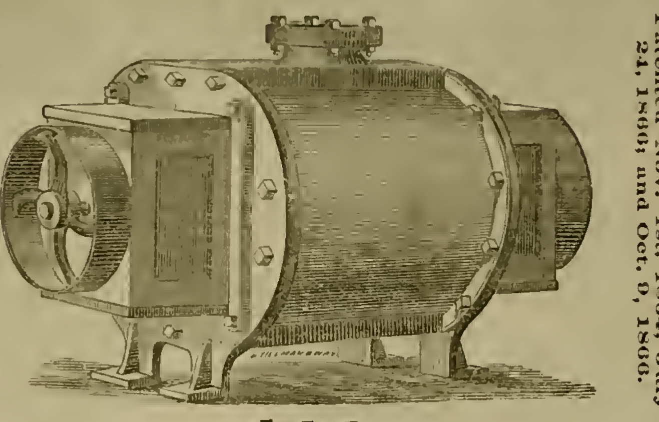
Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, Sacramento. COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs, or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

---

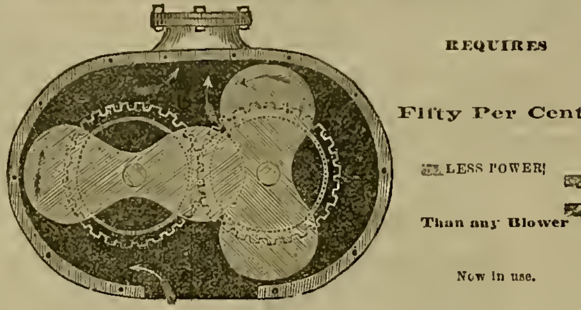
ROOT'S PATENT FORCE BLAST ROTARY BLOWER
MANUFACTURED BY KEEP & BARGION,
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** ☞ LESS POWER! ☜ Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

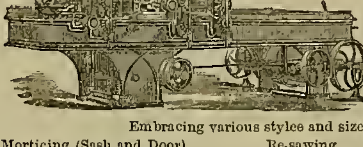
Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**

WOODWORTH PLANERS.



PLANERS AND MATCHERS,

With patent expansion feed gears and other improvements, made in the most finished and substantial manner; also every description of

J. A. FAY & CO'S IMPROVED

Wood Working Machinery.

Embracing various styles and sizes of the following Labor-saving Machines:

Morticing (Sash and Door),
Sash and Moulding,
Blind Slat Tenoning,
Boring (Horizontal and Upright),
Shaping,
Re-sawing,
Planing and Matching,
Blind Stile Boring,
Blind Wiring,
Blind Slat Planing,
Rod and Dowell,
Hand and Foot Mitering,
Railway Sawing,
Improved Tenoning,
Variety Moulding (Gear's Patent),
Machines.

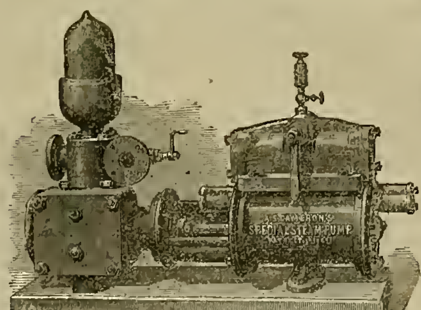
An assortment of the best always on hand.

SCROLL SAWS, DIMENSION PLANERS, GROOVER SAWS, FAY'S PATENT BAND SAWS, WOOD TURNING LATHES OF ALL KINDS.

ENGINE LATHES and Machinists' Tools generally, with also a large assortment of small machines used in Planing Mills, Machine Shops, etc. Also, Planer Knives, Saw Gauges, Matcher Sets, Sash and Matcher Heads, Saw Tables and Arbors, etc. Being the selling agents for most first-class Eastern Machinery Builders, we sell THE BEST, and at manufacturers' prices. Invoices of the above Machinery are now being received by every vessel. ☞ Send for Illustrated Catalogue.

BERRY & PLACE,
112 and 114 California Street, San Francisco.

☞ Agents for Blake's Patent Steam Pump, Davis & Furber's Woolen Machinery, Gear's Upright Shapers, Fay's Band Saws, Washington Iron Works Portable Engines, Saw Mills, etc., etc. c7v20



CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
MARINE
ENGINES.
SURFACE
CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

Our Home Physician.

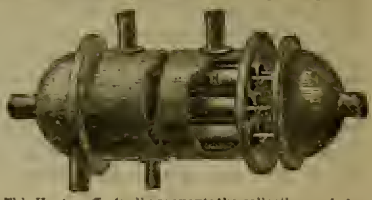
By GEO. M. BEARD, A. M., M. D., of New York. Its superior merits are endorsed by the Scientific American, Rural New-Yorker, leading medical journals and physicians of established reputation at the East and on the Pacific coast. Copyrighted 1869. The only complete Family Medical Book written since 1860. Send for circular containing extracts from author's introductory, testimonials, etc. Address, WESTERN PUBLISHING AGENCY, 411 Kearny street, San Francisco. Agents wanted; also for Dr. Dadd's Reformed Horse Book. 6v20-3m

---

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 6v20-1y

---

CROSS' COMBINED
Heater & Sediment Collector



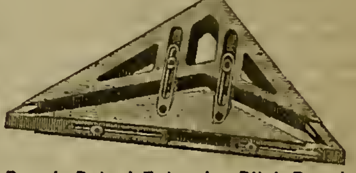
This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

To Carpenters and Stair Builders.



Drew's Patent Extension Pitch-Board

Saves TIME, LABOR, and LUMBER, and secures exactness and perfect work. This is a very simple instrument, which is quickly and easily adjusted (as may be seen by the engraving), so as to give any desired pitch and tread for stair building. It is adjusted by a system of slides and screws. Full information may be obtained of the inventor,

JOHN R. DREW,
5v20 Cor. Natoma and Fifth streets, S. F

SAN FRANCISCO
Gold and Silver Plating Works.

ATTENTION.

Quartz Mill Men,
MINERS,
HOTEL KEEPERS,
— AND —
OTHERS.

ATTENTION.

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

LEA & PERRINS'
CELEBRATED
Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good Sauce The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for Lea & Perrins' Sauce, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c. &c.; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

---

International Hotel,
JACKSON STREET,
BETWEEN MONTGOMERY AND KEARNY STS.,
SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.

Prices varying from $1 50 to $2 per day for Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

☞ Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House free of charge, and to any part of the city for **50** cents

1v1 F. E. WEYGANT, Proprietor.

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,

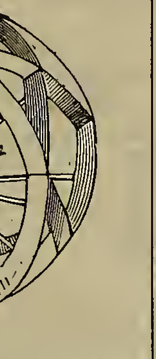
No. 210 Front Street, San Francisco. 25v19

Scientific Press.—Dewey & Co. are the publishers of this sterling paper. It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican.*

Loud vs. Cole—A Strange Decision.

We gave a couple of weeks ago a history of the patent case contested by Mr. A. C. Loud, of this city, and Senator Cole. We had been informed at that time merely that, on a third appeal, the decision rendered by the Primary Examiner, the Examiner of Interferences, and the Examiner-in-chief, all of whom were unanimous in giving the case to Mr. Loud, had been reversed by the Commissioner of Patents, who gave the case to the Senator. We were surprised at the decision, but had not then seen the reasons given for it. We have seen these now, but still continue to be surprised.

That Mr. Loud had made a model of the contested form, before the Senator claimed to have invented the device, is proved by the testimony of several witnesses, whose statements stand *unimpeached*. So much then, is certain, that Mr. Loud was the first to invent the device, he having done this in Angust, while the Senator invented it only in December. The Commissioner takes what seems to us an original view of the matter, and proclaims that Mr. Lond's invention is no invention at all. "I am clearly of opinion," he remarks, "that Loud made no invention of the X-shaped wheel in Angust 1868. *It is true he crossed two disks of paste-board;* but he had no idea of the mechanical truth which that act involved. On the contrary, when it became desirable to make use of that truth, it was not in his mind."



It strikes us that the assumption, that an inventor, who is studying how to effect a certain purpose, should take the trouble to make a model, and to show it to his friends as a good device for this object, (which is proved by witnesses) without having any idea of its effect, and without any purpose —"purposeless experiment," it is styled—is certainly a remarkable one. And when we consider, in addition, that the inventor immediately commenced testing a modification (as the examining experts at the Patent Office have officially and unanimously pronounced it) of this same principle, and that he had tried another modification—which he has patented here and in England—the assumption appears still more remarkable. [Of this last modification we give a sketch, and the reader can see that it is but the third step in the development of the idea, the V and the X shapes being the first two.] There is but one supposable ground for this:—That Mr. Loud did not mention the original idea while experimenting with the modification, which is assuredly no reason, any more than it is a proof that a person has never been aware of a fact becanse it does not recur to his mind even when circumstonces arise which might be expected to bring it to his recollection. That we sometimes do not think of a thing well known to us when we ought to remember it, is within the experience of everybody. But further than this, we have no proof or reason to suspect that Loud did not think of his original device at the time. If he did, he certainly was under no obligations to make it known to others.

The case will now be carried up before the District Court, and we shall watoh the development of the affair with great interest.

The Scientific Press,

Devoted to Scientific and Mechanical Progress, Mining, Farming and Mechanic Arts, contains more valuable Reading Matter than any other weekly journal west of the Rocky Mountains. It is the best printed and only finely-illustrated paper on the Coast. Its articles are able, timely and reliable, and written in a more interesting and easily comprehensive style than scientific papers in general. Now in its twentieth volume, it is printed on superior paper, containing sixteen pages, equal in size to the first-class journals of the Atlantic States and Europe. All our best citizens are interested in the new discoveries in the development and progress of the three great industrial pursuits named above, which are closely allied on this coast, and are jointly represented in the Press, rendering it a popular and influential journal with all industrial readers. Subscriptions reduced to $4 a year, Jan. 1, 1870.

To Inventors on the Pacific Coast.

Our U. S. and Foreign Patent Agency presents many and important advantages as a Home Agency over all others by reasons of long establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or a description in the Scientific Press. We transact every branch of Patent business, and obtain Patents in *all civilized countries*. The large majority of U. S. and Foreign Patents granted to inventors on the Pacific Coast have been obtained through our Agency. We can give the best and most *reliable* advice as to the patentability of new inventions. Advice and Circulars free. Our prices are as low as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior.

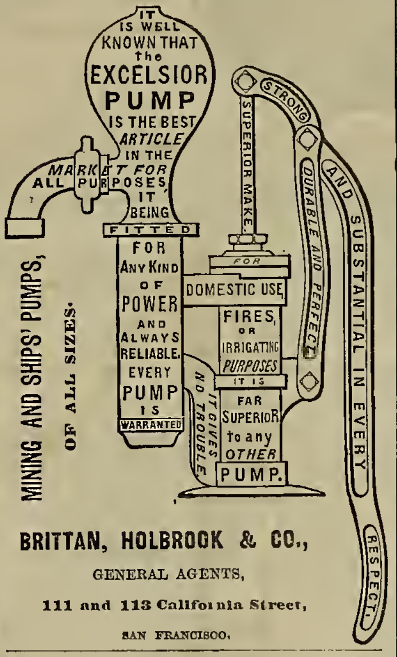
Engraving on Wood, of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also, engraving on metals.

DEWEY & CO.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m



IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES, IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE, FIRES, OR IRRIGATING PURPOSES
IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE
SUPERIOR MAKE.
STRONG
DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

$1. Postage Paid. $1.

A CHEAP AND HANDY BOOK

—FOR—

Mechanics, Inventors and Students.

SCIENTIFIC PRESS
NEW EDITION
—OF—
507 MECHANICAL MOVEMENTS.

PUBLISHED BY
DEWEY & CO.

This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.

A liberal discount made to the trade. Single copies, $1—sent postage free. Address orders,

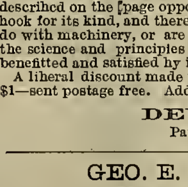
DEWEY & CO.,
Patent Agents, San Francisco.

GEO. E. ROGERS,

(Successor to G. W. Bell.)

ASSAYER,
512 California st., San Francisco.
J. A. MARS, Assayer.
Ores carefully Assayed. Gold and Silver Ores worked.
23v16-qr10pnr

Blake's Patent. THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's



Patent Steam PUMP

It is simple, compact and powerful, needs no expert to run it, and will start at any point. Is warranted positive under all circumstances. Send for a circular.

BERRY & PLACE, 112 and 114 California st., San Francisco.

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

- Patents Obtained Promptly.
- Caveats Filed Expeditiously.
- Patent Reissues Taken Out.
- Patents Secured in Foreign Lands.
- Assignments Made and Recorded in Legal Form.
- Copies of Patents and Assignments Procured.
- Examinations of Patents made here and at Washington.
- Examinations made of Assignments Recorded in Washington.
- Examinations Ordered and Reported by Telegraph.
- Rejected Cases taken up and Patents Obtained.
- Interferences Prosecuted.
- Opinions Rendered regarding the Validity of Patents and Assignments.
- Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.

Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

STEEN & CUSHING,

AGENTS FOR THE
PURCHASE AND SALE
—OF—
Patent Rights, Engines, Boilers,
—AND
MACHINERY OF ALL KINDS.

NO. 9 FIRST STREET, SAN FRANCISCO.

WE HAVE ON HAND IN GREAT VARIETY,

Engines and Boilers,	Malt Rolls,
Steam and Hand Pumps,	Injectors,
Pipe,	Lathes and Planers,
Presses,	Governors,
Shafting,	Steam Gauges,
Pulleys,	Quicksilver,
Boxes,	Gas Stocks and Dies,
Mill Stones,	Belting,
Portable Mills,	Water-tanks, etc.,

Which we will sel at a discount of 25 to 75 per cent. on cost of new, in this city. Parties having any kind of machinery for sale, may meet with customers by consigning to us. Purchases made on Commission, and prices guaranteed as low or lower than parties can make themselves.

STEEN & CUSHING,
No. 9 First street, San Francisco.

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,

News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT, Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco, 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass. GALLAGHER, WEED & CO., California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
519 Front street, San Francisco
18v18-9p

W. T. GARRATT,

CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURER OF
Brass, Zinc and Anti-Friction or Babbit Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

HUNTINGTON, HOPKINS & CO.,

—IMPORTERS OF—
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
—ALSO AGENTS FOR—
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY.
54 K Street, Sacramento.
7v20-ng

N. W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology. and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v16-1y16p

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, March 5, 1870.

VOLUME XX.
Number 10.

New Propelling Apparatus.

We have been shown a new propelling apparatus, recently invented by Mr. I. E. Averill, of Sacramento. This invention relates to the method of operating feathering-paddles for boats. It consists essentially of a pair of vibrating arms which support, at their lower extremities, paddles so constructed that they feather when passing forward, but come into full action when they go back, pressing with their broad faces against the water and thus propelling the boat. The two paddles of a set work alternately, thus keeping up a continuous forward motion. There is a pair on each side of the boat, and the whole is arranged so that the vessel can be propelled in either direction—backward and forward, and steered as desired, the same as by a pair of oars. The inventor modestly limits the application of the device to smaller boats, canal boats, etc., for the present, and claims that by its use the vessel can be moved much faster and with less power than by means of oars. The men at work can stand facing the bows of the boat, and thus see what is going on before them, and as their work is confined to raising and pressing down the arms of the lever, which can be made as long as may be required, they have a comparatively easy task.

* * *

THE REMOVAL OF THE MECHANICS' PAVILION.—There is a strong movement being made to allow the Pavilion to remain in its present position a short time longer. The building cost $53,000 with improvements, and to have it removed now would seriously impair the revenues of the Mechanics' Institute, which is in need of all the money it can raise to extinguish its debt of $40,000. When we remember the noble action of the Institute in tendering the use of the building in aid of a brother association, it would seem as if those in the neighborhood might be willing to do the little kindness towards it of allowing the building to remain a short time longer, especially as the many are benefitted thereby. To remove any suspicions of their attempting to occupy Union Square permanently, the directors offer to give bonds to remove the Pavilion at the end of the year 1871.

* * *

A TERRIBLE MARINE DISASTER.—The U. S. steamship Oneida left Yokohama on the afternoon of January 24, and that evening was run into by the English iron steamer Bombay, which continued on its way, despite the signals from the sinking vessel. The Oneida sunk rapidly, and 120 persons, including most of the officers, perished! There is an intense excitement against the English captain for his inexplicable conduct. The only accounts as yet received, however, are those of the survivors of the wreck.

* * *

OUR THANKS are due to the Hon. A. A. Sargent for a copy of his bill entitled "a bill to amend an act granting the right of way to ditch and canal owners over the public lands, and for other purposes."

Improved Double-Acting Lift and Force Pump.

We illustrate this week a very neat and effective pump invented by a resident of this city, who is well known for several very valuable inventions. The nature of this particular device consists in the arrangement of a suitable port or water-way, with relation to the valve, buckets, supply and discharge ports of a double-cylinder pump, in such a manner that by working the valve pistons by means of a common brake lever, a crank, or a similar device, the water is raised or discharged in a continuous stream.

In the illustration, A, A′ are the two cylinders, B, B′, the valve pistons, worked by the rods G, G′; C, the water way, and D′, the discharge spout. On moving the lever, the pistons work in their respective cylinders. As B′ ascends, the water is drawn into the cylinder, A′. As it descends, the valve opens, permitting the piston to pass through the water. As it ascends again, the valve closes, the water is raised in A′, and forced through the passage, C, into the cylinder, A, and through the open valve of the descending piston, B, and out of the discharge spout, D′. On the return stroke, the valve of the piston, B, is closed, and the water forced out of A through D′, so that there is a constant flow all the time.

Only two valves are used in this pump. These are made of metal, and are faced with vulcanized rubber, and will stand any pressure required. They work on grated seats. The water passages through the pump and the pistons are large, and the friction of the water is reduced to a minimum. No valve chamber is used; all the working parts are simply the two pistons with their rods.

The cylinders are cast in one piece, without bonnets, valve chambers, or joints of any kind; and, consequently, the trouble of leakage is done away with. The cylinders have a brass lining (denoted by E), and brass piston rods are used. There is a strainer valve attached to the end of the suction pipe, which prevents foreign substances from passing into the cylinders, and keeps the pump always charged.

The arrangement of this pump is such, moreover, that should one of the valves become obstructed, it can still be worked as a single-acting pump; and hence it is much less liable to stop working than other devices of the kind. It can be driven by hand, horse, steam, or other power. It is so simply constructed, that the piston valves can be removed and replaced very easily; and it appears to be one of the cheapest, most efficient and durable pumps made.

The inventor, who has constructed quite a number of other very ingenious and useful devices, and who is well known here, is Mr. William D. Hooker, Berry street, San Francisco, to whom application may be made for any further information.

The second figure shows a very effective single-acting pump, which is made at Mr. Hooker's work, and which is available for the deepest wells—the so-called Adams' Improved Single-Acting Deep Well Lift and Force Pump. This requires no particular description. In the cut, *a* is the submerged pump barrel, *b* the discharge pipes, connected with the flange, *c*, at the top of the well, *d* the piston rod, *e* the handle. The pumps are claimed to be the simplest, most durable and cheapest pumps in the market.

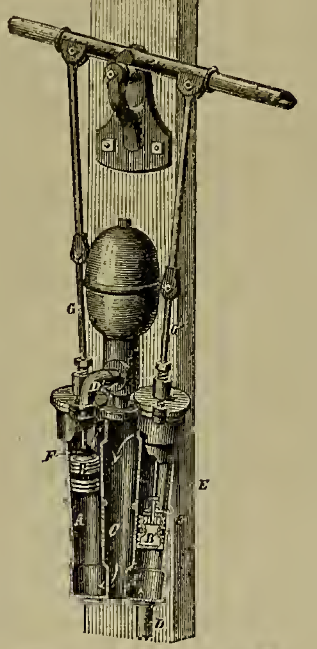


FIG. 1—DOUBLE-ACTING PUMP.

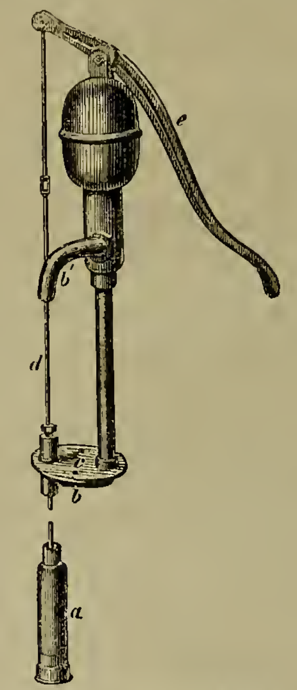


FIG. 2—SINGLE-ACTING PUMP.

* * *

WORK on the new San Francisco Mint is progressing favorably.

Sugar Planters and the Standish Steam Plow.

We have been shown the manuscript report of a meeting of sugar planters, held in the parlor of the St. Charles Hotel, in New Orleans, La., Feb. 10th, 1870, which passed the following resolution:

WHEREAS, a good and cheap steam plow is a desideratum in the agricultural industry of the Southwest; and,

WHEREAS, in the opinion of this meeting, the steam plow patented by Philander H. Standish, of California, appears to present many features to recommend it to our notice, therefore,

Resolved, That Mr. Philander H. Standish be invited to have one of his plows on exhibition at the next annual agricultural fair of Louisiana, to be held in New Orleans, pledging ourselves to do all in our power to facilitate the introduction of it to the notice of the agriculturists, and insuring success with profit.

D. P. KENNA, President.
F. E. ROBERTSON, Secretary.

Mr. Standish has just gone East by invitation of several capitalists in Massachusetts, and we shall expect his return in due time with an improved and thorough-built plow.

* * *

THE "LITTLE GIANT" QUARTZ MILL is being erected on Drumm street, near California. It consists essentially of a horizontal circular iron disk, on the face of which run four iron rollers, weighing 1,000 pounds each. The disk revolves about 40 times a minute, and by its motion, carries the ore from the center (where it is fed into the mill) gradually towards the circumference, and under the rollers, revolving twice as fast as the bed, where it is subjected to a combined striking, rolling and grinding operation, according to the inventor, and finally discharged at the outer rim. The ground ore is carried by elevators to bolters, whence the coarser stuff returns to the mill. The ore is previously broken up by an ore crusher. No manual labor is required except simply in feeding the ore-breaker.

The advantages claimed are: The action of the mill which reduces the ore quickly and perfectly; the economy in manual labor; the almost entire absence of liability to breakage; the small weight (some 6,000 pounds); the simplicity of the machinery; and complete confinement of the dust, so injurious to health and to the machinery. Mr. R. M. Vance is putting up the mill to "run it on its own merits." Its capacity is about 15 tons, which are reduced fine enough to pass through a 60-sieve. The public will have a chance in about a week to see the mill in operation.

* * *

OPINIONS OF THE CALIFORNIA PRESS CONCERNING SENATOR COLE.—A pamphlet containing extracts from the leading California papers has been sent to us. These extracts express opinions with regard to the Senator which are hardly complimentary to him.

* * *

SILVER IN KENTUCKY.—Reports from Louisville announce the discovery of a silver mine in Grayson County, Kentucky. Nothing definite is stated except the inevitable "richest ore ever found," etc., etc.

Communications.

Mills and Mines of Colorado.—No. VII.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

Georgetown, I should have said in my last, is located about forty miles from Denver, and has an elevation of 8,000 feet, which sets it pretty well up from the plains. This year there has been considerable wind and a good deal of snow and cold, but, as a general thing, the winters are not any more unpleasant than in any mountainous portion of California of the same altitude.

The German Reduction Works

Are located at the upper end of the town, and are owned by Huepeden & Co. The works are more after the Freiberg system in the manipulation of ores, also in the matter of roasting. Instead of the reverberatory furnace, which all Germans cling to, there is used for roasting the

Bruckner Furnaces,

Which Mr. Huepeden assured me worked much better and more economically than the reverberatory. In every sense they seem to meet his views. They may be described as large iron cylinders, five feet in diameter and ten feet long, with cone-shaped ends. At the front end is the fire-place, and at the rear the dust chamber. In the interior of the cylinder is an inclined plane which keeps the ore continuously shifting from one end to the other as the cylinder revolves. The ore is received and discharged by an opening in the center of the cylinder. The interior is lined with common brick, which answers, Mr. H. says, all the purposes of fire-brick. The whole cylinder, when charged, revolves at the rate of one and a half revolutions per minute, turning on large wheels similar to, and of the size of, railroad car wheels. It is moved by gearing, and is put up in good solid shape, to go, stop or stand. Outside of the cost of shell and gearing there is nothing expensive about it. The works contain a Dodge crusher, a stave barrel for reducing ore, etc. There is also a 10-stamp battery of 450-pound stamps, which is not used. Eight wooden barrels of forty-two inch diameter, are used as amalgamators. The buildings are spacious, and everything has the appearance of activity and practicability, though not put together with any particular order. Attached to the works are offices for essaying, melting, etc., making it, on the whole, a pretty thorough working institution.

The Lead Tariff.

The ores in this vicinity are very rebellious, carrying a heavy percentage of lead, antimony and zinc; and, by the bye, this puts me in mind of the lead business and what I want to call your attention to, for the benefit of White Piners and others engaged in argentiferous works. There is now being made in Congress a great effort to take off the tariff on this article, and unless active measures are taken by all parties interested, it may be done; in which event the lead producers will be seriously affected. Colorado is wide awake in the matter; and I am informed by Commodore Decateur, who has given the matter close attention, that petitions will soon be circulated, protesting against a reduction of the tariff. It is a matter of as deep interest to the Pacific coast as to Colorado. If there is virtue in it, protests should be gotten up, or at once made to her representatives at Washington, and the interest protected. They can depend, of course, on the influence of the West, as all are more or less interested in it. I see by the St. Louis papers that they are proposing to establish a "Swansea" there by the erection of large reduction works. You in California and Nevada have got to hump yourselves, or Colorado is going to get this year five dollars of Eastern and European capital to your one, for the reason that she is so much nearer "the States," with rail communication to all parts. The road from Denver to Cheyenne, and the road (Kansas Pacific) from Denver to St. Louis, will be completed by the first of July next, and these bring the gold, silver and lead regions all within sixty miles of the railroads, and about the best portion of the gold region within thirty or forty miles. So brush up and hold your own.

Ore Shipments, Etc.

The following, from the Colorado *Miner*, will give your readers some clear idea of this section. Ores, in consequence of the expense of reduction, are all selected. Were a cheap process adapted, other ores could be worked, and these would be a general benefit: "The amount of silver bullion shipped in 1869, was 218,325 ozs.—coin value, $249,854.50; average in coin per ton, of all the ore treated, $134.32; ores shipped for treatment, 179½tons—coin value, $110,500; ores on hand, 4,087 tons—value, $299,480; grand total bullion and gulch gold shipped, $289,854; add ore shipped, $110,500; ore on hand, less cost of treatment at $45 per ton. $115,565, making a total coin value of $515,919; bullion, gold dust and ore shipped in 1869, $400,354. Deduct shipment in 1868, $91,829.35, shows an increase in 1869 of $308,524.65, an increase of 425 per cent. The increase in value of property in one year is about 50 per cent., and the poll list has increased 250 at the same time."

Primitive History of Man.

The following paper, containing a condensed statement of facts relating to the primitive history of the human race, was read by Professor Karl Vogt, at the last meeting of the Society of German Naturalists, and was translated and submitted to the Academy of Sciences by the President, Dr. Blake, at their last meeting:

It may seem from the title of my paper, that the subject is one which does not fall within the range of questions usually investigated by this Society, as appertaining more particularly to history than to the natural sciences. But I would observe, that if we have chosen the name of primitive history for our new branch of knowledge, it is that we mean by the term the investigation of the history of the human race independently of all traditional and historical sources, but by a method such as is applied to the investigation of other branches of natural history.

If up to the present time the earliest appearance of man on the earth is veiled in the greatest obscurity, it is that the solution of the problem has been left to the archæologist rather than to the naturalist. Since geology, palæontology and comparative anatomy have been brought to bear on this interesting subject, some light, at least, has been thrown on it, and I am happy to have this opportunity to communicate to you the facts brought forward at the recent Anthropological Congress at Copenhagen. We will consider these facts under three different heads.

First, and most important, is the probable time during which man has existed on the earth. We are aware that this period has been brought down within very narrow limits by traditionary belief and by legendary lore, and it is with these views that most of us have been brought up. It can, however, now be proved—with the same certainty as it can be proved that the earth revolves round the sun—that the age of man upon the earth far exceeds the limits that has usually been assigned to it. Geological and palæontological researches inevitably point to this conclusion, researches which have led to the discovery of the remains of animals together with human remains in the later deposited strata, on various points on the surface of the globe.

We are now in a position to prove that at least in Europe, and more particularly in the western part of Europe, in the western portions of France and England, and also on the borders of the Mediterranean, the human race existed at a time when these same lands were inhabited by extinct races of animals; animals, too, belonging to races which are now only found in more southern regions. We can affirm, with absolute certainty, that man existed in those regions when the mammoth, the elephant, the rhinoceros and the hippopotamus inhabited Europe. This fact is proved by our finding not only instruments made by man, but even human bones embedded side by side in more recent strata with the bones of these older animals.

If the age of man on the earth can be shown even in Europe to have extended so far back, we must then admit that this age reached beyond the period in which the geological changes that have given to Europe its actual shape took place, and when the European continent possessed a very different form from what it does at present. We can also plainly see that since the human race inhabited Europe, the climate must have undergone great changes; that men existed on this continent at a time when the northern shores of the Mediteranean were separated from the continent of Africa by a vast inland sea which now forms the Desert of Sahara, and the Straits of Gibraltar were closed by land which joined the two continents; that the Baltic was a frozen ocean which then covered the whole of the plains of Northern Germany and of Russia, so that Finland, Sweden and Norway formed an island at a time when England was united to France; in fact, that a complete change has taken place on the surface of Europe since this continent has been inhabited by the human race, and that man must have been a witness of these vast changes.

The proof of this gradual change in the climate since the continent was inhabited by man, is found in the extraordinary facts revealed by the investigations of the so-called Reindeer Period, which have been carried out in France by Lartet, in Germany by Krass, and in Belgium by Dupont. There can now be no doubt that after the race of the large southern animals had died out, a period followed, during which the reindeer, the polar fox, the musk fox, the polar bear, and other northern animals lived in the central parts of Europe, and were hunted by the then inhabitants of this part of the continent. There can be no doubt but that the fauna, both animals and plants, were such as inhabit an almost arctic climate, which must then have existed in the middle portions of Europe, and that since then, and also since man inhabited this continent, the climate has gradually become changed to what we find it at the present day.

These are facts which can be affirmed with absolute certainty; with a certainty as great as any deductive facts in other branches of natural science; and in the presence of such facts it is impossible to deny that man must have inhabited the earth for a much longer period than we have been accustomed to believe—for a period, in short, in which six to ten thousand years is but an infinitely small fraction; particularly when we remember that since man existed in Europe vast portions of the continent have been raised above the sea by a gradual process of upheaval; that the waters of the Northern Ocean must have been at least 400 feet above their present level, and that during this period the shape of the European continent has been gradually but completely changed. The discovery of these interesting facts has been owing to the investigation, under a geological point of view, of the diluvial strata of Europe, containing, as they do, abundant remains of extinct animals associated with human bones and implements.

Up to the present time, the earlier traces of man living at a time when the mammoth, the cave bear, and the elephant lived in these latitudes, have only been discovered in southern and western portions of Europe. It is at a later period, during the period of the reindeer, that we find the earliest human remains in Switzerland and Swabia, whilst in the northern parts of Germany and Denmark there are no indications that these countries were inhabited by man during the Reindeer Period; all human remains found in these countries being referable to a later period in the earth's history.

These facts would indicate that as regards Europe, the part first inhabited was that bordering on the Mediterranean, from which point the human race gradually extended towards the north in one direction, and to the elevated regions of central Europe. This is one class of facts that these investigations into the early history of our species have disclosed.

Another line of inquiry relates to the gradual development and civilization of the inhabitants whose remains have been discovered in these diluvial strata. Geology has marked out for us the comparative periods at which different portions of our continent has become inhabited, and clearly indicates the vast periods during which this portion of the globe has been the dwelling place of man; but a different method must now be pursued, in order to get an idea of the gradual development of civilization in these prehistoric races. The most striking facts in this connection are afforded by a comparison of the evidences of the social states of the races as indicated by their implements of chase and warfare, and by the character of their habitations with those of the lowest tribes of men at the present day. If, for instance, we compare the collection in the ethnological museum at Stockholm, in the section devoted to the Esquimaux and Greenlanders, with the instruments that have been found in France in the caves of the Reindeer Period, the similarity of the instruments is so marked that they can easily be confounded, and as the manner of life of the Esquimaux is determined by the climate in which they live and the customs they have inherited from their ancestors, as in these conditions the use of a few simple implements suffices to enable them successfully to carry on the struggle for existence, we are justified in concluding, when we find the same implements in the older strata of the caverns, that the former inhabitants of these caves in the south of France led much the same sort of life as our northern Esquimaux. The above example is brought forward to show more particularly the direction in which this branch of our inquiry has to be pursued.

If we will now consider what are the facts which the limited researches that have, up to the present time, been prosecuted in this direction, have brought to light. The golden age of the poets find no shadow for an existence in these prehistoric indications of the state of our race; on the contrary, they reveal to us man in the lowest state engaged in the struggle for mere existence. There can now be no doubt but that our ancestors were wild in the fullest acceptation of the word. We see that faint traces of civilization gradually appear, although so slowly that vast periods seem to have been required, even for the slightest progress. We find that men began to live together in fixed dwellings, the first condition for the development of civilization. Another fact about which there can be no doubt, as was clearly shown at the meeting at Copenhagen, is, that not only were the earlier inhabitants of Europe savages, but they were also cannibals, although it is probable that cannibalism then practiced was connected with some sort of supernatural belief. If they eat their enemies, after they had killed them, it was perhaps with the belief that the courage and strength of the slain might pass into their own body when they eat them. (The Chinese still employ bear's liver as a tonic for the nerves and to give courage, because the bear is one of the most courageous animals they know. They will pay any price for a bear's liver, this being the center of the fighting soul according to their psychology.)

As civilization advances, for instance, at the time of the lake buildings in Switzerland, when even before the use of metals agriculture and raising domestic cattle were followed, it appears that this upward progress was accompanied, if not brought about, by barter and exchanging manufactured goods with other tribes, and that one of the most important elements of our present civilization—the use of metals—was thus introduced into Europe.

As the result of our geological investigations, it was indicated that the earliest men that inhabited Europe came probably from Africa; so the remains of the cultivated plants which have been found in the lake dwellings in Switzerland show that these first objects of agriculture came not from Asia, as has been usually believed, but from Africa.

We now come to consider the third order of investigations that have been pursued for throwing light on the far-back history of our race, viz: Those that relate to man's anatomical development. We shall here find that the facts furnished fully justify the expression of the poet—"Es wachst der mensch mit seinen höheren zwecken." "Man becomes more developed, the nobler are his aims." If, indeed, not the whole body, at least, the brain. It is on this field of observation that comparative anatomy and physiology lend us such valuable assistance. This field has unfortunately been but little cultivated. Strange it is, although true, that the comparative anatomical investigation of man of the different races of human beings that now inhabit the earth, is in a less advanced state than that of some other races of animals. In fact, a great deal more attention has been paid to the race anatomical of many classes of animals than to that of man.

When, however, we look at the results these still imperfect investigations have furnished, we find a gradual development in the anatomical form, as the human race becomes more civilized.

◆

Parties who have been making examinations of the monster bird and animal tracks in the old sandstones at Turner's Falls (Mass.), claim to have discovered human footprints, clearly and well defined, in the same strata with those of animals and birds.

In France there are said to be 470 beetroot factories, 115 in Belgium, and 200 in Prussia.

Mechanical Progress.

Internal Friction of Double-cylinder Engines.

Engineering for Jan. 28th has an article on "High-class Steam Engines," in which, after showing the absurdity of the notion, recently enunciated, that all improvements which multiply moving parts are objectionable "refinements",—it goes on to combat the idea that exists in the minds of many engineers, that the internal friction of a double-cylinder engine is greatly in excess of that of a single-cylinder engine of equal power and equally good construction. We quote: "Now we are of course perfectly aware that in the double-cylinder engine a certain amount of extra friction is caused by the use of an additional piston, and of two or perhaps three stuffing boxes; but in reality this extra friction forms an insignificant portion of the whole internal friction of the engine, even when the latter is running light. When the engine is working with a load the percentage of extra friction due to the extra piston and stuffing boxes is still further diminished, for of course the friction of these parts is not increased by the load itself as is that of the crosshead guides, crank shaft bearings, etc. Again, the extra friction just mentioned must be set—supposing balanced valves not to be used—the diminished friction of the slide valves in the compound engine. The friction of a slide valve is due, first, to the difference between the pressure in the valve chest, and that in the exhaust cavity; and, second—during a portion of the stroke—to the difference between the pressure in the valve chest, and that in that end of the cylinder in which the steam is expanding, this difference of course acting on the area of the port covered by the valve. If now the two slide valves of a double-cylinder engine were each of the same size as that of a single-cylinder engine, the total friction due to the first of the above-mentioned causes, would be the same in both cases, the only difference being that in the double-cylinder engine the total difference of pressure would be divided between two valves instead of acting on one alone. In reality, however, the two valves of a compound engine are not each of the same size as that of a single engine of equal power, one being smaller, and hence there is a saving of friction. Again in the compound engine the cut-off of the steam of course takes place much later than in a single-cylinder engine working with the same degree of expansion, and hence the unbalanced pressure on the valves due to the second of the above-mentioned causes is less and the friction consequently less also."

Another Breech-loader.—Captain Graham Stuart, R. N., read a paper at a late meeting of the United Service Institution, upon his newly patented breech-loading cannon. We give briefly, from *Engineering*, the essential parts of the description: "An ordinary gun forging, somewhat enlarged in the internal diameter of the breech, is bored as usual, but the part of the boring in the breech is made two or three times as large as the remainder. Into this a sphere of metal, perforated as the bore, is introduced. One face of this has a *spiral* perpendicular projection. This fits against a bronze expansion ring fitted into the rear end of the bore, and acts as a wedge, completely sealing the breech. This sphere is mounted on gudgeons, which pass through the sides of the breech, and is turned by handles outside the gun. It rotates on its axis a quarter of a circle to open or close the breech. The perforation being accordingly in a line with, or at right angles to the bore, the sphere rests against a heavy perforated breech plug screwed into the solid breech. Through this the charge is introduced."

Zinc Paint.—Sorel prefers to use the chloride of zinc. He prepares it thus: 'Chloride of zinc (solution 50° B.), thirty parts; cream of tartar and hydrochloric acid, each one part; potato starch, four parts; and water, sixty-four parts. Stir in zinc white and chalk to proper consistency, and to give glance add a little linseed oil. To obtain a plastic mass like whalebone, take fifty parts potato starch, five parts oxide of zinc, and stir them into a mixture composed of fifty parts chloride of zinc (of 55° B.), one part cream of tartar, and one part hydrochloric acid."

The Bessemer-Ransome Stone.—We condense the following from the *Mechanics' Magazine:* "The Ransome stone is produced by dissolving flints in caustic soda and mixing the resulting silicate of soda with dry silicious sand and limestone powder. The paste thus formed is moulded to any desired shape, and then hardened by immersion in a solution of chloride of calcium. A shower bath of cold water drives off the chloride of sodium, and the stone, after being dried, is ready for use. The process of saturation with the solution of chloride of calcium is accomplished by hose playing on the block, as well as by immersion. Mr. Ransome has, however, in connection with Mr. Bessemer, recently obtained another patent, in which is claimed the "saturating, washing, and drying blocks or moulded pieces of artificial stone by means of a vacuum or pressure." Mr. Pye Smith has introduced a very ingenious arrangement for this process, consisting of an air-tight iron chest, into which a pipe is carried from a tank above the building. The chest has a moveable bottom, which is lowered by a winch and placed on a traveler. When the plate has been loaded with moulded material—the pieces being placed over vents made in the movable bottom—it is placed beneath the saturator, which somewhat resembles a diving bell. It is then screwed up in its place and well packed; the cock of the down pipe is then opened, and the chloride of calcium admitted under the pressure of a good head. It rapidly permeates the soft masses exposed to its action and converts them into durable stone, after which they are treated with water in the usual way."

A New Projectile.—A trial was made on February 9th, at Fortress Monroe, of a new double projectile, invented by J. W. Hill of Iowa, by which, as he claims, a shot can be thrown eight or ten miles. "The shot is conical, with a bore inside and a time fuse at the side. In fact, it is a small cannon itself. An eight-inch shot weighs 200 pounds before it is loaded. The inner cavity, or bore, is 3½ inches, and extends some eight inches. Into this is placed a half pound of powder, some tow, and a 12½-pound shot. The nozzle is stopped up by a brass plug in two pieces; the double shot is then placed in a cannon and discharged. The fuses are from five to forty seconds; at the end of that time the fuse ignites the powder and discharges the 12½-pound shot, driving out the plug."

The *Iron Age* says: "The principle is regarded as a good one. Our 15-inch guns throw a solid shot at least five miles. Load one of these with a double-shotted projectile, with a fuse arranged to discharge the small shot when the cannon ball has reached its highest elevation; a 15 inch shot would take a twenty or twenty-four pound shot without danger of bursting, and it is claimed that it would go farther from this elevation than it would from the ground."

Small Turbines.—Chas. Fowler, in an article upon this subject which he contributes to the *Scientific American*, says: "In some recent experiments of my own, with reference to obtaining a cheap application to light manufacturing purposes of the usually high falls of city supplies, I used a wheel only three inches in diameter, having twenty-four issues, each measuring one-tenth of an inch square. This wheel under a fall of thirty-five feet, drove a heavy English foot-lathe with sufficient power to turn a hickory block four inches in diameter; the water was conveyed to it through over one hundred feet of one and a quarter-inch pipe, having a number of sharp angles and curves. The wheel running unloaded made 2,288 revolutions per minute, ascertained by actual count by means of a worm and wheel."

Ingenious Lathe.—A convict in the Michigan State Prison has invented a turning-lathe, which turns sticks of variable thickness and of any degree of crookedness. It is principally used in turning scythe-snaths, but it will do any other sort of twisted work equally well. Besides doing the labor of a dozen men, it does its work with greater accuracy than could possibly be done by hand.

New Drill.—A late arrangement for drilling large holes in iron has a center pin which, having a thread cut upon it, screws itself into the body of the tool as the "cutters" of the drill advance. With this, it is not necessary to drill a small hole first, as a guide for the center pin.

Scientific Progress.

Ambrosine.

A new fossil resin, found in the phosphate beds of South Carolina, is thus described by Prof. Chas. U. Sheppard, in the *Rural Carolinian:* "An irregular oval-shaped mass of a mineral closely resembling amber, has been brought to my notice. The mass was originally of the size of a man's fist. It is of a yellowish-brown color externally, but within is clove-brown. It breaks with about the same facility as amber; has a conchoidal fracture, and a resinous luster. It is feebly translucent. Its specific gravity is but slightly above that of water. Indeed, small fragments of it when thrown into water float for a short time, until they part with adhering air, when they slowly descend through the liquid. It is strongly electric by friction. It melts into a clear, yellowish liquid at about 460° Fah. It gives off succinic acid before it melts. On fusion a dense yellow oil is volatilized, attended with an agreeable balsamic odor, wholly unlike that from the resins of our pines.

As it differs from any of the oxygenated hydrocarbons known, I have called it Ambrosine—from the two words amber and resin; to both of which substances it bears a resemblance. It is very combustible—burning with a bright, yellowish white light, a pleasant odor, and without leaving any carbon, or even the slightest ash behind. It is largely soluble in oil of turpentine, alchohol, ether, and chloroform, as well as in a solution of potash; and is feebly taken up by the strong acids, without suffering decomposition. It probably originated in some of the coniferous trees that existed during the pliocene epoch, when our phosphatic formation was in progress of deposition."

Where Does all the Carbon Come From?

Dr. Odling, F. R. S., has just commenced, at the Royal Institution, a course of twelve lectures upon the "Chemistry of Vegetable Products." We give an abstract of a portion of the first:

"As about 50 percent., by weight, of vegetable substances consists of carbon, the question asked in our heading presents itself. About forty years ago it was believed that the carbon of vegetable tissue came from pre-existing vegetable matter which had found its way into the soil, and there formed a brown substance known as 'humus.' Notwithstanding the palpable foolishness of the idea, it remained for years almost unchallenged. The humus theory was adopted by Berzelius and Sir H. Davy, nor was it overthrown till the year 1840, when Liebig, in a paper read before the British Association, heaped proof upon proof that it was untenable, and brought forth what is known as 'the mineral theory of vegetable nutrition.' Humus must manifestly be dissolved before it could enter the plant, and Liebig began by showing that humus is very insoluble in water, and will scarcely give it a color. Liebig assumed that the whole of the rainfall upon an acre of land during the whole time of the growth of the crop dissolved all the humus the water could take up, and then carried the whole of it into the plant; yet this would only account for a very small percentage of the carbon contained in the crop. It was also found by experiment that plants will often thrive in places where there is no carbon in the soil. Peas were grown in soil consisting of nothing but powdered burnt bricks. The palm trees of the West Coast of Africa yielded between the years 1821 and 1830 no less than 107 millions of pounds of palm oil, containing 32,000 tons of carbon, for exportation to England alone, and these trees grew upon a sandy soil containing little or no carbon. Another fact is that it is possible to greatly increase the quantity of carbon in a crop by spreading over the land mineral matter quite free from carbon. It is also a fact that growing crops increase and do not decrease the quantity of humus and carbon in the soil, and this is the most important circumstance of all; this has been proved by experiments with clover. Leaves must produce humus, but it is by no means so certain that humus must produce vegetation.

The carbon in plants must come from earth, water, or air, and as water as a rule contains no carbon, attention was at last drawn to the air. The amount of carbonic acid in the air is not quite constant, but there are usually four parts by volume of carbonic acid to every 10,000 parts of air. A room 25 feet square by 16 feet high contains exactly 10,000 cubic feet of air, and four of carbonic acid. The theater of the Royal Institution contains about 80,000 cubic feet of air, and 32 cubic feet of carbonic acid gas; therefore, the air in the theater contains a bulk of carbonic acid about half as big as the lecture table, and a bulk of carbon about as big as a brick. The pressure of the air is 15 pounds to the square inch, so that there is a column of air pressing with a weight of 2,000 pounds upon every square foot of the globe, and this column contains half a pound of charcoal. The quantity of charcoal, therefore, in the whole of the atmosphere of the earth is 3,000 billions of pounds, or far more than exists in the whole of the vegetable and animal worlds, and in the whole of the carbon in the coal deposits in addition."

Extraction of Copper from its Ores. Prof. T. Sterry Hunt and Jas. Douglass, Jr., have patented a process for the above purpose, based upon the use of a watery solution of neutral protochloride of iron for the purpose of converting the oxide or suboxide of copper into dichloride, and the use of sulphurous acid for decomposing any oxychloride formed in this reaction. The neutral protochloride is prepared by the double decomposition of protosulphate of iron with an equivalent of chloride of sodium. We copy a paragraph from the English patent specification which, with other pamphlets, we have received from Dr. Hunt: "One hundred and twenty pounds of sea salt, or one hundred and twelve pounds of dry chloride of calcium, or its equivalent of hydrated chloride, are to be dissolved with two hundred and eighty pounds of protosulphate of iron, (green copperas,) in one hundred imperial gallons of water. In place of the above salts we may substitute an amount of protochloride of iron prepared by any other method, containing fifty-six pounds of metallic iron. To the bath prepared in either way, two hundred pounds of sea salt are then added, when the solution is ready for use, and will be found capable of chloridizing and dissolving about ninety pounds of copper. The power of brine to dissolve the dichloride of copper formed increases greatly with the strength and temperature. The proportions above given are convenient, but in case of poor ores, a solution of one-half the strength may be used with advantage. * * The pulverized oxydized ores are to be digested in the above with frequent agitation. Heat is not necessary, but it accelerates the solution of the oxide of copper. When the solution is complete, the liquid is drawn off and digested with metallic iron, by which the copper is thrown down as cement copper, two parts of iron yielding three parts of metallic copper."

New Thermo-Electric Pile.—Messieurs Mure and Clamond have brought out a new pile, of which *Le Genie Industriel* thus speaks: "It is made up of sixty elements. These consist of small bars of lead, or native sulphuret of lead, and of plates of steel. The bars are forty millimetres long by eight thick, and the plates of steel are fifty-five millimetres long by eight broad, and 0.6 thick. In these couples galena is the electro-negative element; iron, the electro-positive. The form of the bars is such that by placing them side by side, they form a ring of twelve couples, of which the interior is formed by the extremities which are to be heated. They are united in tension by means of tin solder. They are isolated from one another by thin mica plates. By placing five of these rings in a vertical column, a battery of sixty couples is formed. These rings are isolated and separated by washers of asbestos. The whole is firmly held between two iron rings by means of three bolts. The pile thus forms a hollow cylinder. The apparatus is heated by a gas burner, consisting of a steel cylinder fifty-six millimetres in diameter, closed above, open below, and pierced with small orifices. This is placed in the center of the pile. A tube pierced with holes surrounds this cylinder and distributes the gas uniformly around it. The gas rises, and arriving at the orifices in the burner, meets the air which is escaping from it because of the draft of the tube of steel that surrounds the apparatus. Forty couples have an electro-motive force equal to that of a Bunsen element."

An Eighty Years' Survey.—The trigonometrical survey of England and Wales, on the scale of one inch to the mile, was finished during the first week of the present year. It was commenced in the year 1791.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Roaster.—*Miner*, Feb. 19th: We have assurances from a gentleman who has extensive interests in Alpine, that a furnace devised specially for our ores will be introduced in the spring. It is to combine several features now in use with some entirely novel.

BUTTE COUNTY.

Fluming.—Oroville *Record*, Feb. 26th: Mr. Lytle and others, interested 13 years ago in the famous Cape claim, at the mouth of Morris ravine, contemplate fluming a portion of that claim the coming summer. There were some 400 feet of that extraordinarily rich river claim left unworked.

CALAVERAS COUNTY.

Railroad Flat.—*Chronicle*, Feb. 26th: The track connecting the Petticoat mill and main shaft is completed, and a car to carry two tons will hereafter transfer the ore. Near the bottom of the shaft, which is 200 feet in depth, a tank has been constructed 30 feet long to receive all drainage above its height, no water of any consequence appearing below. Whatever water may accumulate below will be conveyed into the tank by their old pump, a new 8-inch one raising it thence to the surface, one rod working both pumps. Two weeks' time will put this mine in perfect working order.

EL DORADO COUNTY.

New Quartz.—Placerville *Democrat*, Feb. 26th: H. L. Robinson & Co. are to build a 10-stamp mill on their claims at Prospect Flat, two miles from this city. They expect to have it running next month. Their claims are on the famous Blue lead.

Dickerhoff & Goyen's new mill is hammering away on tailings, and paying handsomely.

MARIPOSA COUNTY.

Jenny Lind.—*Gazette*, Feb. 25th: We learn that Messrs. Kocher & McCullongh have commenced work on the Jenny Lind mine, an extension of the rich Washington lead, Hornitos. They have applied for a Government patent to the mine.

MONO COUNTY.

Dunderburg.—Carson *Appeal*, Feb. 22d: The tunnel by which the ledge is tapped at a depth of 160 feet has been run clear through the lode, which is upwards of 30 feet in width. An assay shown us gives $16.96 in silver, and 84.40 in gold—making a total, per ton, of $101.36. The ore was taken at random from one of the drifts.

NEVADA COUNTY.

Bloomfield.—*Transcript*, Feb. 23d: The North Bloomfield Gravel have not been able to wash much yet, in consequence of a lack of water. R. C. Black, after a run of 10 days, cleaned up $1,000 above expenses.

Randolph Flat.—24th: Wehster & Co. are putting in sluices, and will commence washing next week. Grant & Co., adjoining, are to sink a shaft and open their claims, and other companies are getting ready to start up. The prospects still continue good.

Good Heads.—Leavitt & Co. are running 300 inches of water. Their flume runs the entire length of the town and dumps into Deer creek. Marselns & Maltman are running six hundred inches in Manzanita hill. The South Yuha Canal Co. are running their ditches to their full capacity, and are unable to fill the demand by nearly 1,000 inches.

Deer Creek.—25th: Several days ago some Portuguese struck a pay lead on Deer creek, from which they crushed $45 in a hand mortar. Recently a number of pay spots have been struck.

Prospecting.—Yesterday nearly 100 persons were prospecting on the hill-side near Wood's Ravine, for quartz. Sloan & Dougherty struck a ledge from which they took out some splendid specimens. We were shown several which were filled with free gold. There was considerable excitement.

Good Prospects.—John Senner did some '49 prospecting with a rocker, on Lassen ravine, below the foundry. He took out dirt that paid at the rate of $6 per day.

You Bet.—26th: After the last run of six days, Brown, Brothers, cleaned up $9,000. This cement claim has for years been rich, and the average yield has been $5,000 per week. They have now plenty of water to keep the mill running.

The Idaho Sale.—An injunction was filled by the Idaho Co. against the sale of the interest of John H. Henning, deceased, the company claiming that there is no interest in the mine belonging to that estate.

The Prospects.—27th: The prospectors are developing new deposits, the quartz mines are yielding handsomely, and the hydraulic mines have abundance of water, and are busy in every locality. The recent storms have given abundance of water, and the March rains will probably add enough to make the supply fully up to the average, while the mildness of the weather has permitted operations to be carried on without interruption.

Clean Up.—*Gazette*, 23d: Cohh & Co., of Scotch Flat, cleaned up on Monday from 37 out of 77 boxes in their gravel claims, $1,395.63. This was from 13 days' run.

Machinery Sold.—John McDermott has purchased from the Bowery Co., at Grass Valley, the hoisting and pumping machinery of the Gold Tunnel mine.

Globe Nozzle.—Two of Craig's nozzles, recently cast, are 27 inches in diameter. One is for the hydraulic claims of John Arhegast, and is to serve under 125-foot pressure. The other will be used at the Last Chance claims at Blue Tent, under a pressure of 225 feet.

Empire.—*National*, 23d: Excellent ore is being taken out in the Rush & Laton ground. The incline is down 360 feet. The ledge is 20 to 30 inches in thickness.

PLACER COUNTY.

The Auburn Strikes.—Grass Valley *Union*, Feb. 26th: Charles Eaton, who purchased the St. Patrick ledge, informs us that the Good Friday is still turning out very rich rock, and that the St. Patrick is paying largely. Near the St. Patrick, a few days since, a miner took out over $400 in one day, from the croppings of a ledge. Mining in the district is active, the residents having formed companies for that purpose.

PLUMAS COUNTY.

Taylorville.—Cor. of Quincy *National*, Feb. 19th: The Lehanon Mill in Genesee Valley will soon commence crushing rock. Judkins & Kellogg are crushing, with good results, and the reservoir is filling up fast. On the whole, the mining interest looks encouraging.

North Fork.—There are but few miners at work this winter. Bryon & Boston are doing better that at any time before. Benham & Emmons are doing well on Columhia Bar. The Dutch Hill Co. are boring ahead in their tunnel, taking out some dust. Ferguson & Wsggoner are taking out dirt to wash in the spring. Mechlin is getting good prospects in Barker Hill, and running out dirt for spring washing. A company are now working the old Italian diggings in Bntt Valley, making five or six dollars per day to the hand.

SIERRA COUNTY.

Struck it Rich.—*Messenger*, Feb. 26th: We learn that rich prospects have been struck, during the past week, in the Tagnasty claims, at the lower end of Dnrgan Flat. The tunnel has been prospected with vigor, day and night.

Kanaka.—We understand that the mill recently cleaned up satisfactorily after a short run.

Clean Up.—Ned Leonard's mill cleaned up after a sixteen days' run, about $1,200. The ledge is narrow, and only enough rock could be obtained to run the mill in the daytime.

TRINITY COUNTY.

Douglass City.—Cor. of *Journal*, Feb. 19th: The last storm started all the miners at work, most of whom had been ready for the rains. All the claims worked last year, with two exceptions, are running, while some new ones are being opened. None of the claims have less than 140 feet, and that of Tourat & Murphy, on Fillihnster Flat, reaches up to 190 feet.

British Columbia.

The Peace River Mines.—A Victoria telegram of Feb. 24th says: "This Colony is greatly excited over the news from the river; the lower country will be nearly deserted in April. The miners find in their sluices nuggets of gold and lumps of natural silver in about equal proportion. The belief of the miners is, that a great silver as well as gold country has been discovered."

Arizona.

Big Bug.—Prescott *Miner*, Feb. 12th: L. C. Gray, arrived Tuesday with a bar of gold worth between $1,800 and $1,900, the proceeds of 80 tons of ore. The little mill was less than nine days producing the above amount of gold.

Pine Grove District.—Some 15 of the prospectors near Bradshaw mountain remained when the majority returned disgusted, and were rewarded by finding what, in the opinion of many, is the richest gold bearing quartz lode on the Pacific slope. This ledge is near the summit of the mountain, in a thickly timbered and well watered region. It has been traced 5,000 feet, and upwards of 20 claims have been located upon it. The rock is partly decomposed, and the gold is free. It is thought that it will yield from $200 to $300 per ton in arastras, but this is speculation. Placer mines were also struck.

Walker's District.—The miners are almost tired waiting for water. The same is the case in Hassayampa district. The Sterling mill and Charlsy Taylor's arastras are in running order. We find nothing new from Wickenhurg and Walnut Grove districts. The placer miners of Lower Lynx creek are bringing in considerable gold, for which our merchants pay $18 per ounce.

Colorado.

Sparks Lode.—Central City *Herald*, Feb. 16th: The crevice is six feet wide and the ore easily mined. Water sufficient to run a 40-stamp mill can be obtained from the mine. Before sinking further it will be necessary to put in a large pump. The parties propose to erect a mill. Mr. Fagan starts east in a day or two to procure machinery.

Central Co.—The Central Co. have resumed operations. Their property is on the Roderick Dhu, Prize and Gunnell lodes. It is mostly developed from 200 to 300 feet. The Lsxington mill will be removed to their water power on North Clear Creek.

Freeland Lode.— Georgetown *Miner*, 17th: The Colvin Co. owns four claims on this lode in Trail Run. The incline opening them is over 140 feet, and a drift has been run thence 50 feet. The crevice is six feet in width, and the ore streak varies from 12 to 24 inches in thickness. The mill is a genuine 10-stamp California mill; there is also one Wheeler pan, and several small Bartola pans, for testing ore.

Sherman Mountain.—The Hise lode has a vein in the bottom of the 90-foot shaft, which is from two to two and one-half feet in width, eight inches of which is mineral, averages about $400 per ton. The General Marshall lode does not carry so rich an ore, the yield of its mineral in silver averaging $150. It is rich in galena, and will yield from 1,000 to 1,300 pounds of lead to the ton. Immediately below are the Monster and Kit Carson lodes, carrying ore which contains $200 to $350 per ton, and yielding from 50 to 55 per cent. of lead. Below are the Geo. D. Prentice and Sallie Ward; the former of which has a crevice four to five feet wide, rich in lead, and containing 100 ounces of silver per ton. The Sallie Ward is opened by a shaft 30 feet in depth, which exposes a crevice four and one-half to six feet in width, and a vein of ore which yields $500 to $600 per ton, in silver.

Brown Mountain.—The main shaft on the Terrihle lode has struck into another body of mineral equaling in width and richness anything that has been found. The depth of the shaft is now 240 feet. Mining on the Brown is continued with great vigor. A body of mineral, sixteen inches in width, has been struck in the lower level. Both levels are being pushed west rapidly. The drift from the discovery shaft on the John J. Ros will strike the Frothingham in twenty feet. In this shaft is exposed a body of ore which yields from 170 to 350 ounces of silver to the ton. The vein is, in places, 12 feet wide. The Hercules lode is not at present worked.

Hoosier Mine.—Bouldsr *News*, 15th: Work has been suspended for a short time. A working test is to be made of some 30 tons of ore already out.

Idaho.

Hill Diggings.—Boise City *Statesman*, Feb. 19th: There is a report of new discoveries in the hills seven miles from this city, in the direction of Idaho City. Some Mexicans have been camping there. They packed some dirt down to water, and a flour-sack full yielded three bits.

The *Statesman* says that the mines on Cedar creek which are raising so much excitement in Montana turns out to be in Idaho, about 15 miles over the line.

Corduroy.—*Avalanche*, Feb. 26th: As rich gold ore as ever was seen in the camp, is now being taken from the Corduroy. From several tons in the ore house, we selected a specimen of average richness, literally stuck full of gold. The shaft is down 160 feet.

Montana.

Philipsburg.—Cor. of Helena *Gazette*, Feb. 17th: A rich opening has been made in the face of the Comanche Extension, upon No. 3, S. W. The mill is now cleaning up from Queen rock, while the batteries are crushing Comanche.

Diamond City.—Monnt, Cook & Co., have succeeded so well with their large steam pump, that, not only can the ground above it be worked, but the ground adjoining it on the lower side can also be drained by it. For this lower ground, D. P. Rankin is said to have paid $8,000.

Another Brick.—The Whitlatch mining Co. had a brick yesterday, worth $4,354.26. This was the first clean-up from the new mill.

From Cedar Creek.—Ben Dittes arrived on Sunday. He gives favorable reports. The upper district is known to be good. Down the gulch as far as 72 bed-rock has been found and pay struck; below this drain ditches are being run. In Oregon gulch, by means of drain ditch and shaft, the miners have reached a depth of 23 feet. No bed-rock has yet been reached, and they are still going down. Good prospects are found.

More.—A correspondent of the Virginia City *Times* says of the Cedar creek mines: In Illinois gulch no one has thus far got more than a color, and there is no telling how deep it is to bed-rock. In Wolverine gulch things are about the same. There is a good deal of talk about these gulches, but nothing definite is known of them yet.

Again.—J. D. Allport writes the *New North-West* Feb. 2d as follows: I have just come from the Cedar Creek mines to procure provisions, and will return in the morning. I bought one-half of two claims to-day for $300—one on main Cedar and one on a side gulch. I wish you to come down immediately. The mines are rich beyond doubt. My authority is, what I have seen from my own work and panning. I dare not say anything about prospects; you might think I was excited. There will be plenty of litigation here.

Frank Decker writes: "This will be the best camp in Montana." The journal above named says he is a good miner, and a reliable man.

Silver Star.—*Times*, 18th: The Stevens & Trivitt mill will start up on Monday with both batteries. The Iron Rod lode is still improving in richness. The upper tunnel on the Green Camphell is in 420 feet, and the lower tunnel 376 feet.

Cable.—*New North-West*, Feb. 11th: The boiler of the Hanauer mill was burned last Monday, necessitating a stoppage for repairs. The mill has been 20 days crushing 600 tons of good quartz. The Cameron Co. struck water in their shaft, and had sent to Phillipsburg for pumps. About 160 tons of ore are now at the mill, and 30 or 40 at the mouth of the shaft.

Ditches.—Deer Lodge *Independent*, 12th: We learn that the two companies constructing ditches to take the water of Race Track to Prairie and other gulches, are making rapid progress, and there is now no doubt but both will be completed early in the spring.

Nevada.

COPE DISTRICT.

Bull Run.—Elko *Independent*, Feb. 6th: Gov. Chillis and party are working the Fountain Treasure mine, discovered last summer, and represented as one of the best. A party of six men design leaving here to-day, to commence work on the Porter, Central Pacific, Franklin and Western mines, owned by Tucker & Co.

HUMBOLDT.

Mining Items.—*Register*, 26th: Judge Coulter has shown us a specimen from the Jeneson ledge, which is very rich in both silver and gold. The ledge is five feet between walls. A shaft 80 feet deep has been sunk. District is nearer the railroad than any other in the county, being but two or three miles distant....In Gold Run district, the Shepardson, Cumberland and Register mines are looking better than ever....In Battle Mountain, several new districts have been made....Trinity district has taken a fresh start under Mr. Moshsimer, who has bought the Oreana furnaces and mill. He is making arrangements to enter into the smelting business on an extensive scale.

Galena District.—Cor. of same: The Shiloh has been leased to H. L. Spargur, who is extracting ore at the rate of six tons per day....The Buena Vista is daily turning out large quantities of high grade ore. ....The tunnel intended to tap the Butte is in 115 feet....The Grant, owned by the R. R. boys is panning out splendidly; the shaft is down 45 feet, with a vein of two feet....A big excitement has been raging over a new discovery a half mile southwest from the Butte. A vein has been discovered, which surpasses anything in the district. The first assay made was $3,600; a second was over $4,000. The vein can be traced for quite a distance, and three locations have already been made on it. Shafts are being sunk on each.... The Little Giant mill, after a thorough overhauling, is again under headway.

REESE RIVER.

Silver Bend Ore.—*Reveille*, 22d: A short time ago some eight tons of ore from the El Dorado mine were hauled to the Manhattan mill for reduction, the yield of which was $202 of silver per ton. The lot was selected from the dump, which had been repeatedly overhauled.

Substantial Returns.—Joseph Moss, one of the lessees of the Troy mine, showed us the returns of 20 tons of ore just reduced at the Manhattan mill. Of the first class there were 2¼ tons, the pulp assay of which was $1,127.88; of the second 20 tons, the assay of which was $414.17. This makes the gross yield of the 22¼ tons $8,831.17.

Toiyabe Shaft.—We were shown to-day ore from a vein recently cut in the shaft of the Toiyabe Co. in Lander Hill. The vein at the depth of 323 feet is 21 inches wide and well loaded with excellent sulphuret ore. A piece taken from the drift yielded by assay $300 per ton.

Marshall Canon.—The owners of the S. C. Baker mine are developing their property handsomely. The work of exploration is now done through a vertical shaft, four feet by six, timbered to the depth of seventy feet, from which point the work of sinking was recently let by contract.

WASHOE.

Ophir.—*Enterprise*, Feb. 27th: The water in the new shaft was down to within 60 feet of the drift. The company are now satisfied that they will shortly be able to get into their drift. In the old works above, the water has been reduced 157 feet. The pump and two large hoisting tanks are kept in constant operation.

Segregated Belcher.—In the drift going north on the 500-foot level along the east wall the ore is assaying better and growing wider. They are now running a drift through the deposit to the Belcher south mine. The drift west from the 230-foot level is in 275 feet. They are taking out 25 to 30 tons of ore per day, and have on dump 3,000 tons of good milling ore.

Hale & Norcross.—The Co. are extracting 170 tons of ore per day. During the past week they have been sinking their main shaft for another level.

Occidental.—They are still at work on their lower tunnel and upon the winze and "rise" between the north and south mines. From the upper works they are taking out the usual amount of ore.

Gould & Curry.—Since our last report the Co. have struck a very rich and apparently extensive deposit of ore in the old mine, 350 feet below the surface. The assays run all the way from $500 to $2,000. The deposit is supposed to be the old Potosi streak.

Virginia Consolidated.—This Co. have their drift in 50 feet from the station on the 500-foot level. They have no water in their drift, and but little in their shaft.

Caledonia.—The Co. are taking out 30 to 50 tons of ore per day. The back ledge as far as opened, is looking well.

Outside Mines.—Quite a number of mines will probably be worked the coming summer in the vicinity of Silver City, that have lain idle for years. Parties are also talking of starting in upon some of the old mines in Palermo district.

Sacramento & Meredith.—This Co. are taking out a considerable amount of ore, which is being piled up for reduction when their mill shall have been built.

Savage.—About the usual quantity of ore is being extracted. In some parts of the mine there is considerable improvement in the quality.

Chollar-Potosi.—This Co. are taking out the usual amount of ore from their upper works.

Yellow Jacket.—They will be able to ship a large quantity of ore during the coming summer, which they can reduce at small cost at their mill on Carson river.

Kentuck.—About the same amount of ore is being extracted, and nothing new has been struck.

Crown Point.—It is still richer in porphyry than in quartz, but there is always hope.

Sierra Nevada.—The mill is kept in constant operation, and there is plenty of ore coming out and in sight.

Sutro Tunnel.—The Tunnel was yesterday in 795 feet. The ground is hard, requiring blasting, yet the work is progressing rapidly.

Imperial-Empire. — Still going ahead with shafts and drifts.

WHITE PINE.

Weekly Mining Review.—*Empire:* Several mines that had started up during the week have suspended operations on account of the storm. The smelting works of Van Wyck & Co., and of Mr. Partridge have been compelled to stop by the bad road. Hauling or packing is impossible.

Items.—*News:* In the Blackfoot, on Blue Hill, a 30-foot tunnel has been run, and a winze from it follows the ledge down 75 feet. The vein is here nine feet, all pay ore.... Work on an extensive scale is to be commenced in the Hidden Treasure to-day (24th).... Snell is pushing work in the Mammoth. A drift is being run both east and west.... The Poor Boy ledge has a shaft down 34 feet, a vein of fine smelting ore 4½ feet wide, and 30 tons on the dump. .... Mineral Point mine, owned by Uncle Billy Forsythe and E. S. Barney, is turning out very rich ore from the bottom of the 65-foot shaft.... On the 25th, $11,200 bullion was shipped West, and $6,200 East.

Smelting Items.—*Empire:* Mr. Partridge writes that his smelting works (the Magary) turned out 58,000 pounds of base bullion in a run of six days, without injury to the lining or any other part.... Higgins & Murphy have started up their smelting works at Shermantown, and are turning out a large amount of bullion.... Van Wyck & Co. last evening (23d) had a pile of over 200 bars, weighing nine tons. One thousand pounds of metal was run off into bars in four hours.... Jack O'Brien, now in New York, says he has found a man who can work over base ores and save all the metal. We would not be afraid to guarantee such a man 75 per cent. on the money invested, if he will come. The country is full of ledges which will yield ores—one-half of which is lead, silver, and copper. These ores are now selling from $8 to $30 per ton, and will yield from $50 to $500 per ton. We therefore look forward to the opening of spring for a wonderful stride in the development of this branch of mining throughout all the base metal districts of Nevada, for smelting furnaces and base metals form all the speculative talk in mining circles just now.

Derby.—*Empire*, 26th: This mine has been lying idle for some time past, owing to the fact that a dispute to its title was set up by the Chloride Flat Co. Yesterday this title was settled. The Derby on the upper edge of Chloride Flat, and has always yielded high grade ore.

Ely District.—*News*, 24th: There are some 300 men in the town of Ely, and considerable building is going on. The Pioche ledge is the largest, but there are 25 or 30 parallel with it. The nearest water is five miles off. Wood is plenty, and the climate delightful. John Ely's mill turns out $500 to $800 daily. No trouble anticipated with Mormons.

Eureka District.—*Empire*, 24th: This will, during the summer, develop into a wonderfully rich camp. Besides the great mines, there are a score of others, richer but less extensive. The lowest yield from ore milled from eight different ones was $204 to the ton. Page & Corwin will have $50,000 worth of ore out by early spring. The Buel furnaces are almost ready to start. Col. Robbins turns out about a ton of bullion daily. The *News* of 26th says Col. Buel has gone East to make arrangements for shipping his bullion direct to New York without change of cars. He proposes to ship by the car load, and it is probable that most of the base bullion of Eureka district will go that way. Dick Willson's furnace is nearly ready to start.

Shoshone District.—*Empire*, 23d: Shaft on the Indian mine is down 60 feet, and shows ore worth $200 per ton.

New Mexico.

Mining Items.—*Press and Telegraph*, Feb. 12: An Indian gave to Mr. Lowthian a piece of quartz which he said he found in a two days' ride from Elizabethtown. He said there was a ledge nine feet wide. We have seen a small piece of the quartz, marvelously rich in free gold.... McIntire & Co., at the head of Grouse, are tunneling on the Mexican lode. They have one foot of quartz, said to be rich.... The shaft on the Tecumseh is down 60 feet. The crevice is opening out again.... Rowe, Young & Co. have struck the Great Eastern vein in their new shaft.... The Gladstone tunnel is being driven in four feet a day.

San Francisco Mining and Scientific Press.—The proprietors of this paper have dropped the word "Mining" from its title, so that it is now, as of yore, entitled the "Scientific Press." In thus dropping the word "Mining" it is far from their intention to let up on that subject. We reiterate what we have often before said: that there is no better or cheaper paper than the Scientific Press published in America, and no miner, farmer or scientific man should attempt to grope his way through the world without it. It is published by Dewey & Co., San Francisco, and furnished at the low price of $4 per annum.—*Arizona Miner*, Jan. 29.

San Francisco Mining Stock Market.

MISCELLANEOUS STOCKS.

During the past week we note sales of Spring Valley Water Company's stock at $65@65 50 per share. This company will disburse its usual monthly ½ per cent. dividend on the 10th inst.——Sixty shares of Pacific Insurance Company's stock realized $112 per share.——The Merchant's Mutual Marine Insurance Company will pay its customary monthly dividend on the 10th.——The North Beach and Mission Railroad Company paid its dividend on the 1st.——The San Francisco Gas Company disbursed their usual monthly dividend on the 1st.——The Pacific Bank paid its annual 1 per cent. dividend on the 1st inst.——The Black Diamond Coal Company disbursed a ½ per cent. dividend on the 3d.

MINING SHARE MARKET.

We note a very perceptible improvement in mining stocks during the past week, and this brought a large range of stocks upon the market, the transactions aggregating a marked increase, as compared with recent sales. The late very favorable developments from the seventh station of the Gould & Curry mine, more fully noted below, have given great encouragement to those more immediately interested in this class of securities, and if successful in discovering a large body of ore, will prove of great benefit to the Pacific Coast. The developments from the Hale & Norcross ground toward the Savage will, most likely, give an impetus to the stock of the latter. Altogether, the outlook in behalf of the Comstock stocks is more favorable.

Chollar-Potosi — has been in considerable request, selling at a smart advance. For the week closing on the 25th ult., 1,220 tons of ore were extracted against 1,013 tons the previous week. An improvement is noticeable in the quality of the ore, and the old stope is more promising than last week. In that portion of the mine through which the branch of the Potosi Tunnel is being driven, known as the Grass Valley section, the prospects are reported to be highly encouraging, and good ore has been met with. Fifty-four feet have been added to the length of the west drift from the Chollar-Potosi shaft, making it 244 feet from the station. At latest dates, the ground in this drift was softer, and more rapid progress was made.

Belcher—ruled about the same as during the previous week. Up to the 26th of February, they had sent 795½ tons of ore to the Rhode Island mill, and on the 28th, they forwarded $12,000 in bullion to the office in this city. This mine is said to continue yielding well from the stopes on the 152 level. They are making good progress in cleaning out the 730 level, and will soon commence work in the face of the drift.

Gould & Curry — is in very active request at a rapid advance, as will be seen by reference to our list of sales. During the week ending February 28th, 263½ tons of ore were extracted; previous week, 189¾ tons—ore samples showing an average assay value of $46 52 per ton. At the seventh station, the drift running north is 400 feet in length, and carries heavy clay as the work extends north. The northwest drift, No. 2, is eighty feet in length, has passed through the first east clay, and is now in the porphyry that intervenes between the first clay and the quartz; they will have to run about sixty feet to reach the quartz. The ore reached by drift from the North Potosi shaft, on the 20th floor, so far as prospected, is reported to look more promising than was anticipated, and some time will be required to open it so that it can be worked to advantage. The sections in the old mine show encouraging features, and during the present week they expected to fairly start taking ore from the El Dorado tunnel.

Hale & Norcross—was in the market to a moderate extent, under a steady advance. The yield of ore for the week ending February 26th, amounted to 1,002¼ tons, against 1001¾ tons extracted the previous week. On hand, 6,710½ tons, of which 2,485 tons is low grade. On the 26th February, $25,032 in bullion was sent forward to this city. They are continuing the sinking of the shaft as fast as possible, and they expect to intercept the vein during the present week. On the sixth level, they are driving the north breast forward to the northern boundary—the Savage line. The ore vein here is now nearly its former width, and is said to be of a good quality. The ore breasts throughout this level are looking well, and this is the case with the breasts in the upper mine. The east drift on the 535 level has penetrated the vein, the ore being of good quality, and about twenty feet wide. The annual meeting of this company takes place on the 9th inst.——Segregated Belcher levied an assessment of $2 per share on the 2d inst.—*Commercial Herald.*

MINING STOCK QUOTATIONS, MARCH 3, 1870.

WASHOE.

	Bid.	Asked.		Bid.	Asked.
Alpha Con.	$13	$13¼	Gold Hill Q M.C.	$15	$ —
American	—	—	Hale & Norcross	135	137
Belcher	17	—	Imperial	22	23
Bullion	5	6	Justice	1	—
Crown Point	18	18¼	Julia	—	—
Cole, Va.	—	—	Kentuck	87½	88
Confidence	10	15	Lady Bryan	3¼	3½
Chollar-Potosi	24½	24¾	Occidental	11¼	11¾
Con. Virginia	—	—	Ophir	13½	14
Daney	—	—	Overman	65	66
Empire	15	16	Savage	34	34½
Exchequer	5	—	Sierra Nevada	7	7¼
Flowery	—	—	Seg. Belcher	5	5½
Gould & Curry	165	175	Yellow Jacket	42½	43

WHITE PINE.

	Bid.	Asked.		Bid.	Asked.
Aurora Con.	$1¼	$1¾	Noonday	—	50c
Brodt	—	—	Orig. Hidden Tr.	14½	14⅞
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	—	Silver Wave	1¾	1½
Mammoth	75c	80c	Virginia	—	—

CALIFORNIA.

	Bid.	Asked.		Bid.	Asked.
Amador	$350	$ —	Eureka	$235	$240

IDAHO.

	Bid.	Asked.		Bid.	Asked.
Golden Char't.	$10	$12	Silver Cord	$ —	$ —
Rising Star	—	—			

The Commissioners of Emigration of New York reports the number of aliens landed at that port in 1869 as greater than any year since 1854. The total number of passengers landed was 307,454, of which 259,989 were aliens. Of these, 99,605 were Germans; 66,204 were Irish; and 41,090 English, leaving 52,050 to all other countries.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment.	Day Delinquent.	Day of Sale.
Alameda Coal, Feb. 16, 30c	March 30	April 22*
California, W. P., Jan. 18, 50c	Feb. 21	March 14
Cons. Virginia, Storey co., Jan. 7, $2	Feb. 12	March 5
Columbia, Cope, Jan. 29, 50c	March 5	March 25
Cordillera, Mexico, Feb. 17, 25c	March 25	April 11*
Cherokee Flat, B. G., Feb. 17, $5	March 22	April 8
Daney, Lyon co., Feb. 9, $1	March 14	April 2
Dutch Flat G. & C., Feb. 11, 75c	March 18	April 8
Empire M. & M., Storey co, Jan. 7, $10	Feb. 11	March 7
Glenwood, El Dorado, Feb. 4, 25c	March 7	March 28*
Gould & Curry, Jan. 12, $15	Feb. 16	March 9
Hartwell, W. P., Feb. 19, 5c	March 25	April 21*
Hope Gravel, Nev. co., Jan. 28, $1	March 1	March 21
Imperial, Storey co., Feb. 15, $10	March 22	April 14
Mammoth, W. P., Jan. 4, 20c	Feb. 14	March 7
Meadow Valley, Jan. 29, 50c	March 3	March 22
Nevada L. & M., Feb. 8, 2½c	March 15	April 5*
Noonday, W. P., Jan. 20, 30c	March 2	March 23
Ophir, Storey co., Jan. 8, $2	Feb. 11	March 2
Pocahontas, El Dorado, March 2, $4	April 2	April 28*
Pluto, W. P., Jan. 3, 15c	Jan. 15	March 7*
Savage, Storey co., Feb. 7, $10	March 14	April 2
Silver Wave, W. P., Feb. 19, 20c	March 21	April 11
U. S. Grant, Nev. co., Jan. 19, 50c	Feb. 21	March 12*
West Point, W. P., Feb. 22, 50c	March 26	April 18

MEETINGS TO BE HELD.

Continental	Meeting March 15
Daney	Annual Meeting March 7
Golden Chariot	Annual Meeting March 7
Hale & Norcross	Annual Meeting March 9
Hall & Van Dyke	Annual Meeting March 9
Mohawk & Montreal	Annual Meeting March 9
Silver Vault, White Pine	Meeting March 9
Virginia	Annual Meeting March 12

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable Feb 7, 1870
Chollar-Potosi, div., $1	Payable Feb. 10, 1870
Eureka, div., $7.50	Payable Feb. 7, 1870
Hale & Norcross, div., $6	Payable Feb. 10, 1870
Ida Elmore, div, $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, March 3, 1870.

Flour, Extra, ₩ bbl	$5 00	@	$5 50
Do. Superfine	4 50	@	4 75
Corn Meal, ₩ 100 lbs	2 00	@	2 25
Wheat, ₩ 100 lbs	1 30	@	1 65
Oats, ₩ 100 lbs	1 15	@	1 60
Barley, ₩ 100 lbs	1 15	@	1 25
Beans, ₩ 100 lbs	2 50	@	3 50
Potatoes, ₩ 100 lbs	1 25	@	2 00
Hay, ₩ ton	11 00	@	17 00
Live Oak Wood, ₩ cord	9 00	@	14 00
Beef, extra, dressed, ₩ lb	7	@	12½
Sheep, on foot	2 50	@	3
Hogs, on foot, ₩ lb	5	@	9
Hogs, dressed, ₩ lb	8	@	8½

GROCERIES, ETC.

Sugar, crushed, ₩ lb	13½	@	14
Do. Hawaiian	8	@	11
Coffee, Costa Rica, ₩ lb	18½	@	19
Do. Rio	—	@	18
Tea, Japan, ₩ lb	75	@	90
Do. Green	50	@	1 25
Hawaiian Rice, ₩ lb	8	@	9
China Rice, ₩ lb	5½	@	6
Coal Oil, ₩ gallon	40	@	45½
Candles, ₩ lb	15	@	20
Overland Butter	20	@	30
Ranch Butter, ₩ lb	27½	@	30
Isthmus Butter, ₩ lb	25	@	32½
Cheese, California, ₩ lb	18	@	22
Eggs, ₩ dozen	30	@	35
Lard, ₩ lb	12½	@	13
Ham and Bacon, ₩ lb	13½	@	18
Shoulders, ₩ lb	10	@	15

Retail Prices.

Butter, California, fresh, ₩ lb	40	@	45
do. pickled, ₩ lb	35	@	40
do. Oregon, ₩ lb	25	@	—
do. New York, ₩ lb	40	@	—
Cheese, ₩ lb	20	@	25
Honey, ₩ lb	25	@	30
Eggs, ₩ dozen	45	@	50
Lard, ₩ lb	20	@	25
Hams and Bacon, ₩ lb	22	@	25
Cranberries, ₩ gallon	1 00	@	1 25
Potatoes, ₩ lb	2	@	5
Potatoes, Sweet, ₩ lb	—	@	2
Tomatoes, ₩ lb	2	@	3
Onions, ₩ lb	3	@	5
Apples, No. 1, ₩ lb	4	@	5
Pears, Table, ₩ lb	5	@	
Plums, dried, ₩ lb	10	@	12
Peaches, dried, ₩ lb	10	@	15
Oranges, ₩ dozen	50	@	75
Lemons, ₩ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ₩ lb	—	@	25
Soap, Pale and C. O.	10	@	12
Soap, Castile, ₩ lb	18	@	20

New York Metal Market.

[Corrected weekly from the American Artisan.]

New York City, Saturday, March 3, 1870.

IRON.

Pig, Scotch, No. 1 (cash), per ton	$37 50	@	$42 00
Pig, American, No. 1 (cash)	42 00	@	— —
Pig, American, No. 2	38 00	@	39 00
Swedish, ordinary sizes	140 00	@	155 00
Common	87 50	@	92 50
Refined	95 00	@	— —
Rods	100 00	@	155 00
Horse-shoe	115 00	@	— —
Hoop	125 00	@	180 00
Scroll	110 00	@	145 00
Nail-rods, per lb	— 8½	@	— 9¼
Spring	— 9½	@	— —
Tire	— 9¾	@	— —

STEEL.

Bars, best cast, warranted, per lb	— 23	@	— 23½
Sheet, best cast	— 23	@	— —
Sheet, second quality	— 20	@	— —
Sheet, third quality	— 18	@	— —
Saw-plates, circular	— 27	@	— —
Double-shear, warranted	— 23	@	— —
Single-shear	— 19	@	— —
Montague & Co. (cast bars)	— 18	@	— —
Machinery, round	— 15	@	— —
German, best	— 16	@	— —
German, goat	— 13½	@	— —
German, eagle	— 12	@	— —
Blister, warranted	— 16	@	— —
Blister, common	— 15	@	— —
Jessop & Sons', common	— 17	@	— —
Double-refined	— 25½	@	— —
Stone-ax shapes	— 26½	@	— —

The Gold Field of Nova Scotia.—The total gold yield of the mines of Nova Scotia, from the date of the first discovery of the precious metals there to the close of 1868, has been $2,560,000.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

The Care and Treatment of Animals.

This is a matter of very great importance, and one that fully calls into action whatever of humanity one may chance to possess. The annoyance and abuse that many work-animals have to undergo, is a burning shame, and a damage too. Constant worrying and annoyance will make an animal poor, when with kind, consistent, and systematic treatment, more work might be accomplished upon the same amount of feed and with greater ease. Animals that work hard should be liberally and regularly fed. System is of great importance in feeding and treating any kind of live stock; and a liberal, regular system is the best.

It is unmerciful, besides being poor economy, to let animals suffer exposure to cold storms, without shelter from rain or winds, and to go hungry, withal, for want of feed, when an abundance that might have been easily saved was allowed to waste in the fields, or worse, perhaps, was burned as worthless straw.

It better accords with our feelings to note improvements that enterprising and humane men are making, than to upbraid the improvidence and wrongs so prevalent and glaring. But one is sometimes compelled to draw contrasts not at all pleasing to view.

Economy is needed in California in a thousand things which are impossible to enumerate here. *Enterprise* is not so much lacking as is *economy*. Our farmers all strive to get the best machinery, take pride in blooded stock, and put in immense crops; but "the crack in the trough leaks out the swill, and the pigs won't fatten." True economy takes care of little things; little moments of time, little opportunities for improvement; it prevents useless waste, and treasures every useful and every good thing. Meanness is not economy.

Economy is generous. It uses things to the best advantage for the welfare and happiness of all. It gleans and saves what might be lost in material wealth, in physical health, in mental and moral worth. *Intelligence is the soul of economy.* Franklin sought wisdom for economy's sake—gleaned it little by little from the hard fields of humble life, treasured it with studious care, and sowed it with a generous hand to his immortal fame. His example is as imperishable as is his fame; and while man depends upon the industries of the world, it will ever serve to guide him. H.

THE ANGORA GOAT.—A very interesting communication will be found in another column urging the more general introduction of the Angora or Cashmere goat into this State. The goat is one of the earliest animals domesticated by man, and is almost as cosmopolitan as the dog. He is found in every variety of climate, from the snows of Norway and Siberia to the burning sands of Africa. But of all the varieties known, the Angora produces the finest and softest wool, while its carcass furnishes a meat equal, if not superior, to the most approved mutton sheep. The advantages of goat raising are not fully understood on this coast. Much information in that direction may be obtained from the letter of our correspondent; and we propose giving additional facts from time to time as occasion and opportunity presents.

INCREASE OF VINEYARDS.—There will be a large increase in the breadth of our vineyards during the present season. It is estimated that 4,000 additional acres will be set out in Napa county alone. One grape-grower there—Mr. Schram—will increase his stock of vines from 18,000 to 0,000.

Cultivation of the Castor-Oil Bean.

Several correspondents have recently made inquiry with regard to the cultivation of the castor-oil bean in this country. In reply, we would state that the principal localities where this plant is cultivated, west of the Rocky mountains, are Illinois, Kentucky, Missouri and Texas; but it is grown as an ornamental plant in nearly every State in the Union. It seems a little strange that at a time when capital, in this State, is stimulating so many new enterprises, and when so much is being said of the advantages of "diversified culture," so little attention should be directed to the culture of the castor-oil bean here, and the manufacture of its oil. Enough has been done with the plant in California to fully prove that the soil and climate here is much better suited to the growth of the plant than in any of the Mississippi States, where its cultivation has been introduced. It has been fully tried, we believe, in Los Angeles, Santa Clara, Alameda, Yuba and Sutter counties. Some four or five hundred acres are in cultivation in the two last named, about 200 of which are owned by Dr. McDaniels, who resides some three miles below Yuba City, and nearly 200 more by Mr. C. Hodges. The Doctor has a mill upon his place, where he expresses and manufactures the oil. We believe there is also a small mill in Santa Clara county. The mill in this city is well known throughout the State, and is ready to purchase, at fair rates, all the beans that are likely to be raised for the present.

Method of Cultivation.

The castor bean is cultivated very much like corn, and requires about the same amount of labor. The time for planting is during the month of April—depending something on the season and locality.

A light sandy soil is best suited to the crop. It is not necessary that it should be rich or highly manured. In fact, it is claimed that the growth of two or three successive crops of beans, and a careful return to the earth, in the form of manure of the pods, leaves and stalks, will bring up to good condition, lands that have been exhausted by other crops; as this plant gathers most of its nourishment from the atmosphere, and very little is taken away from the field in the fruit. The following simple directions are all that is needed for its culture:

Plant, about the first of April, three seeds in a hill; lay off the ground in hills six feet apart in each direction, as the plant grows high and bushy. Between every eighth and ninth row, one way, a space of eight or nine, instead of six feet, should be left to allow of the passage of a wagon in gathering the crops, as hereinafter shown. When the plant is about four inches high, take away all but one—leaving the most vigorous; cultivate the same as corn, keeping the ground clear of weeds. When the stalks are one foot high they will outgrow any weed. The yield is from 1,500 to 2,000 pounds to the acre. Before planting it is well to soak the beans in water from fifteen to twenty hours. The seed should be placed in a suitable vessel, and the water poured over them, about as warm as the hand will bear.

Mode of Gathering and Shelling the Beans.

The beans grow in pods, arranged in spike-shaped bunches, about eighteen inches long, and should be gathered as soon as the pods begin to turn from a red to a greenish-brown color. The beans will begin to ripen during the month of August, and picking will be continuous for two months or more. The great drawback to the crop is the care and labor required in gathering it, as the ground has to be passed over, and every plant examined a great number of times. If the pods are not gathered as fast as they begin to turn they will burst of themselves and scatter the seed upon the ground, where it will be lost. They do not open gradually, but with a sudden "pop," which often throws the beans to a distance of ten feet.

In order to secure the seed and save waste, the pods are picked just before they are ready to burst—the time for gathering being readily determined by its color. In gathering, a wagon is drawn along through each of the *eight-foot passage-ways*, and pickers look over the four rows upon either side, picking off all the clusters or spikes which are of the proper color, depositing them in the wagon, to be drawn to a drying platform or house. Each spike contains from fifty to one hundred pods or capsules, and each capsule three beans. In the Atlantic States, houses must be employed on account of the frequent rains; here, an open platform is all that is needed. This platform may have either a ground or plank floor, and is better to be slightly sloping; if ground, the surface should be carefully cleaned, smoothed and rolled hard, as for a brick kiln, and should be perfectly dry.

The pods, as they are gathered, are spread thinly over a portion of the floor, and stirred occasionally with a rake. In four or five days after deposit the pods will all have been opened by the heat of the sun, the beans being thrown or popped out. Being heavy and small they will work their way to the bottom, so that the pods can be easily raked off, leaving the beans to be easily gathered up. The beans should be kept perfectly dry, and, after being run through a fanning mill, or by some other means divested of the small quantity of fine chaff, which may be gathered up with them, are ready for the market or mill. In the height of the picking season the field should be passed over by the pickers as often as every other day.

In laying out the platform, care should be taken to have it sufficiently large as to leave at least twelve or fifteen feet all around it, unoccupied by pods, or in popping out, the beans will be thrown off from the same and scattered or lost.

What is considered a fair crop in Southern Illinois is from sixteen to twenty bushels to the acre; in the northern part of the State, ten to twelve is considered good. In Texas, it is said that forty and even fifty bushels is sometimes realized. The reported yield in this State is from 30 to 45 bushels. The beans weigh 46 pounds to the bushel.

In the Mississippi States, the castor bean has to be planted every year. In India, it becomes a tree, growing on from year to year, attaining a height of thirty or forty feet, and bearing in wonderful profusion. The same, to a greater or less extent, is true of the plant in Texas, and in the southern part of this State. In the Sacramento valley we have seen individual plants, two or three years old, and fifteen or twenty feet high; but we are not advised whether the practice in field culture is to plant every year or not.

The cheapest kind of labor may be employed—Chinese or other; and it is only by such labor that the business can be made profitable in this State, at present prices.

With cheap labor there would no doubt be a fair market in this State and for export to New York, to the extent of perhaps half a million of dollars annually. The total amount of castor oil imported into the United States in 1857 was only $102,000 in value. The duty on castor oil is one dollar per pound, or at least was ten years ago—higher than upon any other kind of oil.

COFFEE CULTURE.—The Los Angeles correspondent of the *Bulletin* says that experiments are to be made there, the coming season, in the culture of coffee—seed having been received from the Sandwich Islands. An experiment in sorghum culture is also in progress there.

Take Care of the Tools.

Although it is admitted that our farmers, who were such at the East, have much to learn as to the methods of culture best adapted to the various and special soils and climatic conditions on this coast; yet it appears unnecessary that they should forget or ignore the economy they learned to practice in a less fruitful and more rigorous region. It is to be regretted that so many of our farmers here fall into habits of shiftlessness that would result in utter failure and poverty in the East; habits that engender evils, which increase expenses, waste precious time, and occasion much annoyance; habits of improvidence that often result in great suffering and even loss of life to domestic animals.

When we observe the amount of expensive agricultural machinery and implements that the farmer requires in his numerous branches of labor, it is painful to notice what a small proportion of the same is properly taken care of and housed from the effects of rain and sun. What with the shrinking and swelling and warping and rusting, must be the year's loss in these things to the negligent farmer on this coast? Let every farmer seriously regard this question, and consider whether it is worth his while to take care of his own.

Did you ever pick up a shovel or a hoe that had been carelessly thrown down where it was last used, the dirt adhering to and rusted to it, and notice how much harder you had to labor to accomplish the same work than with a tool kept clean and bright? Did you ever get annoyed by spending ten or fifteen minutes in looking for an instrument that had been thrown carelessly down somewhere, when less than five minutes would have sufficed to clean it and put it away? And that mowing machine or reaper which would not have required over two hours to pack nicely away under shelter, and not any longer to have got ready for use; what a time you had with it! It took two men, all day, to clean off the rust and get it together, and then it had to be taken to the blacksmith shop to get things righted—nuts missing, a few new bolts needed—besides braces to strengthen, etc. Two whole days lost, besides other expenses, before the "old machine" is ready to run! Then with careless handling and neglect to keep it properly oiled, the boxing is soon worn out, and the "old rattle-trap" is thrown aside, or made to do poor service at an extra draft on team, and time, and patience.

These remarks might be greatly extended; but a hint is often as good as a sermon to the well-meaning farmer, while any amount of sound reasoning would not cure one afflicted with chronic habits of incorrigible shiftlessness.

The old adage, "have a place for everything, and keep everything in its place," is real economy, in any light it may be viewed. A proper place s a convenient one where everything is arranged and kept in order. H.

THE JAPANESE COLONY IN EL DORADO, under the excellent management of Herr Schnell, is beginning to look like business. Mr. S. has just received, in excellent condition, and is having them set out as fast as possible, 140,000 of the tea plant. He expects to have at least five chests of tea on exhibition at the next State Fair, of this year's growth, from the plant set out last year. The picking of the tea is done during the month of June, therefore the plant requires but little irrigation. Mr. S. has also received from Japan the famous "wax tree," from which the gum used by Japanese in lacquering fine ware and cabinet work is obtained. The tree looks very much like a young fig tree; although but just received and set out, yet they are starting nicely. He also has a new kind of silk-worm peculiar to Japan, called "Aman," which feeds on black oak leaves. The egg has the appearance of coarse black onion seed, and the worm is much larger and of a brighter color than the ordinary silk-worm. We were shown by Mr. S. a sample of silk manufactured from this species, and for fineness and brilliancy of texture it was certainly superior to any we ever saw before.—*Mountain Democrat*.

Facts About Honey.

Whether bees *make* or simply *gather* honey, seems to be yet a disputed point. There are writers who assert that the nectar of the flowers gathered by the bee is simply a portion of its food or drink, and that the honey deposited in the cells comes from the honey-secreting glands, which are analogous to the milk-secreting glands of animals;—that the honey-bag of the bee performs the same office as does the udder of the cow. In other words, that bees *make* their honey. Such writers argue that if it were not so, when a bee gathers molasses it would deposit molasses, etc.; while the fact is that the various kinds of material upon which the bee works simply modifies the character of the honey.

There are others who reason quite differently—who assert that the bee simply *gathers* honey formed by Nature in the flowers. Such persons attribute the difference which is observed in honey to the fact that every kind of power secretes a mellific substance peculiar to itself, partaking, to a greater or less extent, of the properties of the plant upon which it is found. Hence, some kinds of honey are very obnoxious—others even poisonous. In some localities, people think it is not safe to eat honey at all until after it has been boiled; a process which is thought to evaporate the poisonous qualities. When "doctors" so disagree, it might be considered presumptuous for even the Scientific Press to decide. So we leave this matter still an open question.

We believe, however, it is generally agreed that bees never mix the different kinds of honey when depositing them in the hive. If they commence to work on white clover (which makes the best honey) so long as that kind of "feed" can be obtained, they will work on nothing else; and all the white clover is deposited in cells by itself. When they leave that for buckwheat, or any other food, they commence depositing in adjoining cells, or on a separate piece of comb.

Experienced bee-keepers, who are aware of this instinct, often remove the combs which are filled during the continuance of the clover; because after the cells are all filled it is difficult to distinguish this from any other. Exhibitors of honey at fairs not unfrequently take advantage of this to secure a choice white article with which to secure the highest prize, when the balance or average of the stock would be quite inferior.

How to Judge the Quality of Honey.

This is an interesting question, and one, we believe, not very generally understood. Honey, of course, is judged *mainly* by its color; but owing to the fact that there is often a very great difference in the color of the comb, and the additional fact that bees often put white honey in dark combs and *vice versa*, it is manifest that very great care must be exercised in taking into account both the comb and the honey. The proper way to judge honey is to strain it into glass jars. You can then readily judge of its color. But then there are at least two other qualities to be considered—thickness and flavor. In judging of its thickness, it is necessary for the judge to know whether that quality was imparted in the first instance, or whether it is due to the action of light; for light (the chemical rays) acts upon honey very much as it does upon the iodide of silver, on the photographers' excited collodion plate.

Take two bottles of honey from the same comb, seal them up perfectly tight, and keep them both at the same temperature—only one in the sunlight and the other in a dark room, and the former will gradually grow thick and finally assume a semi-crystalline shape, while the other will retain its original fluidity. This is one reason why bees always work in the dark, and why honey should also be kept in the dark or in opaque vessels.

It would be very improper to award a first prize to a jar of honey that had become thickened by the action of light, because it thereby becomes deteriorated. Still, honey, to be superior, should not be very thin. Flavor is also a very important consideration, and must always be required. A good flavored, dark honey may sometimes be superior to a white article which *looks* much better. The thickness and thinness of honey depends upon the source from which it is gathered, rather than upon the secretive action of the bee, whether we admit that the insect *makes* or simply *gathers* it.

What I Know of Farming.—No. 7.

Trees—Wood-Land—Forests.

We condense as follows: I am not at all sentimental—much less spooney—regarding the destruction of trees. I realize that trees exist for use rather than for ornament, and have no more scruple as to cutting timber in a forest than as to cutting grass in a meadow. Utility is the reason and end of all vegetable growth—of a hickory's no less than a cornstalk's.

Yet I am not insensible to the beauty and grace lent by woods and groves to the landscape they diversify. A homestead embowered in stately, graceful elms, maples, and evergreens, is really *worth* more, and will sell for more, than if it were naked field and meadow. It is one positive advantage (to balance many disadvantages) of our rocky, hilly, rugged Eastern country, that it will never, in all probability, be so denuded of forests as the rich prairies of the Great Valley may be. Our winds are less piercing, our tornadoes less destructive, than those of the Great West. The Yankee, who has been accustomed to see trees spring up spontaneously wherever they were not kept down by ox or plow or scythe, and to cross running water every half mile of a summer day's journey, may well be made homesick, by 2,000 miles of naked, dusty, wind-swept plains, whereon he finds no water for fifty to a hundred miles, and knows it impossible to cut an ax-helve, much more an axle-tree, in the course of a wearying journey.

All over the "Plains" there is evidence that trees grew and flourished where none are now found, and that springs and streams were then frequent and abiding where none now exist. And I have heard that, since the Mormons have planted trees over considerable sections of Utah, rains in summer are no longer rare.

I have firm faith that all the great deserts of the Temperate and Torrid Zones will yet be reclaimed by irrigation and tree-planting.

One who has a hundred acres of good soil, whereof twenty or thirty are wooded, cuts off his timber entirely, calculating that the additional grass that he may grow in its stead will pay for all the coal he needs for fuel, so that he will make a net gain of the time he has hitherto devoted each winter to cutting and hauling wood. He does not consider how much his soil will lose in summer moisture, how his springs and runnels will be dried up, nor how the sweep of harsh winds will be intensified, by baring his hill-tops and ravines to sun and breeze so utterly. In my deliberate judgment, a farm of one hundred acres will yield *more* feed, with far greater uniformity of product from year to year, if twenty acres of its ridge-crests, ravine-sides, and rocky pieces, are thickly covered with timber, than if it be swept clean of trees and all devoted to grass.

Spain, Italy, and portions of France, are now suffering from the improvidence that devoured their forests, leaving the future to take care of itself. I presume the great empires of antiquity suffered from the same folly, though to a much greater extent. The remains of now extinct races who formerly peopled and tilled the central valleys of this continent, and especially the Territory of Arizona, probably bear witness to a similar recklessness.

Mr. Greeley concludes as follows: I entreat our farmers not to preserve every tree, good, bad, or indifferent, that may happen to be growing on their hands—but, outside of the limited districts wherein the primitive forest must still be cut away in order that land may be obtained for cultivation, to *plant and rear at least two better trees for every one they may be impelled to cut down.* How this may, in the average, be most judiciously done, I will try to indicate in my next.

Mulberry Trees.—It is estimated that there are 500,000 mulberry trees growing in Southern California.

The Angora Goat—Its Value to California.

[Written for the Scientific Press.]

Editors Press:—I noticed an article in a late number of the Tulnre *Times*, copied from your paper, on the subject of Angora goats, from which I perceive you feel an interest in such matters, and hence take the liberty to furnish your readers with the following additional facts:

Early Importations.

I have spent nine years in the business, trying to give this breed of goats a full and fair test on this coast. I made the first importation here in 1861, and bred them five years before there was any other importation of pure breeds. I then imported eight more, and have made one other importation since. I have purchased and brought to this coast the first choice of nearly one-half the goats ever imported to America, and have experimented upon them in almost every way.

Their Success in California.

I pronounce them, without reserve, a perfect success in California, and am prepared to prove to any man who feels enough interest in the subject to investigate it, that we can not only compete with Asia Minor, but that we have already *improved the original stock*, by judicious breeding and the aid of a climate which has proved to be the counterpart of the place of their nativity.

I sheared a buck last year, which was the eighth generation from the original Davis importation of 1849. He yielded seven pounds of clean, fine, lustrous fleece, entirely free from kimp or hair. I have *read* of heavier fleeces, but have found no imported goat to exceed it, either in quantity or quality. I can show "grade goats," bred up from the common Spanish goat and the finest Angora bucks, that far surpass in all points any but the very finest of the imported Angoras; and I defy an expert to detect their being grades by their looks.

Leading Questions Asked Daily.

First. Do they furnish good meat for the table? A committee which was chosen the other day, near Gilroy, to eat of the meat and give an impartial decision of its quality, after having partaken of the goat and the sheep, both barbecued and roasted,—they not knowing which was goat or sheep,—and neither knowing how the others voted, gave a handsome majority in favor of the goat meat. Mr. Sargent furnished the Cashmere goat, and Mr. Reynolds the sheep. [We gave a particular account of this novel dinner party in the Press two weeks ago.—Eds. Press.]

I will give another evidence of their value for food: I sold my Angora wethers last fall to a butcher in San Juan South, at eight cents per pound, he taking all I had, and returning the pelts, which I sold in Gilroy for an average of $2 each. Mutton sheep sold at the same time and place for eight cents, and the pelts retained, making a net premium of $2 per head on the goats; besides, the goats breed one-third faster and weigh more at the same age. In eight years breeding, the lowest percentage of kids I have ever raised was 155, and the highest 192; while 125 is the highest on sheep, and from that down to eighty.

Goats Better than Sheep in Drougth, Etc.

I have ranged two bands of 1,500 each, of sheep and goats, this year, on the same range, where it has been excessively dry. The result was, it took three men to herd the sheep, while one man herded the goats with ease, losing but six, while of the sheep I lost 150 head! Hence the advantage the goat has over sheep during a dry season. My sheep did better than my neighbors, being mostly of the Southdown varieties. We are often asked,

What Can You do with the Fleece?

Banendahl & Co., Nos. 3, 5 and 7 White street, near West Broadway, New York, is a good firm to handle it. They sold last year all they could get, at from 75 cents to $1.25 per pound, for manufacturing purposes, and imported from Asia Minor over 20,000 pounds at a cost of 80 to 1.12 per pound. There are now five or six factories that have worked the fleece, which I could mention, but suffice it to give one—the Wntersides Mills, of New York. This company imported in 1868 $70,000, gold value, of machinery designed especially for working goat's fleece. The enterprise has proven a perfect success, fully competing with Europe. The only difficulty is to raise the fleece to keep their machinery running.

Goods Manufactured from the Angora Fleece.

There are over fifty different varieties of goods imported into the United States made of the Angora fleece. It does not seem to be generally understood that all our mohair goods, mozambique and water-glaze, all-goats hair, Cashmere and many other styles of goods, in almost every lady's wardrobe, are made from the Angora goat's fleece; but such is the fact, and we import immense quantities of those and other styles of goods made from this fleece, and pay very high duties to get them. There are nine factories in England that work about 2,500,000 pounds per annum, and the United States consumes a liberal portion of the goods manufactured by them.

When I first introduced the Angoras on this coast, I met with much opposition in the way of ridicule; hence the extreme pleasure it gives me to know that it is no longer an experiment; that it has overcome all opposition; and a man now does not have to leave home to get all the proofs and a market for his meat or fleece, at a good remunerative price. I might write twenty pages of facts and figures, but it is not necessary. Bauendahl & Co., or the Wetersides Mills, will answer all questions satisfactorily; or, if parties interested will visit my flock, I can show the imported goats from all parts of Asia Minor—both horned and hornless—and all the different cross breeds.

I have the only thoroughbred, hornless goat in the United States. Please allow me to say there is no danger of overdoing the business, since California, Georgia, and a small portion of France has proved to be the only localities where this beautiful and useful animal does well.

Wm. M. Landrum.

Wetsonville, Feb. 20th, 1870.

Noxious Insects—Something for Californians to Think of.—Fully one-half or more of the insects most injurious to vegetation, which infest American fields, were imported from Europe. The Hessian fly came over ninety years ago, with the hirelings of that name with whom England sought to perpetuate her power within our present domain; the wheat midge also came from Europe about forty years ago, and the bee-moth a little earlier, the Currant-fly *(Trochilium tipuliforme)* and the meal worm all found their way hither at different periods across the Atlantic. The asparagus beetle and the gooseberry saw-fly are both very recent importations—the latter, which has made its appearance only within the decade just closed, has already proved very destructive in some parts of the Eastern States. The cockroach, though generally written with the prefix "American," is thought not to be indigenous, but really an importation from Asia. Many others, not so generally known, and less destructive, might be enumerated.

For all this injury inflicted on Americans by European insects, we have reciprocated only to a very slight extent. The chief insects for which our trans-Atlantic friends have to credit us, are the pea-weevil and the house ant.

Californians have as yet suffered but little from insect pests; and a little intelligent care will save us yet for many years from such trouble. The curculio, the apple-worm, and numerous other like troublesome pests are as yet unknown here, and so long as Eastern fruit is kept out of this market, their march hither will be very slow—keeping pace only with continuous settlements across the plains. Their first appearance should be carefully watched for, and the pioneers summarily and industriously disposed of.

Cotton Seed.—Eighty tons of cotton seed arrived at this port on Wednesday of last week. A portion of this seed will be sown in the southern part of California.

Scientific Press.

W. B. EWER..............................Senior Editor.

T. DEWEY. W. B. EWER.

DEWEY & CO., Publishers.

GEO. H. STRONG. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance..................$4 00
One copy, six months, in advance.................. 2 50
Delivered by city carriers, per month.. 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month.......................... 3 00
One column, one month.......................... 40 00
One column, one year.......................... 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, March 5, 1870.

Table of Contents.

Improved Double-Acting Lift and Force Pump—Ill....................145
Mills and Mines of Colorado..................146
Primitive History of Man145
Our Water Supply.......152
Removal of Mechanics' Pavilion............ 145
Notes of Recent Patents153
To Correspondents......152
Full List of Patents....153
Report of Patent Commissioner............ ...153
Shipping, Crushing, Sampling and Selling Ores.152
Combined Drill, Reamer and Tap—Ill..........153
Propelling Apparatus...145
Sugar Planters and the Standish Plow........145
S. F. Stock Market......149
S. F. Shareholders' Directory....................149
Farming and Gardening.—Care of Animals; The Castor-Oil Bean; Take Care of the Tools; Facts About Honey; What I Know of Farming; The Angora Goat, etc......150
Reading for the Hour.—The Loss of the Golden City—Ill; Sporting in California; Beheading, etc....................155
Mechanical Progress.—Internal Friction of Engines; The Bessemer-Ransome Stone; A New Projectile, etc........147
Scientific Progress.—Ambrosine; Where Does All the Carbon Come From; Extraction of Copper, etc..............147
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Montana; New Mexico, British Columbia and Nevada...147

Notices to Correspondents.

W. T. R., Leviathan Mine, Monitor.—We had intended publishing your spicy letter, but have so much matter on hand that it will be impossible for some time; and as it is founded on a misapprehension of our ideas, we prefer to answer it here. In the first place, our remarks were general, and were called out in part by other letters and remarks. Then, as to the reaction of CuO, SO_3 and CaO, CO_2, the only question was as to what took place *in the pans*. The reaction of the two *alone* proves nothing; and that, in the pans, the limestone *only* is the active reagent on the sulphate of copper, and that, consequently, carbonate of copper is the form to which all the sulphate is changed, is probably more than you wish to state. Your haste led you to color up other parts of our remarks in rather an unfair manner.

Anson Burlingame.—The death of this eminent man is announced as having occurred on the 23d of February, 1870, at the capital of Russia. Mr. Burlingame has long held a high position in the country, and during his Congressional career always commanded the respect of every one by his bold and manly stand on all questions which concerned, in his opinion, the immediate welfare of the country. He attained a still more prominent position in the world when he became Envoy-Extraordinary of the Chinese Government to the United States and to Europe. His death occurred in his forty-eighth year.

* * *

The Burleigh Drill was tried on Tuesday, Wednesday and Thursday of this week, at the India rice mill, corner Main and Mission streets. On Wednesday there was some difficulty, which, however, we have never before witnessed, and we have seen the machine at work in various places. On Tuesday and Thursday satisfactory results were accomplished, and on the last day a hole one and a half inches in diameter and 25 inches deep was drilled in hard Rocklin granite in eight minutes.

* * *

Evaporation of ammonia is said to be the best method of producing artificial ice, and a German machine has been constructed capable of turning out, by this means, with the aid of three men and a horse-power engine, a thousand pounds of ice an hour.

Our Water Supply—A New Plan.

The discussion of the water question is occupying a considerable share of public attention. It is right in such a case that the people should be informed on the different points involved, and the whole matter thoroughly ventilated before any decisive steps are taken. One project has been brought prominently forward and urged by high engineering ability—the Lake Tahoe project. That water *can* be brought according to this plan, we believe, but the grand difficulty is with regard to the expense, and perhaps the right to tapping a lake lying partly in another State.

The first draught of a new plan for supplying the city with water has been shown us, which at first sight, at least seems feasible. It is proposed by Mr. W. B. Clark, of Calaveras county, who has been engaged in hydraulic engineering for many years. The general outline of his plan is as follows:

First—Up in Alpine county are three large lakes of good water, which hold a large supply—enough, it is calculated, to furnish eighty million gallons daily for a year, should, in the meantime, not a drop of water flow into them. These lakes, however, are only to be used as a reserve supply in the driest seasons. Very probably there never will be any necessity for them. It is well, however, to have them in case of unexpected emergency.

Second—It is proposed to build a canal from the north fork of the Mokelumne river down to Spring Valley, a distance of some thirty miles in an air line. This canal will be fed, moreover, from the other forks of the river, so as to have a sufficient supply. The originator of the plan has measured the amounts of available water during the last ten years, and has found them amply sufficient, with the exception, perhaps, of the last year, which was an unusually dry season. The reservoir at Rich Gulch, near the commencement of the canal, will have an altitude of about 2,500 feet; that at Spring Valley, some six miles below Mokelumne Hill, of about 1,200 feet.

Third—From the reservoir at Spring Valley, a pipe is to be laid to Livermore Pass (500 feet high) and thence down to the narrow part of San Francisco bay, near Alameda creek, across the bay and up to the city. This pipe can easily be laid with a capacity of furnishing the city with 20,000,000 gallons daily. A branch pipe can run up on the other side of the bay to Oakland, if desired. The whole distance for the pipe is ninety miles, measured in a horizontal line.

By this plan, it is claimed, a large supply of excellent water can be provided for the city at a comparatively moderate expense. As before stated, Mr. Clark's measurements of the amounts of water obtainable from the forks of the Mokelumne are amply sufficient for ordinary times, and there are the lakes to fall back upon. The quality of the water is excellent. The streams will be tapped high up the mountains and above the mines, so that the water will be pure and good. There is no mining camp within fourteen miles of the proposed place of tapping. There is, moreover, no question as to the water rights. The lakes and streams are all within our boundaries, and locations for hydraulic purposes have been made, which render impossible any legal troubles. The water will be brought into the city under such a pressure that, indeed, it can be used in case of fire in place of the fire engines.

In regard to the cost, it is claimed that the work can be done for five or six millions of dollars, and that parties can be found who will undertake the job for this sum.

It is Mr. Clark's intention to lay before the public complete maps and drawings relating to the work. When this is done we shall be able to judge more fully with regard to the project, to which we now make preliminary reference. If we must bring water for the city from a distance, it is well to know all the available sources of supply. This route is shorter than that of the Lake Tahoe Company, and appears to present no difficult engineering problems, such as tunneling, etc. A part of the way, up in the mountains, the way is already marked out, having been commenced for hydraulic purposes, and it was the present discussion of the water question which brought Mr. Clark down, to work actively in the prosecution of a plan which he has meditated, he says, during the past ten years.

Our present water supply, all agree, is not sufficient. Some state that it can be made so, however, without going so far away for it. It is an important question whether the quality of the water will be such as it ought to be, if taken from the Peninsula. Water taken from cultivated land is very *apt*, to say the least, to be very impure, for obvious reasons. Moreover, by taking every drop of available water for the city, we are giving just cause for complaint to the farmers, who have none too much water, when enjoying undisturbed rights to the streams. By the project we here give, not only will the city get an abundance of excellent water, but the advantages to the mining countries along the route can be made immense.

* * *

Combined Drill, Reamer and Tap.

This ingenious device is intended to combine in one operation several distinct objects. It is an exceedingly simple device, and, at the same time, appears to be a most efficient instrument. It consists of a drill, of a reamer, and of a tap, all combined in one piece. Its object is to provide a tool which will drill, ream and cut a screw in gas or water pipes in one operation, and thus economize in time, while it likewise avoids the annoyances experienced where different tools are used one after another. The slots of the tap are filled with tallow, soap or clay, when in use, in order to prevent the escape of gas during the operation, and at the same time to facilitate the action of the tool. It was invented by William Humphrey, of Waterford, New York, who claims the following advantages: 1st. There is a less cost of tools. 2d. A less number of tools to be used. 3d. A saving of time. 4th. Less loss of gas and the avoidance of the ensuing annoyances. 5th. It does the work better than other instruments, and cuts a cleaner and fuller thread, as there is no chipping to be done. These advantages will attract the attention of mechanics in general, and in particular of those who fit gas and water pipes. The invention has been previously described in the *Gas-Light Journal*.

* * *

The Grand Musical Festival.—The total receipts of the festival have been given approximately as $46,000, and the expenses as between $20,000 and $22,000.

Our Home Industries.

Shipping, Crushing, Sampling and Selling Ores.

Two weeks ago we published a general article on this subject. We now give the following, written by one familiar with the business, in this city, who gives a more specific account of the routine through which the principal portion of the precious ores sold on this coast pass through:

Till of late, the prospecting miner who was fortunate enough to strike a rich lode, if prevented by poverty from developing it, was compelled to dispose of it, either in part or altogether, to parties able to command the means to work it. In the former case, he was often frozen out by assessments, which amounted to nearly the same thing as selling out entirely, so far as his interests were concerned. The value, or rather the no value, of what were termed *indications*, was, after a while, pretty well understood. The whole business was speculative. A very few made "lucky sales" of what proved to be worthless claims, but, as a rule, those valuable were sacrificed for a trifle, and in this case the *bona fide* miner and prospector went to the wall and had the satisfaction of seeing others enriched by his discoveries. The assays were from the hap-hazard system followed, frequently incorrect, and in many instances, being from picked samples, afforded no criterion to the richness of the ledge.

The Plan now Adopted.

The miner now-a-days who makes a good strike, and can take out with trifling labor a few tons (sometimes only a single ton) of good ore, has only to send it in stout sacks, properly marked, and each containing about one hundred pounds, to a commission ore merchant in San Francisco. The freight by the railroad is very moderate, being only $14 per ton from Elko. In about a week or less he will receive the money for which his ore has been sold.

Prices Paid for Ores.

The prices paid in this city for ores are about from 56 per cent. on the assay value of ores assaying $100 per ton, to 80 per cent. for ores assaying $600 per ton, and upwards, the percentage increasing with the value of the ore. The ton of silver ore is 2,000 pounds avoirdupois.

Copper ore is purchased by the unit, which varies with the ore. For ore containing 20 per cent. of copper, the price is about $50 per ton of 2,352 pounds avoirdupois, proportionably larger prices for richer ores, and for those showing a percentage of silver. Copper ore is assayed by the humid method, from which a deduction is made to equalize it with the fire assay—21 3-10 per cent. by humid assay being equivalent to 20 per cent. by fire assay, which latter percentage determines the market price.

Commission Ore Agents.

The commission ore merchant or agents (say for instance, Mr. A. T. Green, No. 3 Front street, Mr. G. W. Stewart, or Mr. P. H. Kraner, all of whom are engaged in the business in San Francisco), on the receipt of a consignment of ore, has it taken immediately to the crushing and sampling works of Messrs. S. W. Howland & Co., where it is crushed and sampled in the most careful manner. The samples are sent in sealed bottles to *two different* assayers, as those of the San Francisco Assaying and Refining Works, Montgomery street, or of John Scott, 423 Mission street, or to Messrs. Hentsch & Berton's assay office, or others of equal ability. On the result of the assay of these gentlemen depends the price of the ore, the prices before mentioned being a close approximation. The money for which the ore is sold, is at once paid to the order of the owner. There is no delay, there being a constant and increasing demand for silver ores assaying $100 per ton and upwards, and for copper ores containing 20 per cent. of copper and upwards, by merchants and others in San Francisco, for shipment to the Atlantic States and Europe. Amongst the purchasers may be named Messrs. Cross & Co., Messrs. Moore & Co., and Prof. Thomas Price.

Benefit to the Miner.

To the miner in want of funds to carry on his work, the advantages of this system are apparent. By from time to time forwarding ore to this city, he is enabled to realize at once a liberal percentage upon its assay value. Over fifty tons was crushed and sampled in one week recently by Messrs. Howland & Co., which sold for from $100 to $400 per ton.

Crushing and Sampling.

As on the accuracy of the sample to be assayed so much depends, proper attention to the crushing and sampling is of the utmost consequence. The convenient and spacious works of Messrs. S. W. Howland & Co., 413 Mission street, opposite to the Union Foundry, are especially adapted to the purpose, and are kept constantly employed in operating on ores from the country for sale. The means used for obtaining accurate samples of each particular lot are most perfect, and the strict attention paid by Mr. Howland and his partner, Mr. J. W. Thurman, to the careful execution of their orders, has established their reliability. They have consequently obtained a large run of custom, which, from their personal superintendence of the minutest details of their work, they are deserving of.

The ore on its arrival from the wharf is piled beside an immense crusher, which breaks it into smaller fragments. It is then passed through a large mill, resembling a coffee mill, and by this it is reduced to the size of fine gravel. After this is completed, it is mixed and intermixed in a most thorough manner by being spread out and turned over and over repeatedly. One-tenth part of the whole is now passed through a mill of Mr. Howland's own design, which pulverizes it. The pulverized ore being again spread out and turned over several times, about fifty pounds of it is taken and again mixed well in a similar manner. Finally, from this, very small quantities are taken from different parts of the pile, sufficient to fill three or four bottles, which are then sealed up, labelled, and sent direct to the assayers. From the thorough means used to intermix the ore, the result is, as has been demonstrated frequently, that the samples satisfactorily represent the quality of the whole. Each apparatus is swept clean after use, as are also the floors, before crushing another lot, so that it is impossible for the smallest particles of any two lots to get intermixed.

◆

Window Catch.—A very neat device was shown us the other day. It is W. A. Sublett's "Patent Ball Window Catch," which consists simply of a ball moving in an inclined chamber, and operated by a lever. It does away with all cords, pulleys and weights, is very easily attached, and is cheap. The sashes are easily fastened at any height, and it is claimed to be almost impossible to get the catch out of order. It is said to be extensively used on the Central Pacific Railroad, and certainly appears to be a great improvement in several respects on the old methods. A working model may be seen at Marsh, Pillsbury & Co's, corner of Pine and Front streets, San Francisco.

◆

The large steel works of Krupp at Essen, in Prussia, occupies 800 acres of ground, of which 200 acres are under roof. The establishment employs 8,000 workmen, besides 2,000 at the mines and furnaces. It contains 412 melting and cementing furnaces, 195 steam engines, 49 steam hammers, 110 smith fires, 318 lathes, 111 planers, 61 end lathes and planers, 84 boring machines, and 75 grinding machines. It has 13 miles of railway with six locomotives and 150 wagons. The gas works supply 10,000 to 11,000 lights. The daily consumption of coal is given as 225 tons. Mr. Krupp has refused a patent of nobility once or twice.

◆

For the Commission Business, there is requisite, besides mere business ability, also an extensive acquaintance with the wants of the country, and if to these urbanity of manners is added, so much the better. Mr. A. T. Green, No. 3 Front street, has resided some nineteen years in the State, and has a thorough knowledge of the country and of the people. His references are of the best. We recommend miners and others who desire to find a good agent or commission merchant to try him.

◆

A **Saving.**—Farmers and country dealers should examine the reaper and mower sections and knives manufactured by T. G. Durning & Co. in this city, as they guarantee to furnish an article equal to anything in this line of Eastern manufacture at a saving, it is said, of fifty per cent. on prices usually charged. Their advertisement will be found in this paper.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending February 15th.

Tool for Checking Timber.—Arthur W. Dorr, Lake Valley, Tahoe P. O., Cal.

Combination Padlock.—George K. Farrington, Alcatraz Island, Cal., assignor to himself and Frederick and Victor Schulz.

Buildings.—Jules Touillon, San Francisco.

Horizontal Wind-Wheel.—Jerome A. Vaughn, Downieville, Cal.

For the Week Ending February 22d.

Thorough-Brace.—James E. Requa, Sonora, Cal.

Wheelbarrow.—Henry Alter, Lakeport, Cal.

Needle for Sewing Machine.—John L. Boone, San Francisco.

Grip Pulley.—Andrew S. Hallidie, San Francisco.

Egg-Beater.—Frank Krandelt, San Francisco.

Roofing and Flooring.—P. N. Mackay, Virginia City, Nevada.

Fence.—Harris Harding Margeson, San Francisco.

Cultivator.—A. B. C. Nusbaum, Sacramento, Cal.

Boat-Detaching Apparatus.—John Ross, San Francisco.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

◆

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Improved Horizontal Windmill.—J. A. Vaughn, Downieville, Cal.—The object of this invention is to construct a horizontal windmill, in which the vanes are alternately opened and closed by the action of the wind as they turn. The device is decidedly novel, and consists of a circular box, to use simple language, in the sides of which are numerous doors opening outwards. Two opposite doors are connected by rods of such a length that when one door is closed the other must be open. The mill is made to revolve by the pressure of the wind against the inside faces of the open doors; but as these doors revolve on the mill, of course their backs, after a half revolution, are acted upon and they are closed. The opposite doors are thereby opened and acted upon by the wind, and thus the mill is kept constantly revolving.

This very ingenious device was invented by the editor of the *Mountain Messenger*, and we hope that his windmill and his paper may aid in keeping one another in extensive circulation. We cordially recommend both to the consideration of our readers, for they do more than merely revolve in the wind—they both *grind corn.*

Improved Sewing Machine Needle.—John L. Boone, San Francisco, Cal.—In our boyhood days we conceived the greatest respect for the old pioneer Daniel Boone, the narration of whose exploits filled our hearts with delight. We expect, however, that in the next generation this admiration of Daniel will yield in part, at least in the case of the girls, to one quite as rational for his namesake John L., for mothers will instruct their children how the latter's invention of a simple little device has saved hours of labor and repeated trials of patience. We have several similar needles in the market, but these are open to several objections, which it is claimed, are entirely obviated by the device, which furnishes a strong needle, and one that will not catch and tear the thread of the cloth. The Boone needle is split a short distance above the eye, downward in a direct line into the eye at one side; the split again commences at the lower end of the eye, passes downward toward the point, emerging on a curve at the bulge formed by the enlargement above the point, forming a closely fitting finger, which serves as a wall or support to that side of the needle. The point of the finger is sunk below the general surface of the needle, so that it does not interfere in any way when the needle is passing through the fabric. The threading of the needle is so simple that it can be performed in the dark. The needle has been easily run through ten and twelve thicknesses of unbleached and bleached muslin, acting in all respects as well as an ordinary needle. Testimonials are given from all the sewing machine companies in the city.

Improved Extension Bedstead.—F. Menzer, S. F.—This is a device for changing a single bed into a double one, or *vice versa*, to suit the circumstances. The head-boards and footboards are made of the ordinary width for single beds, but have supplemental boards, attached by hinges, so that they can be folded back, or opened. Instead of the slats usually employed, the bed bottom is formed of a series of frameworks, so constructed that they can be drawn out or closed up as desired. The mattress is made so that it can be folded together and form a mattress for a single bed, or opened out to fit the extended bed, either by constructing it in two parts and uniting these loosely, or by making it into one piece and leaving a folding crease through the middle. A bedstead or children's crib constructed in this manner can be extended at night, so as to accommodate more than one person, and folded up in the morning so as to occupy but half of the space. The cost of construction is said to be but little, if any, greater than that of an ordinary bedstead.

◆

Report of Samuel S. Fisher, Commissioner of Patents, for 1869.

Herewith we commence the publication of this report, dated January 27, 1870, which will be given nearly complete in continuous numbers of the Press. It is clear-sighted, interesting, and forcibly suggestive of many improvements in this department of our Government:

The receipts and expenditures for the year, and the condition of the balance in the treasury, standing to the credit of the patent fund at its close, are shown in the following statements:

Number of applications for patents during the year 1869		19,271
Number of patents issued, including reissues and designs		13,986
Number of applications for extensions of patents		153
Number of patents extended		108
Number of caveats filed during the year		3,624
Number of patents expired during the year		2,083
Number of patents allowed but not issued for want of final fee		997
Of the patents granted, there were to citizens of the United States	13,442	
Subjects of Great Britain	294	
Subjects of the French Empire	91	
Subjects of other foreign governments	159	
		13,986
Amount received for applications, caveats, etc		$632,700 65
Amount received for copies and for recording assignments		60,445 16
		$693,145 81
Cash paid for salaries and for miscellaneous and contingent expenses		$486,430 74
Amount to the credit of the patent fund January 1, 1869		$324,330 67
Excess of receipts over expenditures during the year 1869		206,715 07
Leaving a balance January 1st, 1870, of		$531,045 64

Business of the Office from 1837 to 1869,

Years.	*Applications.*	*Caveats*	*Patents issued.*	*Cash Received.*	*Cash Expended.*
1837...	....	....	435	$29,289 08	$33,506 98
1838...	....	....	620	42,123 64	37,402 10
18[illegible]...	....	....	425	37,250 00	34,543 51
1840...	765	228	473	38,056 51	39,020 67
1841...	847	312	495	40,413 01	52,666 87
1842...	761	391	617	36,505 68	31,241 48
1843...	819	315	531	35,316 81	30,776 96
1844...	1,045	380	502	42,509 25	36,244 73
1845...	1,246	452	502	51,076 14	39,395 65
1846...	1,272	448	619	50,264 16	46,158 71
1847...	1,531	553	572	63,111 19	41,878 35
1848...	1,628	807	660	67,576 59	58,905 84
1849...	1,955	595	1,070	80,752 78	77,716 44
1850...	2,193	602	995	86,927 05	80,100 95
1851...	2,258	760	869	95,738 61	85,916 93
1852...	2,639	936	1,020	112,656 34	95,916 91
1853...	2,673	901	958	121,527 45	132,869 83
1854...	3,324	868	1,902	163,789 84	167,146 32
1855...	4,435	906	2,024	216,459 35	179,540 33
1856...	4,960	1,024	2,502	192,688 02	199,931 02
1857...	4,771	1,010	2,910	196,132 01	211,582 09
1858. .	5,364	943	3,710	203,716 16	193,193 74
1859...	6,225	1,097	4,538	245,942 15	210,278 41
1860...	7,653	1,084	4,819	256,352 59	252,820 80
1861...	4,643	700	3,340	137,354 44	221,491 91
1862...	5,038	824	3,521	215,754 99	182,810 39
1863...	6,014	787	4,170	195,593 29	189,414 14
1864...	5,932	1,063	5,020	249,919 98	229,868 00
1865...	10,664	1,937	5,616	348,791 84	274,199 34
1866...	15,269	2,723	9,450	495,665 38	361,724 28
1867...	21,278	3,597	13,015	646,681 92	639,263 32
1868...	24,420	3,705	13,378	681,565 86	628,679 77
1869...	19,271	3,624	13,986	693,145 81	485,430 78

It will thus be seen that, with average receipts and expenditures not greatly varying from those of the past year, the net income of the office will be about $200,000 per annum, and that there is now standing to the credit of the patent fund a balance of over $530,000.

This fact should be borne in mind in connection with any suggestions relating to increase of salaries, or facilities for performing the work of the office.

The Patent Office earns all the money which it expends, or proposes to expend; and as the inventors give, in the form of useful invention, quite as much as they receive by way of protection; as they are moreover, taxed as citizens, as manufacturers, and as vendors of their patents and inventions, it would seem to be unjust to tax them again, in the form of additional fees, for the support of the government of the payment of a national debt.

The patentee does not pay these fees as a compensation for the exclusive privilege which he receives. For that, he makes a full disclosure of his invention, for the future benefit of the nation. The fees are intended solely to pay the necessary expenses incurred in the examination of the invention and in the issue of the patents. In all other countries, the fund derived from the patent fees is applied to the advancement of science. The fees which are paid in this country are less than in any other, but if they are more than is needed for the expenses of the Patent Office, as at present organized, it is but fair, either that the fee should be reduced, or that the balance should be employed in such increase of the force of the office, or in providing such publications and appliances, as may increase the ease, thoroughness, and efficiency of the work of examination.

Inventions in Southern States.

One of the most gratifying results of the restoration of peace and of the introduction of a new system of labor in the South, is found in the increase of applications for patents from that part of the country. During the past year forty-six patents were granted to citizens of Alabama, eleven to those of Arkansas, five to Florida, sixty-eight to Georgia, eighty-six to Louisiana, fifty-three to Mississippi, forty-four to North Carolina, twenty-four to South Carolina, sixty-nine to Tennessee, forty-four to Texas, eighty-six to Virginia, and thirty-seven to West Virginia.

In the class of agriculture, the Examiner reports that "in 1859 the number of applications from the South, as compared with those from the North, was less than two and a half per cent. of the whole number. In 1869 the number of applications from the South was increased to over twenty-three per cent. of all the cases in my class."

What the Pacific Slope and the Great Basin are doing in the way of invention may be inferred from the fact that in 1869 there were granted two hundred and sixty-six patents to California, thirty-nine to Oregon, four to Nevada, two to Washington, ten to Colorado, three to Dakota, one to Idaho, one to Montana, and two to Utah.

[to be continued.]

◆

The Spirit of the Age.—The following is from an article in the *U. S. Railroad Register*: "Two new scientific magazines have just appeared in London; one called the *Academy*, the other, *Nature*. They illustrate the change which is rapidly taking place in the civilized world. As old-fashioned romances have given way to dramatic novels, descriptions of voyages, and illustrated journals, so the literary magazine of Addison, Johnson, Wilson, and N. P. Willis, is getting thrust aside by engineering and mining journals, railway registers, and periodicals charged with news of all the sciences. While Emerson is quoted by Huxley, Charles Darwin's name appears in the first sentence of a State paper pronounced before the Parliament of the Austrian Empire. The facts discovered by geographers have always interested merchants. But now the ideas elicited by chemists, geologists, botanists, and even archæologists, are taking root and growing kindly at the fireside of tradesmen, mechanics, and laborers. Everybody knows about the geology of the Suez canal, the last batch of heads put upon the Nile by Livingstone, the diatome vegetation of the Atlantic floor, the necessity for having two shafts to a coal mine, and the mistake of three millions of miles in the old measurement of the radius of the earth's orbit. Where will all this end? When peers of England lecture to Mechanics' Institutes, some wonderful leaven must be leavening the lump. When observations on meteors become standing items in penny newspapers, the intellectual life of all classes of society must be lifting itself to a less brutal and more spiritual plane."

Our Agents.

Our Friends can do mnch in aid of our paper and the causa of practical knowledge and acience, hy assisting Agents in their lahors of canvassing, hy lending their influenca and encouraging favors. We intend to send none hut worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yaten.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Rohertaon.
Shermantown, Nev.—P. C. Renfrew.
Silver City and Idaho Ter.—Sam. Heidelherger.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crana.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Baers.
Omaha, N. T.—Barkalow & Brothera.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—Georga Street, 30 Cornhill, E. O.
Hedson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

The large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of Dewey & Co., publishers of the Scientific Press. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

H. S. CROCKER & CO.,

Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM

PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

FRANCO-ITALIAN MANUFACTORY.

NEW CALIFORNIA

Chocolate and Coffee Steam Mills.

DESCALZO, LASTRETO & CO.,

526 WASHINGTON STREET.

MANUFACTURERS OF

Hygienic Chocolate of Every Variety,

Ne Plus Ultra Ground Ooffee,

And sola manufacturers in California of the world renowned Coffee,

"CAFE DES GOURMETS,"

CORCELET PROCESS. 9v20-q

TO THE WORKING CLASS.—We ara now prepared to furniah all claasea with constaut employment at home, the whole of the time or for tha spara moments. Busiuess new, light and profitahle. Persona of aither sex easily earn from 50c. to $5 per evening, and a proportional aum by devoting their whola time to the husinaas. Boya and girla earn nearly as much as men. That all who see this notice may send thair address and test the businesa, wa make this unparalleled offer: To such as are not well satisfied, we will sand $1 to pay for tha trouhla of writing. Full particulara, a valuahle sample, which will do to commenca work on, and a copy of *The People's Literary Companion*—ona of the largest and bost family newspapers published—all sent free hy mail. Reader, if yon want permanant, profitahle work, address E. C. ALLEN & CO., Augusta, Maino. 5v20-3m

---

DR. ABORN,

Oculist, Aurist,

AND

CATARRH, THROAT

AND

Lung Physician.

No. 22 KEARNY STREET,

SAN FRANCISCO, OAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox. Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months sufferad from Catarrh, accompanied with unpleasant sensations and sounda in tha eara. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. Ha improved my hearing almost instantaneously, and now, after heing under his care six days only, I feel aa if entiraly cured, and my hearing is restored. CHARLES N. FOX.
San Francisco (Cal.), Jan, 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have heen afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a diatresaing cough, and seriously impairing my health generally. I hava heen under treatment by Dr. Aborn, at 22 Kearny street, San Francisco, for ahout three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Ahorn relieved me of a very severe neuralgic pain, and with four applications it was antirely cured. S. O. HOUGHTON.
San Jose (Cal,), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

To whom it may Concern.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief hy submitting myself to Dr. Ahorn's treatment for a few daya only, I take pleasure in saying Dr. Aborn, with his new aud improved instruments for local applications to the lungs, air passagea, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in tha left nostril, which has heen called hy different names—cancer, scrofula and ozena—different physiciana have tried their skill in attempting its cure, hut without success. It has rendered me incapable of lahor for tha last two years. Since tho heginning of June last I hava heen in the Sacramento hospital reduced to a mera skeleton. On tho 23d of Novemher I left the hospital, and since the 26th have heen under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel lika another person. The success of Dr. Aborn's treatment in my case shonld he sufficient to encourage all who have chronic discaseato maka another trial for that good prize—health.
WILLIAM BEARDSLEE.
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the henefit of the afflicted and as an act of justice to the skill of Dr. Ahorn, I make tha following statemeut: For ahout two years I was seriously afflicted with a hronchial affection. I had a distressing cough, difficulty of hreathing, axpectoration, night sweats, and was losing flesh very rapidly. I was treated hy five physiciana without any henefit, hut continued to grow worse, and was finally advised hy them to leave tha city, aa in their opinions I could not he cured in this climate; hut my husinesa relations were such as to precludo a change of climate, although my health was decliniug ao fast that I could not hava lived long without relief. Two months ago, when Dr. Ahorn arrived, I read his publications and tho testimonials of his ramarkahle cures, which led me to helieve that thera must ha merit in hia treatment. So I placed myself under his cara, and it is with great pleasure that I am ahle to say that ha haa cured me of thosa distressing and dangerous hronchial affections; also, tha night sweats, cough, etc. I was unahle to attend to husiness sinca April last, until after heing under Dr. Ahorn'a treatment for ona week. My improvement was so rapid that in one week's time I waa ahla to resume my husinesa, and I have continued to gain ever since so rapidly that even my friends ara surprised at the remarkahle results of his treatment.
VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869. 7v20-3m

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

10v20-3m10p

California Steam Navigation COMPANY,

Steamer	CAPITAL	CAPT. E. A. POOLE
"	CHRYSOPOLIS	CAPT. A. FOSTER.
"	YOSEMITE	— —
"	CORNELIA	CAPT. W. BROMLEY
"	JULIA	CAPT. E. CONCKLIN.

Two of the abova steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streats.

R. M. HARTSHORNE,
President

13v12

SCIENTIFIC PRESS

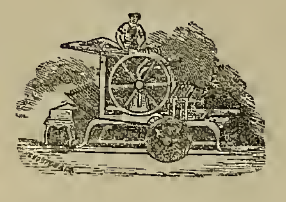
BOOK AND JOB PRINTING OFFICE,

No. 414 Clay Street,

Below Sansome, - - - San Francisco.

SPAULDING & BARTO,

PROPRIETORS.

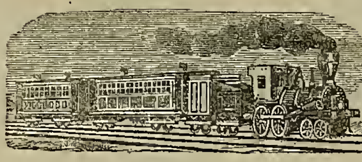


EVERY VARIETY OF

PRINTING,

FOR

Business Men, Corporations



AND ALL

Branches of Industry,

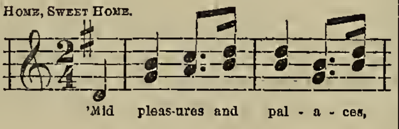
EXECUTED IN THE

BEST MANNER,

AT REASONABLE PRICES.

Music Printing

Executed correctly and with dispatch.



"Live and Let Live,"

Is a good old adaga, and we shall adopt it as our own. We do not pretend to do work at "lesa than coat," as some people advertise to do; hut we do claim to do all kinds of printing as cheap as it can be done on this Coast—and wa believo as cheap as it is done in Chicago. Customers, in tha country or city, ara invited to call in person at our office, or sand their orders by mail or expreas, and they will be fairly dealt with.

SPAULDING & BARTO.

Scientific Press Office,
414 Clay Street

Real Estate for Sale.

Valuable Stock Ranch For Sale

IN ALAMEDA COUNTY.

The attention of miners, "new-comers," or others, who wish to huy desirahle real estate, is called to

6 7 5 ACRES

— OF —

Excellent Pasture, Grain, Garden

— AND —

ORCHARD LAND

FOR SALE AT A BARGAIN.

TERMS EASY.

Thia Ranch comprises hill and valley, is supplied with an ahundance of good living water, ia well fenced, huildings good, and is stocked with implementa and animala. It is one of tho hest DAIRY RANCHES in the State, and is near tha Railroad. Inquira of
JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

Real Estate For Sale

In a romantic and desirahle locality near tha Railroad, in Alameda County. ONE HUNDRED AND TWENTY ACRES, in a hody, of leval, rich and superior soil, fit to produce everything. Ona of tha finest gardens and nursery sites in the Stato. Rarely equaled as a homastead. For sale for $15,000—less than ona-half ita real valuo. Minera or city residenta will find thia a good opportunity to huy land cheap. A good cottage, with suhstantial onthuildings and fancea, are upon the place. Call on
JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

A Fine Country Residence

AND EXCELLENT FARM

Containing two hundred and eighty-five acres—seventy-five acres hill and two hundred and ten acres valley land—within ono milo of tho railroad, near Haywards, in Alameda County, for sale at a hargain, hy tha Administrator of tha Estate. Tha house ia a fino and suhstantial one, erected at a cost of $10,000, and magnificently located. An excellent orchard of six acres, well-fenced fields, good harns, etc. Price, $35,000. For particulars, inquiro soon of
JAS. F. CROSETT,
9v20-tf 304 Montgomery street, San Francisco.

SPECIAL NOTICE.

TO DEALERS AND CONSUMERS

— OF THE —

H & L

AXLE GREASE.

Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possible meet the market of our Chicago friends, we have made a great reduction in prices, and from our long experience we will satisfy you that there is nona BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,

144 Natoma Street.

Depot, 320 Jackson Street.

N. B.—We are prepared to furnish Bulk Packages to contractors on equally liberal terms.

HIBBERD, SANBORN & CO.,

STAIR

BUILDERS.

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billard Balls and Ten Pins. Fancy Newels and Ba'usters.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS. M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street.......... ....San Franclsc

(Having had 33 years' experience in Europe and America, supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blow pipe, Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,

HAS REMOVED FROM MONTGOMERY to **331** Kearny street, west side, between Pine and Bush, San Francisco.
21v15-1y

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.
2v15-1qy

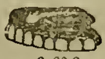
J. VAN O. HORNER,
DENTIST,

Cor. J and Third Streets, Sacramento.
☞ All work warranted. 7v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.
DR. BEERS, Dentist,



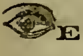
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. R. R. ROBERTS,
The Great Magnetizer,

Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all curable Chronic Diseases by Animal Magnetism and the Swedish Movement Cure. 2v20-1y

---



DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated

References.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

---

WONDERFUL
Scientific Discovery.
THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

---

FROM The WEED **$65** Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED **WEED** Machines work easier, simpler **TO $500** softer and with more VARIETY. Buy the LATEST always. Call and see S. K. Hoar, 329 Kearny St. S. F., Agt.

OCCIDENTAL
Insurance Company,
OF SAN FRANCISCO.]

Cash Capital, ... $300,000
GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 20v17

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19 qy

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M CONDEE Cashier. 19v16-3m

T. D. YOUNG.
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.

Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Paten Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

FITLER, QUIGG & CO.,
RAILWAY ADVERTISING AGENTS,
—AND—
Railway Supply and Insurance Brokers,
Continental Hotel, Philadelphia.

☞ Subscription and Advertising Agents for the SCIENTIFIC PRESS. 9v20

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

HAYWARD & COLEMAN
IMPORTERS AND REFINERS
—OF—
Illuminating, Lubricating,
—AND—
PAINT OILS,
CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS. NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.
—ALSO—
Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!
An elegant and complete assortment.

SOLE IMPORTERS OF
Devoe's Illuminating Oil
PATENT CANS.
5v17-tf **414 Front street**, San Francisco.

SAN ANTONIO
PIONEER POTTERY.
DANIEL BRANNAN, Proprietor.

A Complete Assortment of
STONE WARE,
Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also
Chemical Ware, of Sorts Made to Order.
We manufacture to order
Terra Cotta Equal to the Best French.
Samples on hand.
FIRE BRICK.
A No. 1 article made to order, warranted superior to any imported.
Flower Pots and Ornamental Vases
Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

☞Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.
8v20-tf

Trades and Manufactures.

WM. BARTLING HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street. (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.
24v18 1m

W. C. CAMPBELL.
PATTERN AND MODEL MAKER,
No. **20** Fremont street, over Phœnix Iron Works, San Francisco.
Particular attention given to MODELS for the Patent Office Brands and Pattern Letters Cut. 4v18mtf

---

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.

Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

---

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER.
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.

Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

---

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,
28 611 and 613 Front street.

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

---

EVENING DRAWING SCHOOL
—BY—
N. P. LANGLAND,
(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 536 Market Street, over Occidental Market. ☞School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3v20-3m

---

W. C. & JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.

Job work of all kinds in the Drug and Spice Line promptly attended to.

Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v20-6m

---

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

Important to Californians.
The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods cheaply, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent off to the trade. Address,

HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

Metallurgy and Ores.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at

No. 30 FREMONT STREET.

And WORKS at H. J. BOOTH & CO'S FOUNDRY, northeast corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.

Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.

By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public. ☞ Mines Examined and Reports made.

References.—William Bosworth, Thomas Varney, Egbert Judson, E T. Steen, Wm Bellshaw, P Reichling, W O. Sleeper, J. L N Shepard, Norbert Landry.

CHAS. PLETZ & CO.

Chas Pletz, Analytical Chemist
Fred Morris, Amalgamator and Millman. 25v19-3m

S. W. HOWLAND. J. W. THURMAN.
S. W. HOWLAND & CO.,
Crushers and Samplers
— OF —
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

☞All work done at the shortest notice. All orders promptly attended to.

References—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co, Assayers. 7v20qy

---

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO,
Metallurgical Works,
No. 10 Stevenson Street, near First.

Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

H. W. GRAY. J. ROSEBERRY. D. S. LOOMIS.
Ores of all Kinds Crushed and Sampled.
H. W. GRAY & CO.,
YOLO MILLS.
Corner Market and Beale Sts., San Francisco
24v19-3m

SILVER AND LEAD ORES
Of every description purchased or worked at
The Oreana Smelting and Refining Works.
JOSEPH MOSHEIMER,
Oreana, Humboldt County, Nevada.
Office in San Francisco, 328 Montgomery street. 5v20

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATTS Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards 23v17qr

---

STEAM
FIRE-PROOF
SAFES
SANBORN'S PATENT.

Perfectly Dry in Use.
ACTUALLY FIRE-PROOF.
GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

☞Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by

ROSS, DEMPSTER & CO.,
105, 107 and 109 California street,
5v20-3m San Francisco.

Blake's Patent.

THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's

Patent Steam **PUMP**

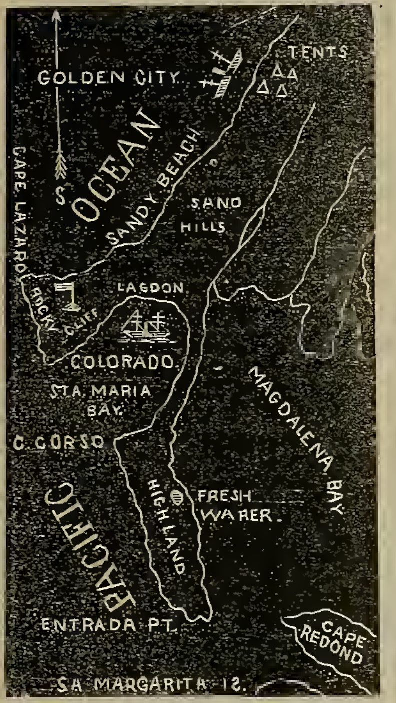
It is simple, compact and powerful, needs no expert to run it, and will start at any point. Is warranted positive under all circumstances. Send for a circular.

BERRY & PLACE, 112 and 114 California st., San Francisco,

Reading for the Hour.

Loss of the Golden City.

The Panama steamer Golden City ran ashore at Point Lazaro, on the coast of Lower California, at 7 o'clock on the morning of the 22d February, and proved a total wreck. Fortunately the sea was calm, and the passengers, crew and treasure were landed without loss. There were about 400 (?) passengers on board, 40 or 50 of whom were women, and some $700,000 worth of bullion. The party remained on shore from Tuesday forenoon until Friday, when the steamer Colorado came in sight, and fortunately perceived the sufferers. As it was impossible to get aboard in their present position, the Colorado steamed to Santa Maria Bay, 25 miles distant, and thither the passengers were obliged to go on foot, and on the way thirteen persons were lost. The rest were brought off by the Colorado, and water and provisions put ashore for those left.



The Golden City was commanded by Capt. Comstock, as Capt. Lapidge was compelled by sickness to remain in this city when the vessel left here. A number of the passengers severely censure Capt. C., but others say he did well under the circumstances. Still we have as yet no explanation of how the vessel came to run ashore. Cape Lazaro is in latitude 24° 40′, being about 1,000 miles from San Francisco, and 225 miles from Cape St. Lucas. We give a diagram showing the general outline of the coast in the neighborhood of the wreck. The drawing was executed from information derived from the log of the Golden City and from passengers of the same vessel by Mr. H. L. Judell, "local" on the daily *Evening Tribune.*

Effect of Sporting on National Character.—Lord Wilton, in his book, asserts and tries to prove that only those nations have achieved and maintained their freedom, who patronize field sports. The *Pall Gazette* comments on this as follows: "The sporting classes have furnished out all the divine right, and passive obedience, and high prerogative men. Our liberties, sad to relate, have been preserved by *tailors and cobblers.*"

The Cardiff Giant swindle has been fully exposed by the makers, who, indignant at not having received their fair share of the profits, have published a card, stating that they made it. Told you so.

Sporting in California.

California is famous for its game, and draws every year a number of people from other places. How long it will continue to present the advantages in this respect which it does to-day, will depend upon the rapidity with which it is populated, and the manner in which sporting is conducted. A San Francisco sportsman can now start off Saturday afternoon and return to the city Monday morning with numerous trophies of his skill, but such cannot long be the case. We copy from the *Evening Bulletin* some remarks on game and sporting outfits:

Guns and Outfit.

The breech-loading shot-gun has to a large extent superseded the old muzzel-loader, but the expense of the ammunition of the former weapon still keeps the latter in the market. The breech-loaders are principally manufactured in Birmingham, Edinburg, London and Dublin. The price of a first-class breech-loader is about $400, and from thence ranges as low as $50. Muzzle-loaders are held at the same cost. The furniture of the shot-guns, such as pouches, powder-flasks, etc., are manufactured by Dixon of Sheffield, and much valued for their excellent finish. The game-bags are imported from Germany, but, however, the sporting men of this coast have given the preference to the sporting-coat, a garment supplied with innumerable pockets, which is manufactured in the city and sold in large numbers, costing about $10 each. Powder and shot are manufactured on this coast, and wads and percussion caps come from Ely of Sheffield. Quantities of the former articles are also imported.

Like the shot-guns, the breech-loading rifles have taken the lead of the muzzle-loaders. The principal rifle purchased in San Francisco for sporting purposes is the Henry rifle. Then the Spencer, Sharp's Ballard, Wesson, Remington, Maynard, Thunderbolt, and many other varieties. The metallic cartridge is used with all. Of belt pistols, Colt's has still the preference, then Wesson and Remington, large numbers of which are sold to the Mexican and Japanese Governments. Colt's new pistol is a very perfect weapon, loading with a brass cartridge, the shell of which can be used several times. Moore's breech-loading Derrringer, and "the Southener," are in requisition as pocket-pistols, and also Sharp's repeating pistol. These are manufactured in the Eastern factories in large numbers. Smith and Wesson's, the Tond, Slocum and the National are the leading weapons among the small revolvers.

Fishing Rods.

The fishing rods used by Walton's disciples in California are imported from England and New York. They are composed of lance wood and split bamboo, the latter description being the best and most expensive article, and ranging in price from $20 to $75. Some are also made of ash, hickory and other woods. The split bamboo rods contain several pieces of bamboo placed together, tapered down, and then carefully wrapped with silk. Trout and salmon artificial flies are imported from England and New York. Silk hair and hemp lines come from England, cotton from New York, and grass from China and Japan. Plain, click and multiplying reels are imported from Europe and the East, the finest, however, are those manufactured in Kentucky. Many old fishermen prefer the plain reel in heavy fishing, and look with contempt upon the click and multiplier.

Game and Hunting-grounds.

Deer, antelope, bear and elk constitute the large game of California. Deer are found among the hills in the vicinity of the city, in great abundance in Marin county, and many hundreds are killed yearly on Tamalpais. The deep gulches, woods and covers of Marin county afford excellent sport to the deer hunter. Elk do not range nearer than the Oregon line, but a few are still met on the banks of the Sacramento and San Joaquin rivers, where in former years they were so abundant.

The brown and black bear are also hunted in Marin county. Along the coast range, San Luis Obispo, Santa Cruz, Monterey, San Bernardino, and Mendocino counties the formidable grizzly lurks, where those in search of more exciting game than duck or quail, do battle with him in his favorite haunts.

White and gray geese are found in all the bay counties, on the lakes and up the rivers in abundance. Duck are shot in the same localities, of which the most valuable is the mallard, which remains and breeds in the country.

Then came the redhead, sprigtail pigeon; wood duck, blue and green-winged teal; broadbill, spoonbill, sawbill, whistler, butter-ball, fan-tail, or Dutchman's and Cadwell's. Quail abound in the surrounding counties, the season beginning on the 15th of September and ending on the 15th of March. In the immediate neighborhood of the city quail are scarce, being trapped and slaughtered for the market so earnestly that they are now almost exterminated. Rabbits are also found in the quail grounds. The English or jack snipe are shot in the fresh water marshes on the San Joaquin and Sacramento rivers, in the Amador, Gilroy and Santa Clara valleys. Of the bay snipe there is an abundant variety, such as curlew, willet white wings, plover, yellow legs, robin, doe-witch, ring-neck and piper.

The grouse, one of the finest game birds, frequents Mendocino and the upper counties of the State. Several attempts have been made to stock the lower counties with these birds, but with little success. Trout abound in all the rivers running into the bay, and are taken by both bait and fly, but principally the former.

Such are some of the sporting grounds of California, but if we wish our game to increase, and our streams to abound in trout, the game laws must be observed, the birds not killed out of season, the rivers not poisoned, and every infringement of these rules punished with severity.

How Soon does Beheading end Consciousness.—Considerable has been said and written, of late, with regard to the time intervening between the beheading of a person and the end of consciousness to the victim. The approach of the late execution in Paris revived this old question, and drew forth a letter from Dr. Plinel, in which he asserted that decapitation does not immediately affect the brain. The blood which flows after decapitation comes from the large vessels of the neck, and there is hardly any call upon the circulation of the cranium. The brain remains, in fact, nourishing itself with the blood retained by the pressure of the air. When the blood remaining in the head at the moment of separation is exhausted, there commences a state, not of death, but of inertia, which lasts up to the moment when the organ, no longer fed, ceases to exist. Dr. Plinel estimates that the brain finds nourishment in the residuary blood for about an hour after decapitation. The period of inertia lasts for about two hours, and absolute death would not ensue till after the space of three hours altogether. If, he adds, a bodiless head indicates by no movements the horror of its situation, it is because it is physically impossible that it should do so, all the nerves which serve for the transmission of orders from the brain to the trunk being severed. But there remain the nerves of hearing, of smell and of sight.

Emery.—D. W. King & Co., of Boston, Mass., sell the entire product of one factory which turns out about one ton of emery per day. The *Iron Age* says that in this factory there are employed a dozen men in the manufacture of Smyrna emery from the pure Turkish stone. The different grades are twenty-four in number, and to produce these the stone has to pass through a large number of crushers, rollers, bolts, cleansers, etc. Four large elevators run from the ground floor to the third story, beside several other smaller ones. The finest grade of emery is produced by a blower, devised by the company. This flour of emery floats in the air in a large room through the day, and when work in the mill ceases over night it becomes settled.

No More Ribbon Stamps.—Owing to the perpetration of numerous frauds on the Government from the washing and re-use of stamps cancelled by the device known as a "ribbon stamp," the Internal Revenue Department have ordered that the canceling shall be done either by writing upon the face of the stamp with ordinary ink, or by cutting or tearing it with some machine or implement designated and approved by the Commissioners, and that no other method of canceling such stamps shall be recognized as valid or sufficient.—*American Artisan.*

The Washington Iron Works at Newbury, New York, have failed. Liabilities stated at $95,000.

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Scientific Press.—The title of the Mining and Scientific Press has been changed to the above. It is devoted to mining, farming and mechanic arts, and is a paper worthy of a large support. Terms, $4 per annum.—*Sutter Banner.*

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Returned.—Dr. J. H. Paine, Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

Microscopes of all kinds can be had at Muller's spectacle emporium, 205 Montgomery street.

New Mining Notices.

Alleghany Consolidated Gold Mining Company. Location of Works: Sierra County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the thirtieth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
W H Tompkins	34	1000	$500 00
A L Whitney	32	185	92 50
John J Rorhe	4	15	7 50
Chas Adams, Trustee	12	1000	500 00
I N Thorne	13	125	62 50

And in accordance with law and an order of the Board of Trustees, made on the thirtieth day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room 37 New Merchants' Exchange, on the twenty-eighth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.

Office, No. 37 New Merchants' Exchange, third floor, California street, San Francisco. feb5

Postponement.—The above sale is hereby postponed until Monday, the twenty-first day of March, 1870, at the same hour and place. By order of the Board of Trustees.

mar5 J. M. BUFFINGTON, Secretary.

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of March, 1870, an assessment of four dollars per share was levied upon the capital stock of said Company, payable immediately, in U. S. gold and silver coin, to the Secretary, at the office of the Company, No. 419 California street, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the second day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 28th day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. A. JENNINGS, Secretary.

Office, 419 California street, San Francisco, California.

Mining Notices--Continued.

Alameda Coal Mining Company, San Francisco and Alameda Counties, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of February, 1870, an assessment of thirty (30) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 409 (first floor) Battery street. San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the twenty-second (22) day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

M. PHILIPP, Secretary.

No. 409 (first floor) Battery street, between Clay and Merchant streets, San Francisco. fe19

Cordillera Gold and Silver Mining Company, Morelos Mining District, State of Chihuahua, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company No. 321 Washington street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.

Office, 321 Washington street, San Francisco, Cal.

Glenwood Mill and Mining Company.—Location of Works: Greenwood, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the seventh day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.

Office, 418 California street, San Francisco. feb52

Hartwell Mining Company.—Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of February, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Treasurer, at the office of the Company in San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Saturday, the twenty-first day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-first day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

fy26 A. J. HOYT, Secretary.

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Cliftou Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of February, 1870, an assessment of two and one-half cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the fifteenth day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fifth day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5 No. 302 Montgomery street, San Francisco, California. feb12

North San Francisco Homestead and Railroad Association:—Location of Property: City and County of San Francisco, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Association, held on the ninth day of February, 1870, an assessment of seven dollars and fifty cents was levied upon the capital stock of said Association, payable immediately, in United States gold coin, to the Secretary, at his office, No. 415 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the ninth day of March, 1870, shall be declared forfeited, and duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the thirtieth day of March, 1870, to pay the delinquent assessment thereon, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

EDWARD C. LOVELL, Secretary.

Office, 415 Montgomery street, San Francisco. feb12

Pinto Mining Company.—Location of Works: Silverado, Pinto District, White Pine County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the third day of January, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
R Beverly Cole	bal. of Nos. 112 162	1243⅓	$186 50
R Mayrisch	unissued	1843⅓	276 50
Julius Hausmeister	46	30	4 50
Julius Hausmeister	47 to 71	100 ea.	375 00
D H Jackson	76 to 81	100 ea.	90 00
D H Jackson	82	65	0 75
D H Jackson	83 to 94	50 ea.	90 00
Adler & Gallinger	33	65	9 75
Adler & Gallinger	34 to 45	100 ea.	180 00
Henry O Langley	171	1510	241 50
G E Barnes	bal. of 166 167	1155⅔	173 50
P B Forster	bal. of 163 to 165	536⅔	80 50
A H Ward, Jr.	111	805	120 75
T J Reed	unissued	536⅔	80 50
John A McQuaid	104	600	90 00
John A McQuaid	105 106	250 ea.	75 00
John A McQuaid	107 108	50 ea.	15 00
John A McQuaid	109	40	6 00
John A McQuaid	110	25	3 75

And in accordance with law, and an order of the Board of Trustees, made on the third day of January, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the seventh day of March, 1870, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street, San Francisco. fe19

U. S. Grant Mining Company.—Location of Works: Carlisle, Nevada County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the nineteenth day of January, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Jno Gillig	4	218	$109 00
J E Squire	35	10	5 00
J E Squire	35	10	5 00
J E Squire	42	10	5 00
J E Squire	43	10	5 00
J E Squire	44	20	10 00
Jno Vail	34	20	10 00
F Panson	52	35	17 50
N H Wilson	53	8	4 00
Samuel Goshen	54	8	4 00
W H Kinder	55	95	47 50
O O Bragan	57	50	25 00
W D Aplin	not issued	200	100 00
D E Martin	not issued	300	150 00
W L Tisdale	not issued	160	80 00
J Biggs	not issued	4	2 00
McFarland	not issued	16	8 00
Sarah Snyder	not issued	32	16 00
N M Baxter	not issued	20	10 00

And in accordance with law and an order of the Board of Trustees, made on the nineteenth day of January, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by J. O. Merrill & Co., at 204 California street, on Saturday, the twelfth day of March, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

ENOS TAYLOR, Secretary.

Office, 226 Clay street, San Francisco. fy25

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the SCIENTIFIC PRESS and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the SCIENTIFIC PRESS office, postpaid, for $1,—*New Age.*

New Advertisements.

CALIFORNIA ASSAY OFFICE,

(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET.

One door west of Montgomery.

H. H. LAWRENCE..........Manager.
J. A. MARS..........Assayer.

Analysis of Ores, Minerals, Waters, etc. 10v20

SAN FRANCISCO

PIONEER SCREEN WORKS,

JOHN W. QUICK,

No. 203 Fremont Street, near Howard.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

FOR SALE.

The Right of a very valuable invention secured by Letters Patent. An article of real merit, that will sell in nearly every family. Here is an opportunity for a young man to do well with a few dollars. Call and examine it.

WIESTER & CO.,
10v20 314 Bush street, San Francisco.

A. T. GREEN, COMMISSION MERCHANT,

No. 3 Front Street. San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES. Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoo, Kelly & Co.; Felkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

---

MECHANICS' INSTITUTE,

27 and 29 Post street, San Francisco.

The Library contains 15,000 volumes of the best works of Science and General Literature, all the popular works of the day being added as soon as published.

The Reading Room is regularly supplied with all the City Papers, and Papers and Magazines from all parts of the Pacific Coast, the United States, Europe and the Colonies.

Terms of Membership: Entrance Fee, $1; Quarterly Dues, payable in Advance, $1.50.

☞ Non-residents of the city allowed the use of the rooms on payment of fifty cents per month, in advance.

A. S. HALLIDIE, President.
GEORGE PARDY, Secretary. 10v20-1m

DEWEY & CO.

San Francisco.

Scientific Press

U. S. & Foreign

PATENT AGENCY.

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and those without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up IN TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

Miners' Rubber Cement.
Miners' Rubber Cement.

WHOLESALE DEALERS IN

DRUGS, CHEMICALS,

Patent Medicines,

DRUGGISTS' SUNDRIES,

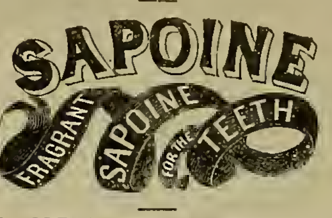
TILDEN & CO'S

SOLID AND FLUID EXTRACTS,

Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.



THE GREAT MEDICAL DISCOVERY!

Dr. J. Walker's California

VINEGAR BITTERS.

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN, TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ SEND FOR A CIRCULAR. ☜

More than 500,000 Persons

Bear testimony to their wondorful Curative Effects.

WHAT ARE THEY!

They are not a vile

FANCY DRINK,

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, FREE FROM ALL ALCOHOLIC STIMULANTS. They are the GREAT BLOOD-PURIFIER AND LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition. No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

R. H. McDONALD & CO.,

Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞ SOLD BY ALL DRUGGISTS AND DEALERS.

PARIS

Scouring and Blanket Cleaning ESTABLISHMENT.

Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling*. Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 123 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

---

For Miners, Millmen and Metallurgists.

KUSTEL'S NEW WORK,

CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS,

For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price, - - - - $7.50

A liberal discount to the Trade. For sale by the Booksellers Sent to any part of the United States, postage paid, on receipt of the price. Address,

DEWEY & CO., Publishers,

Office of the Scientific Press, 414 Clay street,

1v15tf SAN FRANCISCO. 1868.

"The Manufacturer and Builder."

A PRACTICAL JOURNAL

— OF —

INDUSTRIAL PROGRESS.

PUBLISHED MONTHLY.

NOW IN ITS SECOND YEAR.

Every Manufacturer and Builder should have it. Every Operative and Mechanic should have it. Every Architect and Mason should have it. Every Painter and Plumber should have it. Every Carpenter and Blacksmith should have it. Every Counting-room and Library should have it. Price within the reach of all.

Subscription only $1.50 per year.

32 Large Quarto Pages for 15 cents.
348 Large Quarto Pages for $1.50.
Filled with valuable reading matter.

It costs less than Three Cents per Week!

A single hint in this paper may be worth hundreds of dollars, or prove a fortune to many.

"The Manufacturer and Builder"

Is splendidly illustrated with engravings of everything new relating to manufacturing and building.

Get Your Clubs Together.

PREMIUMS.

We are induced to offer the following CASH PREMIUMS to those who will work to get up those clubs. $5, $10, $15, $20, made in as many minutes! READ! READ! READ!

On every club of 4 names, at $1.50 each, $ 1 cash.
On every club of 10 names, at $1.50 each, $ 3 cash.
On every club of 15 names, at $1.50 each, $ 6 cash.
On every club of 20 names, at $1.00 each, $10 cash.

Including twenty and for every additional name obtained above that number, fifty cents each.

Where from ten to five hundred men congregate daily, there is no difficulty in raising these clubs. If the money be forwarded to us with a list of names, the amount of premium may be deducted from the same.

Push the good work, and make glad the hearts of your fellow-workmen.

CLUBS IN VILLAGES AND TOWNS may be procured by any enterprising man or woman. Send for specimen copy, circulars, instructions, etc., free. Take them and go among your friends and neighbors. In a half day you will often accomplish the task, and five, ten, or fifteen dollars will be earned, together with the satisfaction of knowing that you have benefited your fellowmen. Adress your orders plainly,

WESTERN & COMPANY, Publishers,
P. O. Box, 5969. 37 Park Row, New York.
☞ For sale by all newsdealers. 9v20-4w

Notice to Miners, Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
3v18 1y Stove Store, No. 1 Clay Street, below Davis

Machinists and Foundries.

FULTON Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 8-qy

---

GLASGOW

Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McGRINDLE Manager.

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.

2v17-3m **T. G. DURNING & CO**

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of Housesmith Work; Bridge, Prison,

FORGING AND MACHINE WORK,

FIRE AND BURGLAR-PROOF SAFES,

BANK VAULTS,

Improved Monitor Safes,

Constructed of Welded Steel and Iron, fastened with conical steel bolts.

Safes Let by the Month.

Manufacturer of the

Duplex and Excelsior Combination Bank Locks.

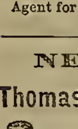
Agent for the ISHAM KEY REGISTER BANK LOCK.

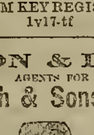
1v17-tf

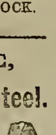
NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.







MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco.

10v14qr

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

---

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE,

NEW FILES OF EVERY DESCRIPTION

ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new. REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended to. 9v19-qy

---

GEO. T. PRACY'S MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

— SUCH AS —

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

1lv1 SACRAMENTO CITY

SACRAMENTO BOILER WORKS,

I Street, between Front and Second,

SACRAMENTO.

All kinds of Marine and Stationary Boilers, Wrought Iron Tanks, Girders, Bridges, Gasometers, and all kinds of Sheet Iron Work, etc. All work warranted. Millmen and Grain Threshers are cautioned to look to the safety of their boilers. Repairing promptly attended to at the lowest possible terms. Refers to Huntington, Hopkins & Co. and H. Adams, Esq.

J. V. HALL, Practical Boiler Maker,
6v20-3mnuf Proprietor, Sacramento.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINOWELL.
9v13-1y

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

R. SAVAGE. R. E. DORAN.

SAVAGE & CO.,

Empire Iron Foundry,

No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices. 9v20-3m

---

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good SAUCE The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed,

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c.; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

---

SCIENTIFIC PRESS.—Dewey & Co. are the publishers of this sterling paper It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican.*

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

THE RISDON

Iron and Locomotive Works.

INCORPORATED......................APRIL 30, 1868.
CAPITAL......................$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis.	James Pollock,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON......................President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD......................Secretary.
21v17-qv

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

THOMPSON BROTHERS,

EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

Ayer's Hair Vigor,

For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a

HAIR DRESSING,

nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.

Prepared by Dr. J. C. Ayer & Co.,

PRACTICAL AND ANALYTICAL CHEMISTS,

LOWELL, MASS.

PRICE $1.00.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, Wholesale Agents. 26v18-1y

---

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.

DIVIDED INTO 1,200,000 SHARES OF

TEN DOLLARS EACH,

FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President......................SAMUEL MERRITT.
Vice-President......................MICHAEL REESE.
Treasurer......................J. SELIGMAN & CO.
Secretary and General Agent.........W. K. VAN ALEN.

BOARD OF TRUSTEES—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm, H. Sharp, Henry Barroilhet,

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, SEVEN MILES IN LENGTH BY FOUR THOUSAND FEET IN WIDTH, EMBRACING FIVE THOUSAND AND TWENTY ACRES.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of ALL mines discovered by the Tunnel.

4th—A royalty forever of TWO DOLLARS on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of his great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast,

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
[Secretary and General Agent,
625 Montgomery street
3v20-3m Opp. Montgomery Block.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations

Thursday, March 3, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 lbs.; Bar, 1@1¼c ℔ lb; Sheet, polished, 3c ℔ lb; common, 1½@1¾c ℔ lb; Plate, 1½c ℔ lb; Pipe, 1½c ℔ lb; Galvanized, 2½c ℔ lb.

Scotch and Eng. Pig Iron, ℔ ton	$30 00	@	$35 00
White Pig, ℔ ton	28 00	@	30 00
Refined Bar, bad assortment, ℔ lb	— 03	@	— —
Refined Bar, good assortment, ℔ lb	— 04	@	— —
Boiler, No. 1 to 4	— 04¾	@	— —
Plate, No. 5 to 9	— —	@	— 04½
Sheet, No. 10 to 13	— 04½	@	— 05
Sheet, No. 14 to 20	— 05	@	— 05½
Sheet, No. 24 to 27	— 05	@	— 06½

Copper.—Duty: Sheathing, 3½c ℔ lb; Pig and Bar, 2½c ℔ lb.

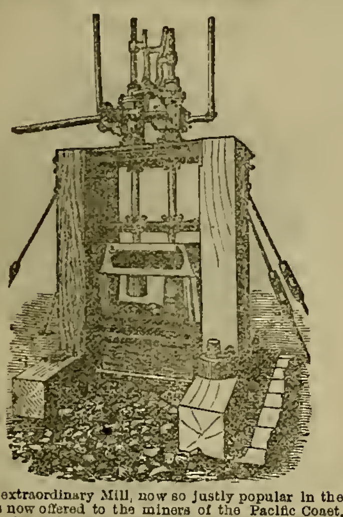
Sheathing, ℔ lb	— —	@	— 26
Sheathing, Yellow	— 20	@	— 21
Sheathing, Old Yellow	— 10	@	— 11
Composition Nails	— 21	@	— 22
Composition Bolts	— 21	@	— 22

Tin Plates.—Duty: 25 ℔ cent. ad valorem.

Plates, Charcoal, IX, ℔ box	12 00	@	— —
Plates, I C Charcoal	10 00	@	10 50
Roofing Plates	10 00	@	10 50
Banca Tin, Slabs, ℔ lb	— —	@	— 42
Steel.—English Cast Steel, ℔ lb	— —	@	— 15
Quicksilver.—℔ lb	— 55	@	— 60
Lead.—Pig, ℔ lb	— 7½	@	— 8
Sheet	— 10	@	— —
Pipe	— 11	@	— —
Bar	— 9	@	— 9
Zinc.—Sheets, ℔ lb	— 10½	@	— 11
Borax	— —	@	— 45

Machinery.

THE WILSON Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

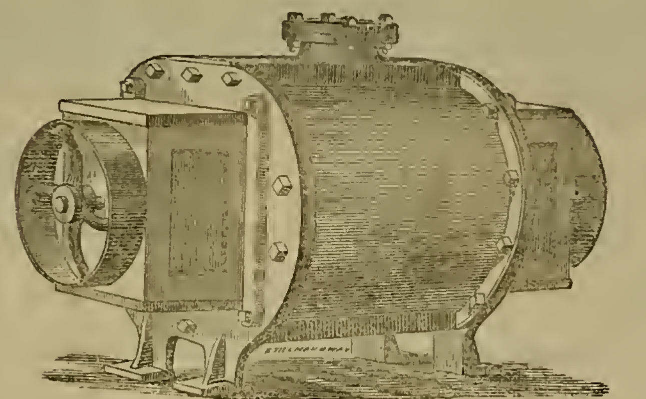
Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,
1v1 San Francisco.

Scientific Press.—The Mining and Scientific Press, which has been a faithful exponent of the scientific, mechanical and industrial interests of our western coast, entered upon its twentieth volume on the first of January, and at the same time adopted the shorter and equally comprehensive title of Scientific Press. This journal has, for some time past, maintained a department specially devoted to agricultural matters, and has filled it with useful and interesting information.—*Contra Costa Gazette, Jan., 1870*

ROOT'S PATENT FORCE BLAST ROTARY BLOWER

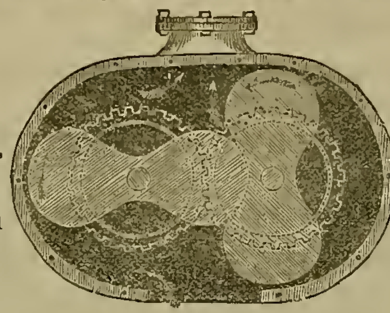
MANUFACTURED BY KEEP & BARGION,
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.



REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

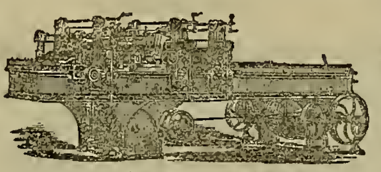
Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16 3m Globe Iron Works, Stockton, Cal.

WOODWORTH PLANERS.



PLANERS AND MATCHERS,
With patent expansion feed gears and other improvements, made in the most finished and substantial manner; also every description of

J. A. FAY & CO'S IMPROVED
Wood Working Machinery.

Embracing various styles and sizes of the following Labor-saving Machines:

Morticing (Sash and Door),	Re-sawing,	Rod and Dowell,
Sash and Moulding,	Planing and Matching,	Hand and Foot Mitering,
Blind Slat Tenoning,	Blind Stile Boring,	Railway Sawing,
Boring (Horizontal and Upright),	Blind Wiring,	Improved Tenoning,
Shaping,	Blind Slat Planing,	Variety Moulding (Gear's Patent),

Machines.

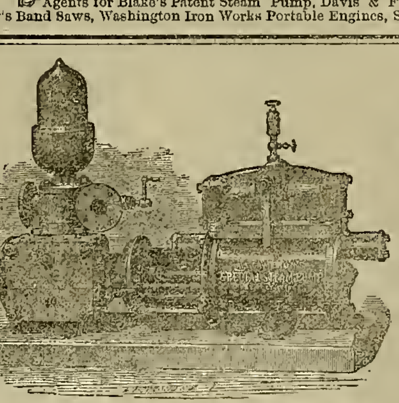
An assortment of the best always on hand.

SCROLL SAWS, DIMENSION PLANERS, GROOVER SAWS, FAY'S PATENT BAND SAWS, WOOD TURNING LATHES OF ALL KINDS.

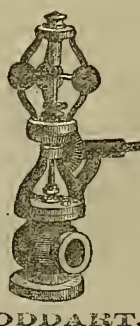
ENGINE LATHES and Machinists' Tools generally, with also a large assortment of small machines used in Planing Mills, Machine Shops, etc. Also, Planer Knives, Saw Gauges, Matcher Sets, Sash and Matcher Heads, Saw Tables and Arbors, etc. Being the selling agents for most first-class Eastern Machinery Builders, we sell THE BEST, and at manufacturers' prices. Invoices of the above Machinery are now being received by every vessel. ☞Send for Illustrated Catalogue.

BERRY & PLACE,
112 and 114 California Street, San Francisco.

☞Agents for Blake's Patent Steam Pump, Davis & Furber's Woolen Machinery, Gear's Upright Shapers, Fay's Band Saws, Washington Iron Works Portable Engines, Saw Mills, etc., etc. c7v20



CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
MARINE
ENGINES.
SURFACE
CONDENSERS.



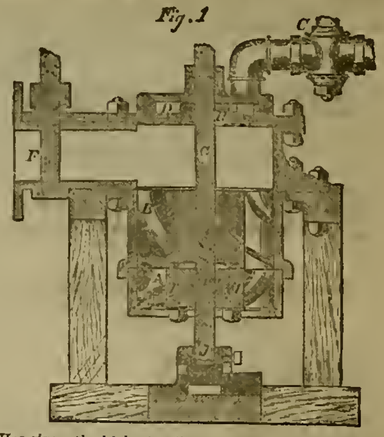
DAVID STODDART,
114 BEALE STREET.

Our Home Physician.

By GEO. M. BEARD, A. M., M. D., of New York. Its superior merits are endorsed by the Scientific American, Rural New-Yorker, leading medical journals and physicians of established reputation at the East and on the Pacific coast. Copyrighted 1869. The only complete Family Medical Book written since 1860. Send for circular containing extracts from author's introductory, testimonials, etc. Address, WESTERN PUBLISHING AGENCY, 411 Kearny street, San Francisco. Agents wanted; also for Dr. Dadd's Reformed Horse Book. 6v20-3m

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

Lind's Improved Water Wheel



Has given the highest satisfaction to parties using it. We are now prepared to sell it at reduced prices. Will also contract for all kinds of Machinery—Flour, Saw and Quartz Mill. All our work guaranteed. We will send competent men to put up our Wheels and Machinery. We contract for or do it ourselves. Our extensive acquaintance with millwrights on this coast enables us to furnish millmen with the best of workmen at short notice. Drawings for contracts furnished gratis. Send for circular.

A. LIND, Millwright,
Pacific Iron Works, San Francisco.
Refer to John Sims and J. J. Haley 19v19

CHRISTOFFEL & BOOTH'S PATENT ELLIPTIC BOILER TUBE SCRAPER

Save your Boilers!
Save your Fuel!
Save your Temper!
BY USING
CHRISTOFFEL & BOOTH'S
PATENT
Boiler Scraper and Tube Cleaner.

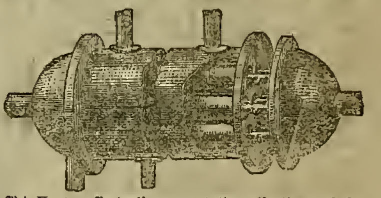
The Most Complete and Perfect Instrument of the kind Invented.

SIZES TO SUIT ALL TUBULAR BOILERS.

They cost but a trifle, and are handy as well as economical. For further particulars, or for the purchase of Scrapers, address or call on

McAFFEE, SPIERS & CO.,
6v20 Howard street, near Fremont, San Francisco.

CROSS' COMBINED Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

SAN FRANCISCO Gold and Silver Plating Works.

ATTENTION. Quartz Mill Men,
MINERS,
HOTEL KEEPERS,
—AND—
OTHERS. ATTENTION.

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞All work done at the lowest prices. 1v20-3m

International Hotel,

JACKSON STREET,
BETWEEN MONTGOMERY AND KEARNY STS.,
SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.

Prices varying from $1 50 to $2 per day for Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

☞ Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House FREE OF CHARGE, and to any part of the city for 50 cents

21v14 F. E. WEYGANT, Proprietor.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

DEWEY & Co.

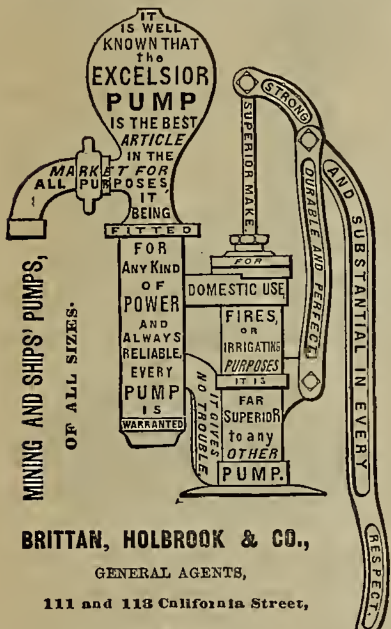
American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Ont.
Patents Secnred in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecnted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted,
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.


IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES, IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE FIRES, OR IRRIGATING PURPOSES IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE.
SUPERIOR MAKE.
STRONG DURABLE AND PERFECT AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS, OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

STEEN & CUSHING,

AGENTS FOR THE
PURCHASE AND SALE
— OF —
Patent Rights, Engines, Boilers,
— AND
MACHINERY OF ALL KINDS.
NO. 9 FIRST STREET, SAN FRANCISCO.

WE HAVE ON HAND IN GREAT VARIETY,

Engines and Boilere,
Steam and Hand Pumpa,
Pipe,
Presses,
Shafting,
Pulleya,
Boxes,
Mill Stones,
Portable Mille,
Malt Rolls,
Injectore,
Lathes and Planers,
Governors,
Steam Gauges,
Quicksilver,
Gas Stocks and Dies,
Belting,
Water-tanks, etc.,

Which we will sell at a discount of 25 to 75 per cent. on cost of new, in this city. Parties having any kind of machinery for sale, may meet with customers by consigning to us. Purchases made on Commission, and pricee guaranteed as low or lower than parties can make themselvee.

STEEN & CUSHING,
No. 9 First street, San Francisco.

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

SOLID INDEMNITY.

THE HARTFORD

FIRE INSURANCE COMPANY,

— OF —

HARTFORD, CONNECTICUT.

Cash Capital, - - - - - - - - One Million Dollars.

Assets, - - - Two and One-half Million Dollars.

INCORPORATED, 1810.

SIXTY YEARS OF HONORABLE SUCCESS.

Total Losses Paid, - - - Over Ten Million Dollars.

All business transacted conducted on Principles of Commercial Honor.

DEVOTED SOLELY TO FIRE INSURANCE.

LOSSES PAID IN CALIFORNIA:

ONE QUARTER OF A MILLION OF DOLLARS.

All Losses Promptly Paid in Gold Coin.

PACIFIC DEPARTMENT:

HEYWOOD & FLINT, Managers,

313 California Street, San Francisco.

For AGENCIES, apply as above. 10v20-q1am1

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Loesee and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 423 California Street.
9v20-qy16p

MAGAZINES.	P.An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streete,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number.

The Aerial Steam Navigation Company.

At a meeting of the stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cazneau, Henry F. Williams and Simon L. Jones were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars, said shares to be *unassessable*. The funds thus raised are to be devoted exclusively to the construction of the first aerial steam carriage, and to be deposited in the Bank of British Columbia, to be disbursed upon requisition of Mr George K. Glnyas, Engineer of Construction. The working, drawings, etc, can be seen at the office of Gen Thomas N. Cazneau, No. 321 California street, where subscriptions will be received. No invention for navigating the air has before received such positive indorsements from engineers of reputation, or so liberal encouragement from prominent capitalists' as Marriott's Avitor, which now seems sure of being thoroughly tested on large scale. 2v20-my

---

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

To Solicitors.

AGENTS WANTED.

One or two active and reliable Agente can obtain per- permanent and profitable employment by addressing or calling at this office.

Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, Sacramento. COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

---

W. T. GARRATT,

CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURER OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."
☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

---

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittinge, Belting, Hose, and
RAILWAY SUPPLIES.
— ALSO AGENTS FOR —
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY,
54 K Street, Sacramento.
7v20-ng

N. W. SPAULDING,

Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World,
Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
— AND —
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
— ALSO —
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology. and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v16-1y16p

---

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustratione, and for Fancy Labels for printing in various colore; Monograms, Seals, etc., etc. Prompt execution and reasonable pricee.

DEWEY & CO.,
No. 414 Clay street, F.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, March 12, 1870.

VOLUME XX.
Number 11.

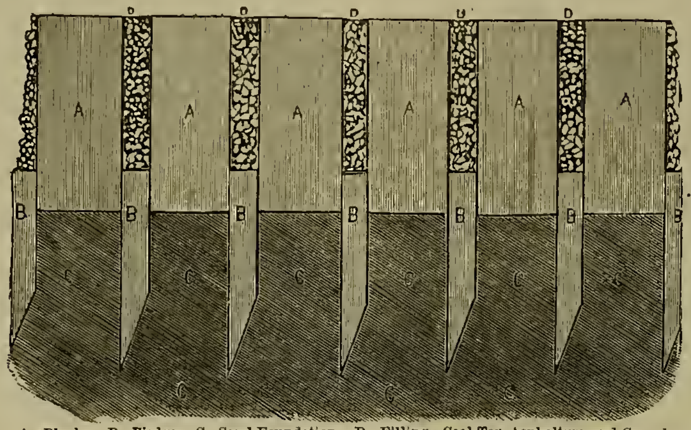
The Stow Foundation Pavement.

Those who have once used the wooden pavement are never willing to go back to the cobble stones. The great advantages of the former in the avoidance of the disagreeable noise and rattle of the passing teams, in the economy of wear and tear of teams, in the superior ease of traction, and the less injury to horses, are everywhere granted. The only objections made are with regard to the supposed expense and necessity of frequent repairs. But the Stow Foundation pavement, as laid in Front and Battery streets, four years ago, where it has been subjected unceasingly to the heaviest hauling in the city, yet remains at the present time as even and unbroken as it was in the beginning. And a most important item is, that during all this time it has not cost the city one dollar for repairs.

The arguments against wooden pavements are almost all *a priori*. There is a general ground taken against wood, that it is extremely subject to decay; yet instances of wooden edifices having outlasted stone structures are by no means unknown. Stone is harder than wood; therefore stone should be the less subject to wear; yet experience shows that the unyielding granite is much sooner ground and abraded into sand than the elastic wood, which yields to the pressure and permits the weight to pass over it without sensible injury to either. Fig. 3 (p. 169) shows the difference in wear between the Stow and the cobble pavement, the view being taken on Battery street, between Broadway and the water front, four years after the pavement was laid, which gives conclusive evidence on this point.

In this city, two wooden pavements have been tried—the Nicolson and the Stow. The Nicolson was first tried, and became quite celebrated for a time, but several defects were discovered; the wood was apt to decay, or to swell in wet weather, and either to press out the curbstones, or to rise in humps and hillocks. The first samples of the Stow pavement were laid in 1866, and its success was so signal, that the City Paving Company, which has the rights of both kinds, lay nothing now but the Stow.

The Stow Foundation pavement, which derives its title in part from the name of the inventor, Dr. H. M. Stow, of San Francisco, and in part from the distinguishing feature of its construction, is so constructed that the wood is kept continually moist, and thus is protected from decay, for it is not the being wet, but the alternation of wetting and drying, which favors the decomposition. In laying this pavement, first, a foundation of sand is made. This is saturated with water so that it shall set compactly, and also that it shall be, so to speak, a reservoir for moisture for the blocks above. This having been properly leveled and smoothed, the blocks, A, are laid (see fig. 1), and between these the wedges, B, are driven into the sand. The whole is then gone over with a smoothing iron, to render the surface even and the whole pavement more solid. Then good clean gravel is poured in over the wedges, and these last driven home, as shown in the figure. More gravel, sand and tar are put in the crevices, and pounded to compress them, and a layer of tar and sand is spread over the whole surface. This result, then, is, that there is a firm foundation of moist sand, rendered still more compact by the wedges; that the blocks are held firmly in place and kept moist; and that the top covering of sand and tar protects the blocks from the action of the atmosphere and insures their durability. Fig. 2 shows the details of the manner in which the work is performed.



A—Blocks. B—Wedge. C—Sand Foundation. D—Filling: Coal Tar, Asphaltum and Gravel.

FIG. 1—SECTIONAL VEIW OF STOW PAVEMENT.

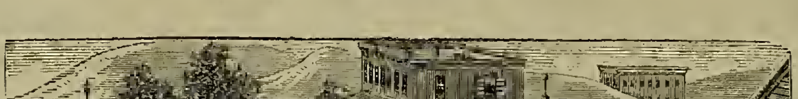


FIG. 2—MANNER OF LAYING THE STOW PAVEMENT.

Strong certificates from the Mayors, the whole Board of Supervisors, Superintendent of Streets, engineers and merchants, attest the excellence and durability of the pavement. It can be taken up in part, to lay gas or water pipes, etc., and relaid with great facility and without injury or break in the surface. The questions with regard to the unevenness and decay of wooden pavements in this city are shown by certificates to have arisen from other kinds, where wrong principles with regard to the preservation of wood have been used. The Stow can be laid at a low price; the saving in the wear of horse-shoes is about one-half of that occasioned by stone, and the saving in the life of horses, according to Dr. Ure, is in the proportion of 5 to 2.

As an evidence of the practical faith in this pavement, we may note the fact that Mr. Philip Cadnc, under whose direction it has been laid in this city, has purchased the right for the State of Illinois for the round sum of $25,000, U. S. gold coin, and is now making arrangements for starting soon for Chicago, with a view to its introduction into that city.

The City Paving Company of San Francisco was formed by the consolidation of the Nicolson and the Stow companies, and numbers among its officers some of the leading men of the city. The President is Mr. H. F. Williams, who is well known here. Its operations are conducted with energy and ability, as might be expected from its management. Mr. Philip Caduo is the Superintendent.

Our interior towns are thriving and increasing at a most healthy rate, and in their cases the pavement question will be soon a very important one. We call their attention, as well as that of this city, to the considerations of cleanliness, noiselessness, durability, economy and humanity involved in this subject.

◆

The New Waterhouse Gear.—Mr. Waterhouse showed us a model of his new movement this week, which differs from the old device in several important respects. We have not the space to speak of it as fully as we would like. It obviates several of the objectionable features of the older apparatus, and seems to us to be a very important step in the right direction. While not new in its separate parts, it is original in its combinations, which form its valuable features. It is claimed that, by actual and careful experiments, the friction has proved to be much less than in other devices, and it certainly seems to work remarkably well. Arrangements have been made for its extensive introduction, and it is now used in a hoist at the fast freight office of Wells, Fargo & Co. We bespeak for it favorable attention.

◆

Telegraphic Extension.—A telegram announces that the sub-marine cable from Bombay to Aden, at the mouth of the Red Sea, has been successfully laid by the Great Eastern, bringing the British colonies of Asia into close communication with the mother country.

Reports from London state that the company is fully organized for laying the cable from England or Wales to New York, and that the necessary capital has been promised. Contracts will be made immediately for manufacturing the cable.

◆

Sale of Crushed and Sampled Ores.—In our article under this heading, we omitted the name of Mr. Henry Hughes, No. 302 Battery street, among the list of commission merchants. Mr. Hughes buys, sells and ships ores on commission only, giving the miner an advance on the value of the ore as soon as determined by assay, and making a final return for the working result obtained, at the earliest possible moment.

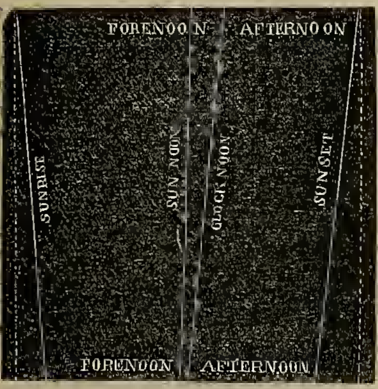
Length of Forenoon and Afternoon.

[Written for the Scientific Press.]

Editors Press:—From the "Notices to Correspondents," in the Scientific Press of January 29th, it appears that one of these, "Natoma," had made some inquiry about the lengthening of the afternoons in winter, while the forenoons were still shortening or about stationary. The Atlantic Almanac, which I have before me, and in which the time of the sun's rising and setting is undoubtedly given to the nearest minute, shows that, at Washington, D. C., for example, the afternoons reached their shortest limit (reckoning only to the nearest minute) on the 2d of December, 1869; the sun then setting at 4 h. 38 m. For about two weeks from that date they *appear* to be the same, though, of course, there is a variation of some *seconds;* on the 15th, a minute is added to their length, and at the end of the month we find they have already lengthened nine minutes, the sun then setting at 4 h. 47 m.

The forenoon, on the other hand, continues to shorten till the 29th of December, or almost a month later than the afternoons, and their length is not increased by a minute till the 11th of January, 1870, at which time the afternoons have lengthened twenty-one minutes. If, therefore, "Natoma's" inquiry was what I have supposed it to be, it was natural and proper enough, and, if I am allowed a brief space for the purpose, I will answer it. It is well known that our clock-time, now almost universally used in civil reckoning, is *mean time*, or average time, and that, owing to certain irregularities belonging to the apparent motion of the sun in the heavens, this mean or clock time often differs considerably from sun time, or *apparent time*, as it is commonly called. This difference, when greatest, amounts to about sixteen minutes, and hence it happens that apparent noon, indicated by the sun's being south or on the meridian, sometimes occurs sixteen minutes before the mean or clock noon, and sometimes sixteen minutes after it. Of course, in the former case, it will make the forenoon somewhat more than a half an hour longer than the afternoon, and in the latter case, the afternoon will be the longer by the same amount. Now it so happens, that just at the season when the days are approaching their shortest limit, say the first of December, the apparent or sun noon occurs about fifteen minutes before the mean or clock noon, and, consequently, the forenoon, as marked by clock time, is nearly half an hour longer than the afternoon, but the two noons are then rapidly coming nearer together, which, of course, has the effect of adding to the length of the afternoon, the forenoon being shortened by the same amount. And as the change in the length of the days near the time of the winter solstice (the 21st of December) is exceedingly slow, the change in the forenoon, produced by the cause just mentioned, overcomes it so far as relates to that division of the day, and the afternoon begins to lengthen before the solstice, or before the day as a whole has reached its shortest limit. The diagram illustrates this, the slope of sunrise and sunset lines showing the shortening of the day; but as the line of mean noon slopes more, relatively to apparent noon, the *clock afternoons* are lengthened in spite of the shortening of the day.

W. D.



Diamonds in California.

[Paper read by Mr. H. G. Hanks before the San Francisco Microscopical Society, March 4.]

An interesting article appeared in the American supplement of the *Chemical News*, for November, 1869, on the occurrence of diamonds in the native platinum of Oregon. The communication is of high authority, being from the pen of Prof. F. Wöhler, of Göttingen. After removing gold, platinum, chromic iron, silica, ruthenium, etc., by the usual methods, he examined the residue microscopically, and observed colorless, transparent grains, which he presumed to be diamonds. Subsequent combustion in oxygen and precipitation of solution of baryta by the carbonic acid evolved, convinced him that the microscopic crystals were true diamonds.

This fact is an extremely important one to the inhabitants of the Pacific coast. It is probably known to all the gentlemen present that diamonds have been found in several localities in California.

This new discovery confirms the opinion of experts, who have held that diamonds might be found in paying quantities in our State. I have brought some of this platinum sand for the inspection of the Society. I have myself long since observed these crystals under the microscope without suspecting their nature.

Platinum.

Platinum, with iridium and associated metals, is found in considerable quantities in Trinity county. At Hay Fork, a considerable stream in that county, all the gold found is more or less mixed with the platinum metals; so much so that dealers deduct two dollars per ounce from the price paid elsewhere for gold dust. At north fork of Trinity river, platinum is found in less quantities, but in larger pieces. One was once offered for sale in Marysville which weighed over two and a half ounces troy.

Although platinum is found in the river beds and on the banks of the streams, yet in the so-called "hill claims," about half a mile only from the river, no trace of that metal has been found. In lower Trinity, near its junction with the Klamath, platinum abounds in very fine particles; and it is with this finely-divided platinum that Prof. Wöhler discovered diamonds.

Where Found.

The metal is so abundant that the miners have the utmost difficulty in separating it from the gold. The particles are so extremely fine that they can hardly be distinguished from the black sand which accompanies the gold. Heretofore no effort has been made to place the platinum in the market, except the sending to San Francisco of 100 ounces or more, a year or two ago. It could probably be sent to Europe to advantage. In Salmon river it is also found. In fact, it is common in the beds of the streams in Sierra, Trinity, Klamath and Del Norte counties. The altitude of Trinity is about 3,500 feet. No search has ever been made for precious stones in this region that I am aware of, except by Mr. Norcross, who claims to have found rubies and opal.

Miners are generally not familiar with the appearance of diamonds in the rough state, and would most likely mistake them, if found, for chalcedony or some similar mineral. If in crystal form, it would be to them a crystal only—interesting for the moment, to be soon thrown aside as useless. I have heard of a case where a beautiful crystal, supposed to be a diamond, being found in some placer mine in California, was put to the following test: It was placed on an anvil and struck a heavy blow with a sledge hammer, it being assumed that the diamond being the hardest of known substances, could not be broken. It is, perhaps, unnecessary to say that the character of the crystal still remains unknown.

Diamonds Have Been Found

At Volcano, in Amador county, in a peculiar volcanic formation, described by Prof. Whitney as "ashes and pumice cemented and stratified by water." I visited the locality in 1865, and examined the place where one of the diamonds was found. I have brought this evening, for your inspection, specimens of the peculiar formations alluded to by Prof. Whitney. The crystals had the form of the Icositetrahedron, with faces curved in the manner peculiar to the diamond. These facts and the late discovery of Prof. Wöhler lead to the assumption that diamonds are likely to be found with the gold of California and Oregon, and may become an important object of search. They should be sought in all river mining claims in California, and especially in the localities where they have been known to have been found. Especially may they be looked for in cleaning up after extensive hydraulic washing.

As those looking for precious stones, and especially the diamond, which takes so many forms, should know something of the appearance of what they seek, I have compiled from various sources such information concerning the diamond as will be of interest and use to prospectors.

Rough Diamonds.

It requires great practice to judge of the diamond in its rough state. A rough diamond of the first water would be hardly recognized by the uneducated eye as a valuable gem. In describing the diamond, many of its characteristics are visible only in its cut state. Half the stone is sometimes cut away before a perfect gem can be produced. The diamond washers of Brazil rub the stones together and produce a peculiar grating sound, from which they assume to judge of their value. Diamonds were discovered in Brazil in 1728. They had always been thrown aside as useless in gold washing, until one who had seen this gem in the rough state, quietly collected a large quantity of them, from the sale of which in Portugal, he realized a fortune.

Characteristics of Diamonds.

The diamond is pure carbon crystallized. It is supposed to be of vegetable origin, and is believed by those who have studied it carefully to be produced by slow decomposition of vegetation or bituminous matters. It is generally colorless, but always transparent (except in case of the black diamond, which is opaque), sometimes yellow, green, blue or brown, colors always light, generally crystallizes in octahedra, but often found in rounded masses, occasionally in curious irregularly concretionary forms, like chalcedony or semi-opal. Frequently the faces of the crystals are curved, sometimes they take a nearly spherical form, having 48 faces.

Although the hardest of known substances, it is not difficult to break it by a blow. Fracture four fold, parallel to the faces of the octrahedron. The fragments are octahedral or tetrahedal. It strikes fire with steel, surface often rough or striated, sometimes covered with a scaly crust. The touch of the diamond is cold. When the cut gem is breathed upon, the luster is lost for a moment, when defects are seen.

Diamonds found in river beds are generally in rolled masses, while those found imbedded in the formations peculiar to their locality are covered with an earthy pale gray, yellow, or rose-red coating. The texture of the diamond is lamellar. Its hardness so exceeds that of other minerals that it scratches them all, and is scratched by none. Its specific gravity is 3.5 to 3.66. It is sometimes found black. Blue and black are its rarest colors. It exhibits a beautiful play of colors in the direct rays of the sun, or bright artificial light. To its luster has been given the name of "Diamond Luster," or "Adamantine Luster." Its refraction is simple, but it possesses this power in a higher degree than most other minerals of equal specific gravity. In consequence of its extreme hardness, it can only be cut by its own powder. The common saying, "Diamond cut diamond," is exceedingly expressive.

Electrical and Chemical Properties.

When the diamond is rubbed, it becomes positively electrical, even before being cut, in which it differs from all other gems. When after exposure to direct sunlight, it is suddenly placed in darkness, it shows phosphorescence, and the evolution of light continues for some time. It is not acted upon by any acid or alkali. But it may be consumed and completely oxydized to carbonic acid at a high heat in the atmosphere. It is so difficult to burn that the ordinary blow-pipe flame has no effect upon it. It may be heated to whiteness in a closed crucible without change, but it begins to burn in a muffle at the melting point of silver. At a high heat with nitrate of potash, it is rapidly decomposed.

Occurrence of Diamonds.

The diamond has been found massive in Brazil. In this form it cuts glass, scratches quartz and topaz. Has a specific gravity of 3.27 to 3.52, and is nearly pure carbon, being completely consumed in oxygen gas. It occurs in kidney-shaped, irregular masses, exterior generally black, sometimes resembling graphite, has a somewhat resinous luster, sometimes takes very singular forms. The outer coating black and resinous, interior crystalline, vitreous and lamellar, like the diamond. The largest piece ever found weighed 46 carats. It has been used in powder to cut other diamonds. The diamond cutters call them "cheese stones."

The diamond is generally, if not invariably, associated with a peculiar granular laminated quartz rock or sandstone, to which the name of Itacolumite has been given. According to Dana it owes its lamination to a little talc or mica. This rock is found in Brazil, in the Urals, and in North Carolina and Georgia. The diamond is also found in a conglomerate called "cascalho," which consists of rolled quartz pebbles in a ferruginous cement. Platinum, gold, rutile, zircon, etc., are almost always the associates of the diamond. Some platinum has been found in Georgia and North Carolina, where a few diamonds have been found.

Discovery of Its Composition.

Newton first suggested the probability of the diamond being combustible. He was led to this opinion by observing its power of refracting light so strongly. It was in 1675 that he advanced this theory. In 1694, the members of the Academy of Florence succeeded by means of powerful lenses in consuming diamonds. Lavoisier and others proved that the diamond was not evaporated, as supposed by the Academicians, but was actually burned. Lavoisier found by his experiment that if air was excluded, no decomposition took place. He burned diamonds in close vessels with powerful burning glasses, and found that carbonic acid was produced, and discovered and announced the striking similarity between their nature and that of charcoal.

Sir George McKenzie found that they could be consumed in a common muffle. In 1797, Mr. Tennant made a decisive experiment by placing a diamond, the weight of which was noted, into a tube of gold with nitrate of potash. The tube was subjected to great heat, which was maintained some time. The diamond was oxydized at the expense of the nitre, and was consumed. The carbonic acid evolved was conducted into lime water, and the precipitated carbonate of lime weighed. It was found to be equivalent to carbon equal to the weight of the diamond consumed, proving it to be pure carbon.

Current Through the Suez Canal.

The New York *Herald* says the most interesting fact about the canal is that a steady current moves through it from the Red Sea into the Mediterranean, varying from three knots an hour, near Suez, to a knot and a half at the Mediterranean outlet. This proves that the level of the Red Sea is higher than the level of the Mediterranean.

"It is simply because of the tremendous evaporation of the Mediterranean. The thirsty winds which sweep across it from the great desert of Africa keep it down below the general ocean level. The evaporation of the Red Sea per square mile, with a roasting desert on each side and nearer the equator, is immensely greater than that from the Mediterranean; but as the Red Sea is only a narrow gulf running up from the Indian Ocean, its aggregate loss is comparatively small. At its northern extremity at Suez, therefore, it is kept nearer the general level of the ocean than is the Mediterranean along the African coast.

Thus the canal has become a river or an arm of the Indian Ocean, flowing into the Mediterranean, and unless this continual current be checked, the flow will, in time, wash down the sandy banks of the canal into its channel and fill it up. If the report is correct a pair of locks will be necessary at the Suez inlet to regulate the flow from the Red Sea. Otherwise, a heavy wind up this sea of several days duration may create such a current in the canal as to choke it up with the washings from its banks in a single night."

* * *

Glass both Translucent and Reflecting.—At a late meeting of the Polytechnic Association of the American Institute, as reported for the *American Artisan*, Dr. Preterre exhibited a glass said to have been prepared as follows: The back of a glass plate like that used in ordinary mirrors is coated with a salt of platinum, and then placed in an oven and subjected to a heat sufficient to fuse it with the surface of the glass. This renders the surface slightly opaque. The result is that with an opaque substance behind it, the glass will serve as a reflector or looking glass, but without such backing will be translucent. It was stated that in Berlin, Prussia, this glass is used for windows, serving to admit light in the day-time, and shutters behind them as mirrors in the evening.

Mechanical Progress.

More About Hardening Steel.—Gordon Broome, F. G. S., writes the *Scientific American* in opposition to the doctrine, held by many, that for hardening steel, cold water is as good as any other liquid. In the first place he says, the water is decomposed when the metal at a red heat is plunged into it, and the oxygen thus freed probably takes away some of the carbon from the superficial layers. The various oils and fats frequently used for tempering would not be open to the same objection, as the chemical changes produced in them are not such as to decarburize the metal.

Again: When irons or steels are heated with animal matter containing nitrogen, a portion of that element is absorbed by the surface of the metal, and, entering into its composition, produces changes. Thus, in the operation known as "case-hardening," iron is heated with leather shavings, horns, hoofs, or other such animal refuse. By this means a hardened surface is obtained, and as the metal is found to contain nitrogen, the phenomenon is doubtless due to the introduction of that element. A similar introduction of nitrogen is effected when nitrogenous liquids, such as urine or leather-parings, are used in the tempering of steel.

Steel in Locomotive Construction.—The incoming president of the London Society of Engineers, at a meeting held February 7th, made locomotives and railway rolling stock the subject of his inaugural address. We quote briefly from the portion referring to the use of steel: "In locomotive construction the use of steel is steadily extending. Much experience has been gained with regard to this material, and the fact is now recognized that its features should be moderate but uniform tensile strength, with great toughness, the chief aim of manufacturers being to keep down its tensile strength to a maximum of thirty-five tons per square inch. As a material for tires, axles, horn blocks, and some other parts, steel has become an established success. Its most important use, however, is for wheel tires. Good steel tires have at least four times the durability of the best iron, and wear with extraordinary regularity on well balanced wheels. Steel has not made so much way as a material for locomotive boilers as might have been expected. The great advantage to accrue from its use is an addition of nearly fifty per cent. to the strength of boilers with the same thickness of metal as in iron."

Crucible Steel in Quantity.—The superior quality of crucible steel for some purposes has been a sufficient reason for its use, although its preparation is expensive, and for large castings otherwise objectionable, inasmuch as it is difficult to regulate the temperature. The *Iron Age* says: "A German founder recently announced a method used by him, by which the difficulties may be obviated, and steel in any quantity melted and cast as readily as iron. He dispenses with crucibles, and melts his steel in a hearth of burned fire clay, capable of containing 1,800 pounds. The furnace is so arranged that at the proper time a bellows can be brought into play so as to bring the heat to the melting point in a very short time. To protect the melted steel against the injurious influences of the gases of combustion, it is covered with a coating, one or two inches thick, or melted green bottle glass, or furnace slag, made on a charcoal iron furnace, great care being taken to exclude any sulphur. About seventy pounds of glass or slag will be needed for every 100 pounds of steel."

Taking Soundings Without a Line.—At a late meeting of the Polytechnic Club of the American Institute, an apparatus for this purpose was exhibited, which measures the depth sunk by means of a screw something like a steamer's propeller in shape, connected with which is clock-work and an index, for registering the number of turns made. A weight being attached, it is thrown overboard. Upon touching the bottom the weight disconnects itself, and the apparatus rises by means of its float to the surface. The screw revolves during the ascent in the opposite direction, and has no influence upon the index.

Bell Casting.

We find the following in the Birmingham correspondence of the *Engineer:* "There are two ways of making moulds for bells, the core in both cases being made of a brickwork or cast iron cone covered with moulding clay, 'swept' into the shape of the inside of the bell by a wooden 'sweep' or 'crook' fixed to a spindle set up in the middle of the core; the advantage of an iron core being that it can be lifted into a furnace to dry instead of being dried by lighting a fire beside it, as is necessary in the case of the brickwork core. The first, or old method, is to make a clay bell on the core by means of another crook, and when this is dried to make the outside mould or 'cope' on the top of it. This cope has hair and hay bands, or enlarged castings, iron bands, worked into it to make it hold together, and left off when dry. The clay bell, or 'thickness' is then knocked to pieces, the cope dropped down again over the core, and weighted with earth in the pit in which the bell is cast. The metal is then poured in at one hole at the top, another hole being left for the air to escape. In the other method no 'thickness' is made. The cope is an iron case lined with clay, and swept out by an internal sweep to the outward shape of the bell. The 'wires,' or ornamental rings round the bell, are made in both cases by the second 'sweep,' the letters, ornaments, etc., being stamped in the soft clay. These iron copes can be bolted down to a plate under the core, and consequently need not be sunk so deep in the ground, provided only that care is taken to get a high enough 'head' or metal above the bell to insure a good quality of metal in the upper part."

American vs. English Hardware.—The Birmingham Chamber of Commerce, at its semi-annual meeting, February 4th, discussed the depression in the English metal trades, and very sensibly decided that it was not due to the price of labor, nor to the American tariff, but to the superiority of American goods. We quote a paragraph from an article in the London *Times* of the 5th:

"High as are the wages of an English artisan, those of an American artisan are higher still, and yet the manufacturers of the United States can import iron and steel from this country at a heavy duty, work up the metal by highly-paid labor, and beat us out of the market after all with the manufactured article. How is that to be explained? The Americans succeed in supplanting us by novelty of construction and excellence of make. They do not attempt to undersell us in the mere matter of price. Our goods may still be the cheapest, but they are no longer the best, and in countries where an axe, for instance, is an indispensable implement, the best article is the cheapest, whatever it may cost. Settlers and emigrants soon find this out, and they have found it out to the prejudice of Birmingham trade."

A Sixty-Ton Crane.—*Engineering* for Feb. 11th, illustrates a crane recently built to lift thirty-ton guns into and out of vessels. It is said to be capable of lifting double that weight. We give part of the description: "It consists of a strong base-plate firmly screwed down by four five-inch bolts to a solid concrete foundation thirty feet deep. The base-plate is fitted with a wrought iron crane-post twelve-inch diameter, on which the whole structure revolves. The jib end of the crane frame is supplied with two strong cast iron rollers three feet diameter and twelve-inch face, resting on a cast iron roller path. The slewing motion is communicated by suitable gearing from the engine shaft to the rollers. The side frames are of cast iron, substantially proportioned. The jib consists of two rolled girders of H section, forty feet long, and firmly stayed together by distance pieces riveted in. The tension rods are four and one-fourth-inch diameter, and forty feet long, and are connected to the top of the crane framing and the end of the jib. Between the jib and the tension rods are distance pieces which support the rollers for carrying the chain."

Scientific Progress.

Tubercle Communicable through the Stomach.—It is known that tubercle, the grain-like formation which is the cause of pulmonary consumption, may be communicated by inoculation. Prof. Chauveau, of the Lyons Veterinary School, has recently made experiments which prove that the mere introduction into the stomach of the tuberculous matter is sufficient to communicate the disease. We find the following in an exchange: "M. Chauveau purchased four heifers, and tuberculized three of them, by causing them to swallow an ounce of tuberculous matter, taken from the body of an old phthisical cow. At the end of twenty days, the first had lost flesh to a surprising extent; its pulse was quick and full, and it coughed incessantly. At the end of fifty-two days it was killed, and it presented perfectly marked tuberculous changes, especially about the mesentery. The intestines were also tuberculous. The lung was full of crude tubercle. The other two heifers exhibited not less perfectly marked alterations, while the fourth, to which none of the tuberculous matter had been administered, remained in good health and had gained in flesh. If bovine phthisis be identical with tuberculosis in the human species, there is, in the use of the flesh of tuberculated animals, danger. Experiments on dogs, and guinea pigs, in which tuberculous matter in the form of caseous pus, was injected into the veins, were followed by general miliary tuberculosis."

Liebig vs. Pasteur.—These two scientists have supported opposite theories of fermentation. Pasteur says: "The chemical process of fermentation is essentially a phenomenon of life; it begins and ends with it; an alcoholic fermentation without simultaneous organization, growth, and development, that is, without continuous life, is impossible." Liebig says the vital operation and the chemical action are two phenomena which are to be considered separately. Pasteur some years since declared that Liebig's explanation of the action of yeast on sugar was unscientific. Liebig has remained silent in spite of several attacks; but has recently sent forth a paper which is said to be an exhaustive and convincing reply to all of them. An exchange thus comments upon it: "It is so popular, not to say fashionable, to refer every vital action back to the formation of cells, and the building up of protoplasm, and to intimately connect life and matter together so as to gradually support the doctrine of spontaneous generation, that the publication of Liebig's great paper must be looked upon as a timely protest against the tendencies of the age."

Dissociation.—Prof. Seely, in a paper recently read before the New York Lyceum of Natural History, urged that the word "dissociation," which has been proposed for the resolution of chemical compounds into their constituents by the agency of heat alone, is not needed. He says it is not so exact nor so expressive, as the phrase "decomposition by heat." It is not proved that the amount of heat required for decomposition is the same with that evolved in the union of the same elements. "Near the point of decomposition by heat alone,"—he says,—"the affinity is at its minimum, and causes which at lower temperatures might be totally inoperative, may promptly determine the decomposition. It may, therefore, be impossible to arrive at the normal temperature of decomposition by heat alone. In practice it has been found that the temperature of decomposition is often below that of union."

Picrate of Potash and Ozone.—A recent violent explosion of picrate of potash in Paris has been attributed to the unusual quantity of ozone contained in the air. While the matter was undergoing judicial examination, Regnault discovered that when picrate of potash was projected into a flask containing ozone there was an immediate explosion. This may lead to the discovery of new tests for ozone and to new uses of picric acid.—*Journal of Applied Chemistry.*

Organic Matter in the Atmosphere.

Prof. Tyndall, in the first of the course of lectures now commenced for the season at the Royal Institution, showed that the dust with which the air we breathe is filled, and which causes the track of a beam of solar light to be distinctly visible through a dark room, is chiefly made up of organic matter. This was discovered in the course of his researches on the decomposition of vapors by light. "It was,"—he says,—"essential that the space containing the vapors should embrace no visible thing; that no substance capable of scattering the light in the slightest sensible degree should, at the outset of an experiment, be found in the tube traversed by the luminous beam. For a long time I was troubled by the appearance there of floating dust, which, though invisible in diffuse daylight, was revealed by a powerfully condensed beam. Two tubes were placed in succession in the path of the dust; the one containing fragments of glass wetted with concentrated sulphuric acid; the other fragments of marble wetted with a strong solution of caustic potash. To my astonishment it passed through both. I tried to intercept this floating matter in various ways; and on the 5th of October, 1868, prior to sending the air through the drying apparatus, I carefully permitted it to pass over the tip of a spirit-lamp flame. The floating matter no longer appeared, having been burnt up by the flame. It was, therefore, organic matter. When the air was sent too rapidly through the flame a fine blue cloud was found in the experimental tube. This was the smoke of the organic particles. I was by no means prepared for this result; for I had thought with the rest of the world that the dust of our air was, in great part, inorganic and non-combustible. * * * From spectrum analysis, however, we know that soda floats in the air; these organic dust particles are, I believe, the rafts that support it, and when they are removed it sinks and vanishes."

Phenols as Azymotics.—Dr. Squibb, one of the most thorough pharmaceutical chemists in this country, has experimented largely on the application which may be made of the phenols,—as carbolic acid, creosote, etc.,—in the destruction of the microscopic organisms which cause what are called "zymotic" diseases, or diseases produced by fermentation; such as cholera, malaria, and others. This peculiar power, that of destroying the lower forms of life, he expresses by the word "azymotic." His experiments were not confined to the treatment of disease, nor to the disinfection of hospitals, sewers, and outhouses; he demonstrated the value of the phenols in the preservation of meat. A piece of meat was soaked for one hour in a one per cent. solution of phenol, and hung up in a room where there was a fire almost daily. In two weeks it was dried to one-fourth its original size, but looked and smelt perfectly fresh; and after being soaked twenty-four hours in water, was stewed and eaten.

Determination of Blood Stains.—The crystals of hæmatine can be detected by the microscope; but to determine whether a stain is of human or brute blood requires something more. Neumann has subjected the matter to extended experiment, and published the results. Nineteen colored plates of as many different kinds of blood as seen under the microscope, show the difference, it is said, distinctly. He recommends moistening the stain with distilled water, and then heating to 60° Fah. on the glass side of the microscope. The picture which it then presents may be compared with his plates.

The Oldest Spot on the Globe.—Prof. Kerr, State Geologist of North Carolina, in speaking of Black Mountain in that State says: "These rocks belong to the most ancient of the azoic series. The intensity of the metamorphism, the characteristic rocks and their contained minerals, together with the total absence of anything like organisms in even the least altered and latest of the series, render this conclusion inevitable. And not only do they belong to the lowest geological horizon, but the entire absence of all representatives of the later formations makes it further necessary to conclude that we have here an extensive tract of the oldest land on the globe."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Fine Ore.—*Miner*, Feb. 26th: An assay of choice ore from the Monitor C. Tunnel No. 3, gave a return of $1,463 per ton in gold and silver.

Schenectady.—The lower tunnel is getting into softer rock and good headway is now made. Good ore is still coming out of the upper works, and the quantity accumulated will justify the erection of reduction works.

Leviathan.—The lower tunnel is in 240 feet. The rock begins to show signs of copper.

Items.—Companies are being formed in London and in the Western States to work Alpine mines. Silver Glance charter has passed both Houses of the Wisconsin Legislature....An assay just made of ore from the workings of the London Co. went over $1,300.

AMADOR COUNTY.

Oneida.—*Ledger*, March 5th: Work at this mine progresses finely. The mill is running continually, and the body of rock they are now on is extensive.

Gold Dust.—Mr. Reichling purchased, for the week ending Tuesday, over 130 ounces of dust.

Underground Quartz Mills. — The Sheriff, in search of sulphurets stolen from the Sutter Creek chlorination works, on Saturday, found several places, underground, fitted up for the purpose of working quartz specimens. In one of them was a four-stamp hand mill, in complete running order. The owner said that for some time he had purchased, and worked on the share, large quantities of rich rock.

BUTTE COUNTY.

Mining.—Oroville *Record*, 5th: The rains have been sufficient to keep the principal mines in operation for a month or six weeks, and all are busy.

CALAVERAS COUNTY.

Unexampled Yield.—*Chronicle*, 5th: One and a half tons of quartz, from the mines of Lewis Bros. & Co., near the south fork of the Mokelumne, two miles from Railroad Flat, yielded 29 ounces of gold—averaging $348 per ton. The rock was worked by the Thoss process, at West Point.

Palomo.—The excess of water has succumbed to the pumps, and the mill is again in operation.

Brackett & Co., who have been drifting for the lead, have again struck it, and are taking out rich gravel.

Machinery.—Lewis & Co. have purchased the engine and battery of the Golden Gate Co., and will remove them to Railroad Flat.

Mosquito Gulch.—Cor. of same: It is reported that operations of the mill at Scull Flat have been suspended, owing to the fact that it failed to pay. The new mill of Mr. Thoss is said to be the greatest gold-saver yet.

KERN COUNTY:

Walker's Basin.—Cor. of Visalia *Delta*, March 2d: A company has been incorporated at Sacramento to work the Joe. Miller mine. There is a 20-stamp mill on the ground. A pump of great power is on its way. Havilah is dull. There are six quartz mills in and near the town, and none of them running.

NEVADA COUNTY.

Rocky Bar Co.—Grass Valley *Union*, Feb. 29: The stock has all been sold, and Thomas Findley, William Watt, David Watt, Robert Watt and James Kerr have become the purchasers. This company also owns all the quartz leads on New York Hill, with the exception of the N. Y. Hill Mining Co's ledge.

Eureka. — This Co. cleaned up over $14,000 for the six days' run up to Saturday.

Perrins' Mill.—A drift has been run in 260 feet under the ledge, beyond the old workings. The ledge is very flat. Two stopes are to be opened up, and in three weeks regular crushings will begin.

Eureka.—March 2d: Three bars, worth $27,300, were made yesterday. This came from twelve days' run of the mill, and does not include any proceeds of sulphurets, nor have the batteries been cleaned up within the time.

Randolph Hill.—Same, 5th: Webster & Co. have drifted fifteen feet, taking out gravel. Only one pan of dirt had been tried in this drift, and that gave $2.50. They will commence systematic work in a few days. The same of the 6th says the result of the first working, 16 hours' work for one hand, was 6¼ ozs.

Rich Rock.—The Empire Co., Ophir Hill, were taking out very rich rock yesterday. The gold showed plainly all through the quartz.

Greenhorn.—Same, of 6th: In February the mill commenced crushing, and has run twenty-two days, reducing 320 tons of ore. The yield is gold in bars valued at $6,000, with sulphurets saved and specimens valued at from $1,500 to $2,000. During the last ten days, one of Knox's pans has been run on the tailings, which have been concentrated and saved. From these 130 ounces of amalgam were extracted. The company have four times as much tailings saved as they have worked, and are putting in two more pans. The rock can be mined and milled at a trifle less than $6 per ton, which gives a clear profit of $20.

New Mill.—*Gazette*, March 2d: Dower, Cady and others have been putting up a quartz mill on the Banbury ledge, Eureka district. They purchased the machinery at the Gold Tunnel. The mill has six stamps, and will be run by a hurdy-gurdy wheel.

Banner.—*Transcript*, March 1st: The Star Spangled Banner has struck, at the 620-foot level, the best rock ever found in the mine. They have a ledge in the drift and one below, the lode being four feet. George Saulsbury & Co. have discovered a very rich ledge beyond the Banner. Specimens are rich in free gold and sulphurets, and the ledge is of large size.

Spring Hill.—This Co. will soon remove the machinery purchased from the Rocky Bar Co. and will commence their shaft this week.

Lost Hill.—Same, of 5th: The hydraulic claims, formerly owned by Arbagast, and recently purchased by Nevins & Co., will be started up to-day. These claims have been newly fitted up, 2,000 feet of 11-inch pipe laid, and other arrangements made for lively work.

Saulsbury Mine.—*Gazette*, 8th: We were shown yesterday, by G. W. Saulsbury, some very rich specimens from a ledge of which he is the sole owner, two miles and a half east of the Banner mine. The specimens are very rich in free gold and sulphurets, and Mr. Saulsbury informs us that the ledge shows gold in every place where it has been opened.

The *Transcript* says this is one of the richest discoveries ever made in the district. The rock is similar to that of the Eureka, and the best is estimated to pay $1,000 per ton.

PLACER COUNTY.

Horse-Shoe Bar.—Cor. of Auburn *Herald*, March 5th: Prior to the last rains, the owners of hydraulic and sluice claims were in despair, while those along the Middle Fork were loud in praise of the weather. In the last named the mines averaged well the last year, Matt Haslett's, Ned Early's and Tom McCall's being the principals. We anticipate an early fluming season.

PLUMAS COUNTY.

Struck it Rich.—Quincy *National*, Feb. 26th: We are informed that a Mr. White has discovered some rich placer diggings near Indian Creek, three miles above Soda Bar. The claim promises to be extensive, and the gravel prospects as high as $4 to the pan.

SAN DIEGO COUNTY.

The New Strike.—A Los Angeles telegram of March 6th says: Intense excitement prevails at San Diego, created by the discovery of rich gold mines in that vicinity. The exhibition of twelve hundred pounds of rock brought in from the George Washington ledge, seems to have started the rush. The quartz is free from sulphurets and is literally full of free gold. The half ton shipped to San Francisco, will yield from one to two thousand dollars. The George Washington is located forty-four thousand feet, and runs nearly east and west, two to four feet wide. In the talcose slate at the surface there was found rich, decomposed rock, from which some dust was extracted, which went up on to-day's steamer. Two other locations were made, which take up in all two miles. On this lead a district has been formed, called the Julian. The distance by the road from San Diego valley is sixty miles.

Latest.—The above news is fully confirmed by the arrival in the city, on the 8th, per steamer from San Diego, of about half a ton of extremely rich gold-bearing quartz. Letters accompanying it say that one lode extends 15 miles, and that all around it the dirt will pay from half a dollar to two dollars and a half to the pan. Several ledges have been discovered. The town of San Diego is almost emptied by the stampede to the new mines.

SANTA CLARA COUNTY.

A Gilroy telegram of March 5th says: Some specimens of coarse gold were brought from Hollister to-day. Exaggerated reports are being circulated in regard to the richness of the Hollister placers. The first find was made by three Canadians, who, some time since, purchased an acre of land and erected a building; while digging the cellar gold was found. Considerable excitement prevails, and claims are being staked out in all parts of the town.

SHASTA COUNTY.

Janesville.—*Courier*, 5th: The miners are doing "bully." Bennett & Phillips cleared $8 per day during their last run. The Murray claim is in fine running order, and is supposed to pay as high as an ounce per day. A few days ago a miner made a prospecting run of 3½ days under Garden & Reagan's ditch, and cleaned up seven ounces.

TRINITY COUNTY.

Rich Mines.—*Journal*, Feb. 26th: There was considerable excitement in town during the week owing to reports of large prospects on Dutton's creek. A number from Weaverville visited the mines and brought back glowing accounts. The first location was made on the 7th, by Dixon, Connay & Mooney. The thing was kept quiet, but finally got out. As yet but little is known about it.

TUOLUMNE COUNTY.

Kincaid Flat.—Sonora *Democrat*, March 5th: James Maclean advertises for bids to run one hundred feet of tunnel in the claim. The tunnel is now six or seven hundred feet in, and will probably require to be run as much farther.

YUBA COUNTY.

Camptonville.—Cor. of Marysville *Appeal*, March 4th: The claim of B. P. Hugg & Co., west of town, is doing a fair business. The Co. have 500 feet of pipe, and are piping day and night. A Welsh Co. are digging a tunnel, and will commence washing soon. Young's Hill, Oak Valley, Willow Creek, Brandy City and Pike City are flourishing, and are all supplied with mills.

Arizona.

From Walnut Grove.—Prescott *Miner*, Feb. 19th: Tiernan and Gennng were in the best of spirits about their quartz operation. They had not made a clean-up, but had prospected sufficiently to satisfy themselves that success lay at the bottom of their arastras.

Big Bug.—The mill was running at latest dates. Another clean-up will be made next week.

Wickenburg.—A private letter says that the Vulture mill was doing well, yet times were hard and money scarce.

News from the Prospectors.—We are in receipt of two letters from the party. Feb. 1st, they were preparing to start from Mohave City. They go to the Little Colorado. They numbered 32. Philip Richardson leads them.

Colorado.

Brown.—Georgetown *Miner*, Feb. 24th: The condition of the two levels westward on the lode, 220 feet from discovery, developed a body of ore superior to any heretofore opened in the vein.

Terrible.—The main shaft has reached a depth of 250 feet, and shows a vein of first class ore. Ore in large quantities has also made its appearance in the workings west, which contains silver at the rate of 664 ounces per ton. A large amount of ore is on hand.

Mountain Lamb.—This is a recent discovery on Sherman mountain. The ore is extremely rich in silver, averaging when dressed more than $1,000 per ton, in coin.

Par Lode.—The workings on the east half are yielding fair quantities of very rich ore. Several tons on hand at the shaft contain from $700 to $900 per ton

Cliff.—Work has been re-commenced on this vein. Contracts are let for running an adit 200 feet in length, the greater part on the line of the vein.

Marshall.—This tunnel has penetrated 550 feet, and is being rapidly pushed to the Compass and Square lode. Several veins have been crossed, but have not yet been opened by drifts. Ores from one near the head of the tunnel, assay 266.4 ozs. per ton.

Items.—*Register*: Dr. Buchanan, from Georgetown, reports that Frank O'Brien has struck a fine vein of ore in the east end of the Brown lode; that work is going forward on the Nickolls lode; that Frank Dibbin has completed a $20,000 sale, and has the money.

The *Register* also says: Mr. Teats has concluded the sale of the Coaley and Gilpin county mines, receiving barely cash enough to pay off the amount secured by trust deed, between twenty and thirty thousand dollars. He still retains an interest in the mine; the purchaser agrees to work it.

Rich Ore.—Boulder *News*, Feb. 22d: The lode of Pickle, Mishler & Co., in Grand Island District, is three feet wide at the depth of 65 feet. The lowest of five assays is $100 per cord, coin value. Selected ore has assayed $16,000 per cord. They are shipping to New Jersey for treatment, at a cost of $31 per ton, freight.

Idaho.

Winter Diggings.—*Statesman*, Feb. 17th: A large number of white men and Chinamen have been working on the bars of Boise river all winter with rockers. For six miles below the mouth of Moors's creek men are located, some of them making good wages.

Poorman.—*Avalanche*, Feb. 26th: The main shaft is down 500 feet, substantially timbered the entire depth. It is the finest shaft in Idaho. As the vein inclines to the east, a cross cut, now in 35 feet from the bottom of the shaft, will soon intersect the ledge. Four parties of tributers are taking out ore. They deliver it on the dump free of expense to the company, who haul and work it for one-half the proceeds, providing it pays $30 and upwards per ton. If less than $30-ore is taken out the company receive $15 for the expense of working.

Red Mountain.—Pete Nick is pushing night and day. The way of ingress and egress is by the Silver Legion shaft, which is 100 feet deep. The vein is from fifteen inches to two feet in width, and presents a good showing of free gold with considerable silver. Work has been commenced on the second extension. A shaft is down 12 feet. The vein is only four to six inches in width, but is exceedingly rich in gold.

Peck & Porter.—The Davis Bros. are working the Peck & Porter and Corduroy by contract. The main shaft on the former is 175 feet deep, from the bottom of which a drift has been run north 100 feet.

Reported Placers.—Another gold excitement is raging here now. It is reported that rich and extensive placer diggings have been discovered just above Clark's Ferry, on Snake river, something over 100 miles from this place.

Loon Creek Mines.—Oro Grande correspondent of Helena *Gazette:* Discovery Bar has had several drifts started into it, one of which has been run in 100 feet by Baxter, Banane, Leyden & Co., and they have struck prospects which they think will pay from seven to eight dollars per day to the hand, and have not yet reached the channel. Another drift, two and a half miles below, is being run by Windsor & Co. I have been assured that they have a paying prospect; yet they have only run their drift 60 feet. Other drifts have been started, but for various reasons work has been discontinued. Mayfield & Co. have prospected across the upper end of the bar and found nothing. In the main creek good prospects have been struck on several claims which were worked last fall with indifferent success.

Montana.

Emigrant Gulch.—Helena *Gazette*, Feb. 24: Letters have been received saying that very rich diggings have been struck in Emigrant gulch. It is reported that a party who have been there two years, have finally struck bed-rock at a depth of 40 feet, and obtained as high as $73 to the pan of dirt. A guard is constantly kept over the shaft, and the matter is kept "dark," until interested parties secure their ground,

Philipsburg.—The St. Louis mill is running like a quarter horse broke loose. The parties getting ore crushed appear to be in good spirits. They are getting their mines opened in good shape, and are taking out splendid ore....The Cole Saunders Co. are at work on the Speckled Trout lode. They are down 50 feet....The P. M. J. mine looks very encouraging....There is every indication that there will be lively times here in the mountains this coming season....The mill here averages fifteen tons per day, at $20 per ton.

Big Nugget.—On February 15th, a piece of gold, weighing six and a half ounces and half a pennyweight, was taken out of Nelson gulch, within a few miles of Helena, by A. L. Jarl & Co.

Cedar Creek.—Sweeney district claims are laid over until March 15th. In the main Oregon gulch, on No. 106, the drain ditch is thirteen feet deep, and the gravel getting hard. In Barrett district, the result of the first sluicing on No. 3, below discovery on hill claim, was $12.50 to 15 wheelbarrow loads of dirt. The next day the result from one half set of timbers was $35.

Radersburg.—Virginia *Times*, Feb. 25: The quartz claims have proven remarkably rich near the surface. Keating and Blaker have worked 100 tons from the Keating lode in Nave's mill, which yielded $35 per ton, free gold.

Highland—The Only Chance Co. have erected a whim in their tunnel, and are sinking their main shaft. They will be prepared for a good season's work. The Nevins tunnel is being put in with energy. Billy Flowers has been running the tunnel along the Only Chance lode and has struck a splendid body of ore in claim No. 1. The quartz specimen which you remember, has been pounded up, and yielded $575; it weighed 42 pounds, and was from the Meyers & Harvey lode on Black Tail gulch. Among the new discoveries, is one by Johnny Cannovan, opposite discovery. It is estimated at $50 per ton.

Summit.—Cor. of same: The workmen in the How Tunnel have been going through a ledge of very hard limestone, supposed to be the footwall of the lead. The indications are very flattering.

The Covely Brothers have been taking out rock from the Keystone during the winter. They crushed 100 tons in the fall which ran $39 per ton, and 80 tons previous running $46 per ton, and this exclusive of hundreds of dollars' worth of rich specimens, picked and pounded out from time to time. They own 300 feet near discovery, half of which has never had a pick struck into it; quartz from nine inches to two feet wide, shaft 100 feet in depth, perpendicular.

Elk Creek.—*New North-West*, Feb. 18: The ground is principally owned by six bed-rock flume companies. It pays from $12 to $20 per day to the hand. The diggings are from 10 to 18 feet deep, all of which is gravel. About 150 inches of water is now running, and the ordinary spring head is from 300 to 400 inches. They will employ 60 or 70 miners, and maintain a population of 150 men.

Nevada.

HUMBOLDT.

Galena.—Cor. of *Register*, March 5th: Work has been suspended on the Shiloh, owing to deception having been practiced upon the lease-holder, by parties from below with whom the company had made arrangements for disposing of the ore. There will be 27 mills here by June 1st. The Butte mine was tapped yesterday at a depth of 100 feet by the tunnel, which is in 130 feet. The vein is two feet and assays well. The company have increased their force. Ten tons of ore was shipped to-day, for San Francisco. Ten tons more to be shipped in a few days to Oreana for reduction.

The Holt Mill.—We learn that the Holt and Webb mill has started up, and is crushing ore from the Register mine, Gold Run.

REESE RIVER.

From the Southwest.—*Reveille*, Feb. 28th: The operations of the Silver Peak and Red Mountain Co. are carried on successfully. At Red Mountain the 30-stamp mill reduce daily some 40 tons of gold-bearing quartz. The principal vein is 40 feet wide. The extensive property of the company at Silver Peak is lying idle, and there is no present prospect that it will be developed. In Palmetto the Catherwood mill was idle. There was considerable activity in Columbus district, 30 miles northwest, where Eaton's mill was producing silver bullion.

Bullion Shipment.—On Saturday the Manhattan Co. shipped overland nine bars bullion, valued at $14,055.87; to-day, six bars, valued at $9,017.56; total, $23,073.43. During February, Wells, Fargo & Co. shipped from their office in this city, bullion valued at $101,426.01. It was nearly all produced by the Manhattan mill.

Large Assay.—We were shown on Saturday a certificate of assay of ore from a mine in Lander hill, the figures of which were $4,682.

WASHOE.

Hale & Norcross.—*Enterprise*, March 6th: This company is extracting 170 tons of ore per day. The Railroad Co. have finished a side-track under the ore houses. On the lowest level, a cross-cut has been run on the boundary line of the Savage, disclosing a body of ore 14 feet wide, which will mill $35 per ton.

Ophir.—The water is again up—over 100 feet yesterday. Night before last it was found that the wooden cogs in the pump drive-wheel were worn out, and nothing could be done but to shut down for repairs. It was ten hours before all had been made right again.

Sacramento & Meredith.—Grading for the new mill was commenced Thursday. The site is just below the Geiger grade, in the immediate vicinity of the mine. The ore can be dumped through a chute down to the mill, or a tunnel can be driven directly from the mill. An abundance of excellent surface ore is being accumulated on the dump.

Belcher.—Good progress made drifting at the 730-foot level; the quartz looks encouraging. The 152-foot level gives a regular yield of fair ore. The present yield of the mine is 40 or 50 tons per day, which is sent to the Rhode Island mill for reduction.

WHITE PINE.

Weekly Mining Review.—*Empire*, Mar. 6th: Since last report the weather has been so unfavorable that little has been accomplished. Operations have been commenced on a number of mines that have lain idle since last summer. Base metal mines are yielding a large amount of ore. Hundreds of tons are on the dumps, which the storms have prevented being removed. For this reason several furnaces have been obliged to suspend operations.

Bullion.—The bullion shipped from the office of Wells, Fargo & Co. last week was valued at $16,525 37, and the shipments for February amounted to $111,901 59. Base bullion shipped amounted to 61,038 pounds, or 30½ tons. The value of this, at $210 per ton, is $6,405. There are now 120 tons ready for shipment, valued at $25,200. Van Wyck & Co. shipped 5,600 pounds of copper skimmings, assaying $275 per ton.

Mills.—Big Treasure, Swansea, Nevada, Stanford, White Pine, Henderson, Stone, Bartlett and Vreeland, are running. The Little Treasure mill is to be changed to a 20-stamper. The Manhattan and Dayton mills are idle for want of ore, owing to the bad roads.

Items.—Eberhardt continues to yield the usual amount of high grade ore. The prospect was never better....South Aurora yields a large amount of ore daily, and the dumps are piled with it....The rich ore struck lately in the Hidden Treasure is extensive. The tunnel is in 200 ft....Blackfoot has a 12-foot ledge, and is going to be one of the "big things."....Solace shaft down 110 feet....Nellie Mack shows fine ore....A large amount of ore is being taken out on Pogonip Flat.....Several mines on Pocotillo Flat have good prospects....Alsop smelting works run off 7 tons of bullion per day....Van Wyck's closed for repairs....Wiland started up yesterday.....White Pine Smelting Co. have kept one furnace running, and turned out 4 to 5 tons bullion per day....Silver Springs works ready to start....Shermantown works shut down for repairs.

Items.—We find the following in the *News*, March 1st. (The weekly review prepared by that journal reaches us too late for use): The bullion shipment of Aurora South for February foots up $35,826 12. This was the product of 24 days' run of the Stanford mill....Yesterday the final shot in the Blackfoot turned out a mass of rich chloride....3d: Twice as many men are working on Treasure Hill as were working four weeks ago....4th: Rainbow No. 2, on Lower Chloride Flat, is to be started up again. The company owning it will also start work on several of the mines. Among these the Minna shows ore which assays $254 to the ton. The Ingleside, another of these, assays from $90 to $250.

Ely District.—*News:* There are between 500 and 600 men in the District, the majority of whom are broke. The mines are good, but their wealth will not be available until custom mills are put up. The people are discussing the propriety of starting a newspaper, but no money has been "put up." The camp will not amount to much before June or July. *Empire:*—Mr. Keefe says the Pioche, Burk, Poorman and several other mines are yielding ore of high grade. Some ore was brought in which will yield about one-half silver. Mr. K. designs starting back to Ely in three or four days with a load of drills, picks and all kinds of mining implements. Another man says there is but one good mine yet developed, and that the nearest water is seven miles off.

Other Outside Districts.—Reports from Kern are particularly favorable.... In Reveille there are fifty miners, and each has a few tons of rich rock piled up.... Sierra is a new district adjoining Eureka on the south ...In Cooper, the Mollie Ruter is turning out very rich ore....Eureka men say that that district will be the place for poor men as soon as it gets mills.

Oregon.

Baker County Mines.—La Grande *Sentinel*, Feb. 19th: Mr. Atkeson reports the prospects for a good mining season to be very flattering. The snow on the mountains is considerably deeper there than here.

The mines at Pocahontas are reported to be opening up very rich.

San Francisco Mining Stock Market.

MINING SHARE MARKET.

The increase in the transactions at the Board during the past week has been quite large, exceeding the sales for a like period for some time past. Prices have been well maintained by a majority of stocks offered, while the decline toward the close, occurring in a few leading stocks, among the rest, has not been very heavy, if we take into consideration the amount of shares upon the market. The present buoyancy is thought to be the prelude to an active spring trade, in a general range of stocks, including outside as well as Board operations.

The sales in the San Francisco Stock and Exchange Board during the month of February, for the past five years, amounted to the following sums:

In 1866	$3,752,292
In 1867	3,303,520
In 1868	9,716,596
In 1869	6,818,644
In 1870	3,139,433

The Sutro Tunnel Company elected the following Trustees: Samuel Merritt (President), Michael Reese (Vice President), Abraham Seligman, Henry Barroilhet, John B. Felton, Joseph Aron, and William H. Sharp. J. Seligman & Co., bankers, were elected Treasurer. W. K. Van Alen was appointed Secretary and General Agent.

From the *News* (White Pine) of the 7th, we clip the following: "The intermittent storm of the past week greatly retarded mining matters, more by discouraging those about to commence work on hitherto idle mines, than by any actual check to active operators. We noticed on Friday morning a number of mines about being opened on foreign capital; this class of owners are more particular about the season than those who have resided here for a year or two, and the return of storms after the fine weather of February, is likely to deter them from commencing as early as they intended. However, a large number of mines, both base and free, have been started up—more especially of the latter class, most of which are located on Treasure Hill. In consequence of this there is a noticeable improvement in the local business of Treasure City. English capital is seeking investment here, and a representative engineer is expected daily, to make examination of several leading mines on Treasure Hill, with a view to purchasing them in bulk. Five leading mines are included in the negotiations, and the price agreed upon goes well up into the millions. Our bullion shipments for the past week show a considerable falling off from the week previous, aggregating but $19,130 55—of which $10,559 32 went West, and $8,571 33 East. The shipments for February foot up $111,901 33—of which, $60,843 57 went East, and $42,057,82 West. Excess over shipment for January, $6,455; and over a corresponding period of last year, $70,243 96."

Chollar-Potosi—was in the market to a considerable extent at an advance. During the week ending March 4th, 1,120 tons of ore were extracted, against 1,220 tons the previous week. In the Grass Valley Tunnel they are cutting bodies of ore as the tunnel goes eastward, and it is expected that in about thirty days from this time they will commence extracting this ore. From present appearances, the yield of ore for March will exceed that of February, both in quantity and quality. In the drift running west from the new shaft water has been reached, which interfered with their progress; however, 36 feet were added to its length during the week under review, making a total length of 280 feet. The bullion returns for the month of February foot up $91,545; in January to $115,253. A dividend of $1 per share is payable since the 10th inst.

Savage—was not quite so active as during the previous week, and sold at a recession. The bullion receipts for February only amounted to $7,035; in January they aggregated $25,560, and in December $31,570.

Gould & Curry—was in request at a sharp advance, rising from $140 to $200 per share. They extracted 358 tons of ore during the week closing the 7th inst.; previous week 253½ tons. No correct estimate can be given of the amount of ore existing in the present developments of the upper mine. In the northwest drift from the seventh station the rock is hard and progress slow, and up to this writing nothing resembling precious metals has been met with either in the north or northwest drifts. Amount of bullion received during the month of February, $33,389; in January, $18,239.

Hale & Norcross—was moderately dealt in, a decline taking place just prior to the disbursement of the dividend. For the week ending March 5th, 298 tons of ore were taken from the upper mine, and 729¼ from the lower—sixth level—making a total of 1,027¼ tons, against 1,002¼ tons the previous week. On hand at the dumps, 3,372½ tons. They have reached the west wall in the west cross-cut on the sixth level, which extends to the northern boundary, and have ascertained that the ore is 14 feet wide, the average assays showing $49 21 to the ton. Some twenty feet south of this cross-cut another cross-cut was carried from the east vein to the west vein, a distance of 76 feet, and this drift has now penetrated the west vein six feet. This ore is low grade, assaying from $19 to $23, but they expect to find good ore in this vein, as in the cross-cut carried through it on the level above, the western portion exhibited good ore, about 10 feet wide. The shaft has been sunk 34 feet below the sixth level, and they have encountered streaks of ore similar to that found east of the east clay on the level above, north of this point. A dividend of $5 per share is payable since the 10th inst. The bullion product for February aggregates $145,171; in January it amounted to $188,334.

Overman—improved during the past week, and changed hands to a considerable extent. During the week ending March 6th, 834 tons of ore were extracted, as follows: Upper tunnel, 422; lower, 320; 500-level, 92 tons. The bullion returns for February foot up $57,613; in January $49,229 were received.——Sierra Nevada shows a bullion product of $12,800 during the month of February. ——Crown Point reports a bullion product of $14,719 for February.——Kentuck declined rapidly. From upwards of 400 tons assorted ore they obtained about $19 to the ton.——Imperial rescinded assessment of $10 and levied another of same amount on the 7th inst.——Ophir levied an assessment of $3 per share on the 7th.

Amador (Cal.)—is increasing in value and is firmly held, small sales having been effected at $350 per share. Deducting the dividend of $10 per share, payable since the 8th inst., they will carry over a surplus of more than $40,000, which is a larger amount than they carried over the previous month.——Eureka, (Cal.) another of the valuable California gold mines, disbursed its usual monthly dividend of $7 50 on the 7th inst.—*Commercial Herald*.]

MINING STOCK QUOTATIONS, MARCH 10, 1870.

	Bid.	Asked.		Bid.	Asked.
WASHOE.					
Alpha Con.	$ 13	$ 14	Gold Hill Q. M. Co.	$ 20	$ —
American	—	—	Hale & Norcross	127	129
Belcher	18½	19	Imperial	25	26
Bullion	5	—	Justice	1	—
Crown Point	18	18¼	Julia	—	—
Cole, Va.	—	—	Kentuck	65	67
Confidence	10	15	Lady Bryan	4	4½
Chollar-Potosi	24½	26	Occidental	11½	12
Con. Virginia	—	10	Ophir	12½	—
Daney	—	—	Overman	87	88
Empire	20	25	Savage	38¼	39
Exchequer	7	—	Sierra Nevada	8	8½
Flowery	—	—	Seg. Belcher	5½	6
Gould & Curry	200	—	Yellow Jacket	40	41
WHITE PINE.	Bid.	Asked		Bid.	Asked.
Aurora Con.	$ 2¼	$ 3	Noonday	1¼	—
Bredt	—	—	Orig. Hidden Tr.	15	15½
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	—	Silver Wave	2¼	2½
Mammoth	1	1½	Virginia	—	2
CALIFORNIA.					
Amador	$350	$ —	Eureka	$240	$ —
IDAHO.					
Golden Char't.	$ 15	$ 17	Silver Cord	$ 1¼	$ 1½
Rising Star	—	—			

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alameda Coal, Feb. 16, 30c	March 30	April 22*
Bullion, Feb. 8, $4	Pay immediately	
California, W. P., Jan. 18, 50c	Feb. 21	March 14
Cons. Virginia, Storey co., Jan. 7, $2	Feb. 12	March 5
Columbia, Cope, Jan. 29, 50c	March 5	March 25
Cordillera, Mexico, Feb. 17, 25c	March 25	April 11*
Cherokee Flat, B. G., Feb. 17, $5	March 22	April 8
Daney, Lyon co., Feb. 9, $1	March 14	April 2
Dutch Flat G. & C., Feb. 11, 75c	March 18	April 8
Empire M. & M., Storey co., Jan. 7, $10.	Feb. 11	March 7
Glenwood, El Dorado, Feb. 4, 25c	March 7	March 28*
Gould & Curry, Jan. 12, $15	Feb. 16	March 9
Hartwell, W. P., Feb. 19, 5c	March 25	April 21*
Hope Gravel, Nev. co., Jan. 28, $1	March 1	March 21
Imperial, Storey co., March 7, $10	April 11	May 3
Kincaid Flat, March 4, $2.60	April 5	April 23*
Mammoth, W. P., Jan. 4, 20c	Feb. 14	March 7
Meadow Valley, Jan. 29, 50c	March 3	March 22
Nevada L. & M., Feb. 8, 2½c	March 15	April 5*
Noonday, W. P., Jan. 20, 30c	March 2	March 23
N. S. F. Homestead, Feb. 9, $7.50,	March 23	April 14*
Ophir, Storey co., Jan. 8, $2	Feb. 11	March 2
Pocahontas, El Dorado, March 2, $4	April 2	April 28*
Pinto, W. P., Jan. 3, 15c	Jan. 15	March 7*
San Jacinto Tin, March 4, 5c	April 4	May 4
Segregated Belcher, S. co., March 2, $2.	April 6	April 29
Savage, Storey co., Feb. 7, $10	March 14	April 2
Silver Wave, W. P., Feb. 19, 20c	March 21	April 11
U. S. Grant, Nev. co., Jan. 19, 50c	Feb. 21	March 26*
West Point, W. P., Feb. 22, 50c	March 26	April 18
Yosemite, March 7, $1	April 7	April 2[illegible]*

MEETINGS TO BE HELD.

Cons. Chloride Flat	Annual Meeting March 23
Continental	Meeting March 15
Daney	Annual Meeting March 7
Golden Chariot	Annual Meeting March 7
Hale & Norcross	Annual Meeting March 9
Hall & Van Dyke	Annual Meeting March 9
Mohawk & Montreal	Annual Meeting March 9
Silver Vault, White Pine	Meeting March 9
San Marcial, Sonora	Annual Meeting March 15
Virginia	Annual Meeting March 12

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable Feb. 7, 1870
Chollar-Potosi, div., $1	Payable March 10, 1870
Eureka, div., $7.50	Payable Feb. 7, 1870
Hale & Norcross, div., $5	Payable March 10, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

San Francisco Prices of Copper Ores.

San Francisco, March 9, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	26 65	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

Cleveland is digging a tunnel a mile and a quarter long under Lake Erie for fresh water. The hole is so small that only one man can work at a time at the end, and the clay is so very compact that it requires to be dug out by the fist-full with a pick. A crib will be sunk in the spring and work carried on from the lake end, the calculations of the engineers being so delicate as to enable the two parts to meet.

To supply food for the inhabitants of the British Islands, there were imported during the year 1868, 54,484,758 centals, (or 120,055,390 bushels) of cereals. This was divided as follows: 38,032,444 centals of wheat, 7,475,284 of corn, 8,112,553 of oats, 11,472,225 of maize, and 391,801 of rye and buckwheat.

The Nile has risen this year to a greater height than on any occasion within living memory. The damage is about 200,000,000 francs.

A London Omnibus Company carried 20,000,000 passengers during the first six months of 1869.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Interesting Wheat Experiments in Butte County.

The monthly agricultural report for January gives the result of some interesting experiments in wheat raising, communicated by General Bidwell, of Chico, Butte county. It appears that something over a year ago, General Bidwell received several packages of wheat from the Commissioner of Agriculture, which he sowed, with the following results:

Tappahannock, 46½ pounds, sowed at the rate of 44 pounds to the acre, yielded at the rate of 21.96 bushels to the acre.

Rough Chaff, 7½ pounds, sowed at the rate of 30 pounds to the acre, yielded at the rate of 24.38.

Talavera, six pounds, sowed at the rate of 61 pounds to the acre, yielded at the rate of 34.18.

The land was a sandy loam, exhausted by ten or twelve years of constant cultivation, with but a little manure spread over it and plowed in. The sowing was late, and that and the harvesting was unavoidably committed to inexperienced hands, and hence the wheat was unevenly and thinly sown. General B's usual practice is, when planting early, to sow at the rate of about sixty pounds to the acre, and seventy-five pounds when sowed late. He writes that the later the sowing the more seed is required to the acre. His experience in that locality is, that if wheat is sown in November, 50 pounds is about the proper quantity; in December, 60; in January, 70; in February, 80, and in March, 90.

In the above experiments, if the sowing had been done early and in a proper manner, and had the season been favorable instead of the reverse, as it was, he thinks the result would have been about as follows: Tappahannock, 45 bushels; Rough Chaff, 60, and Talavera, 50 bushels to the acre.

With regard to the profitableness of these varieties of wheat, General B. thinks that they all will be a success here, but that the Tappahannock, notwithstanding its less yield, as above, is, everything considered, the best of the three. He will give it still further tests.

Some kinds of wheat, says General Bidwell, although very good, for a few years, soon lose their excellence; the grains becoming smaller and increasing in their proportion of starch. He instances the Sonora wheat, which, when first cultivated here, was plump, beautiful, and very productive; but it soon deteriorated, was discarded, and is now almost unknown. He does not allude to the Sonora Club wheat, which stands and yields well, but produces inferior flour. [Would the Sonora wheat have deteriorated, as described, if proper care had been taken in raising and selecting the seed?—Eds. Press.]

A New and Superior Melon.

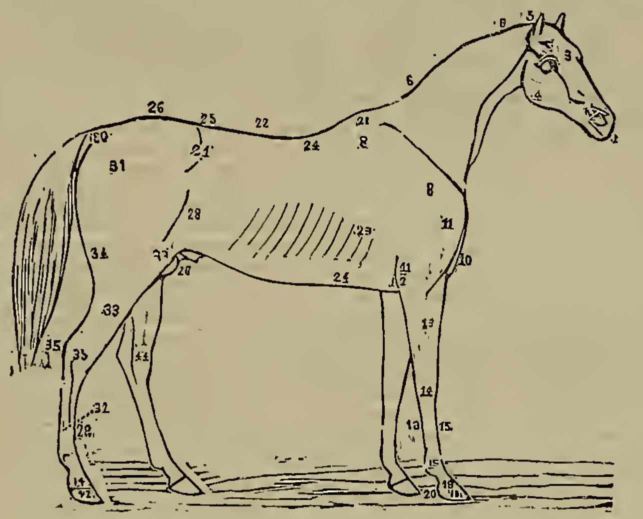
General Bidwell also received two varieties of oats, which he will report upon after the next harvest. He also received quite a number of different varieties of melon seeds, only one of which he reports favorably upon—the Cassaba melon. Of it he says: "This is a green-fleshed muskmelon, not remarkable for size. The rind, though not exactly green, does not change to yellow. The flesh is thick, soft, and juicy, but to properly describe it, is more than I will attempt. Melons may be more saccharine, but this is delicious, and, as nearly as possible, perhaps completely, defines the word *delicious!* and I would not exchange it for any melon ever before seen, or for all other melons combined."

A California Farmer who can raise five dozen eggs gets as much for them as a Minnesota farmer does for five bushels of wheat.

Points of a Good Horse.

We have been requested to give some information with regard to the "points" of a good horse. In order the more fully and clearly to comply with this request, we have had the annexed outline drawing engraved, illustrative of the form and external anatomy of this noble and useful animal. We do not claim that the engraving itself, represents our *beau ideal* of what a horse should be; it has been prepared merely to illustrate and aid the reader to more fully understand the annexed description:

In the construction of animal bodies, Nature appears to have two grand objects in view—utility and beauty. Every individual animal and each individual part thereof is evidently formed and fashioned after a most exquisite design, most clearly unveiling purpose and creative thought; and of all animals, man alone excepted, the horse is considered the highest and most perfect type. From the earliest days of written record to the present time, he has been celebrated in song and story, and has ever been the firmest and most useful friend of man.



ANATOMY OF THE HORSE.

1. Muzzle.
2. Nostril.
3. Forehead.
4. Jaw.
5. Poll.
6. Crest.
8. 8. Shoulder-blade.
10. Breast.
11. 11. True arm.
12. Elbow.
13. Forearm (arm).
14. Knee.
15. Cannon Bone.
16. Back Sinew.
17. Fetlock.
18. Coronet.
19. Hoof or Foot.
20. Heel.
21. Withers.
22. Back.
23. Ribs (forming together the barrel or chest.)
24. 24. Girth.
25. The Loins.
26. The Croup.
27. The Hip.
28. The Flank.
29. The Sheath.
30. The root of the dock or tail.
31. The Hip Joint.
33. 33. The Lower Thigh or Gaskin.
34. The Quarters.
35. The Hock.
36. The Point of the Hock.
37. The Curb Place.
39. The Back Sinew.
40. Pastern or Fetlock Joint.
41. Coronet.
42. Frot or Hoof.
43. Heel.
44. Spavin-place.

In Purchasing a Horse,

Regard should always be had to the use for which he is wanted; but for whatever use, care must be taken that he has a good body, and is full in the flanks. The front part of the chest—commonly called the breast—No. 10 in the engraving—should also be carefully examined; for a narrow-breasted horse can never have a good body, nor breathe freely. Beware, also, of a horse whose ribs are too much straightened in their compass; for horses which have straight ribs must of necessity have compressed chests, and when they are at the same time great feeders, they will often so much distend their bowels as to press them inconveniently on and below the lower terminals of the ribs. Such horses cannot travel or draw freely, and bear with difficulty the saddle-girth. When the breast is wide, the fore legs will be set well apart. Such a build is indicative of strength and endurance, especially if it is accompanied with circular and projecting ribs, giving a full chest or barrel, from No. 28 to 23. We see this point strikingly illustrated in the powerful draught-horse and in the bull-dog.

An approximately narrowing of the breast and approach of the fore legs, is a build which favors speed; but when this conformation is carried so far as to present a decidedly narrow breast and chest, and a flat-sided animal, both speed and strength are absent. The fore legs of such horses often interfere, occasioning sores or swellings on the fetlocks. These are points to be more carefully considered, perhaps, than any others, in selecting a horse.

The Head.

Next to the points already mentioned, we should look to the head—the seat of the brain. Without a wide forehead, we cannot expect a full development of the *faculties*—courage, tractability, good temper, sagacity, etc.—which are next in importance to the *physique* in an animal. A broad forehead (3) indicates a good brain. The Arab says: "The horse must have a broad, flat forehead, and the courage of a bull." It should also be wide between the ears, only moderately large, and expanding at the muzzle (1); the latter secures large nostrils—an essential requisite. The mouth of a young horse is round; it becomes narrow and elongated with age. A horse with a Roman nose is generally low-bred and ill-tempered—but not always. The true Arabian horse, however, never has a Roman nose.

A high-bred horse usually has a small head; such a head is characteristic of speed—it is also an evidence of fruitfulness. A large head is generally considered unsightly; but a moderately large head is essential to strength and endurance. A horse intended especially for work should not have a small head. By proper breeding, a large head may be made to show shapeliness, tractability and courage. A capacious throat and elegantly-curved neck are important essentials. The ears should be of medium size, not too small or over large. They should not be lopped. The eyes also form a very important feature in the horse. Few can have failed to have observed the difference of expression of the eyes of a racer or blooded horse, and those of a low-bred working horse. The bold, decided brow, and beautiful gazelle eyes of the former, present a most striking contrast with the inexpressive orbits of the latter.

There is much in the general expression of the head—the countenance—if we may be allowed the phrase. To persons not conversant with horses, the endless variety in this respect is almost incredible. Observe carefully a company of cavalry in line, and you will find almost as much evidence of individuality in the *animals* as in their riders. Irrespective of colors, no two will be found alike, and yet every peculiarity of expression will be indicative of some important property or propensity. An ill-visaged, bad-tempered *looking* horse should be avoided.

It is a common custom with English horse fanciers, when they wish to select, with great care, an animal from a large stud, to have each one brought, in succession, to a small open window of the stable, where the head, only, of the animal can be seen, in order that the expression or countenance may be first studied, apart from all other qualities or considerations. Afterwards the animals are leisurely surveyed for their physical characteristics. *Horse Physiognomy* is made a special study by English veterinarians and by many "horse fanciers." It seems to give a peculiar discriminative knowledge and insight into the propensities and qualities of the horse, which can be obtained in no other manner, except by long, personal acquaintance with the animal.

[Concluded next week.]

Castor Oil Bean Experiments.

A gentleman near Centerville, in Alameda county, who has had considerable experience in the cultivation of different varieties of the castor oil bean, informs us that he prefers the more hardy varieties, which withstand our winters and become perennial. By thus becoming trees, they require but the first planting, and very little after-cultivation. The beans contain a larger percentage of oil than those which have to be planted every year, as the chief effort of the plant is directed to maturing its fruit, very little increased plant fiber being formed or required.

The variety cultivated by our informant differs materially from those usually cultivated, in not scattering its seeds by the beans "popping" out, as described in our last issue. The pods, instead of bursting when ripe, hold the beans fast for a long period, giving ample time for gathering at leisure—a very great advantage. The beans are easily separated from the hulls by a machine similar to a corn sheller, which "rubs" them out.

The gentleman alluded to, first planted his beans two by four feet apart, and gathered 1,000 pounds of beans per acre the first year. The second year he thinned out one-half the plants, and obtained 1,200 pounds. The third year he left the plants four by eight feet, and gathered 1,500 pounds per acre. The fourth year he removed another portion, leaving the trees eight by eight feet each way, and harvested 2,000 pounds to the acre! The advantage of open culture is thus plainly demonstrated. Much of the increased yield is no doubt attributable to the fact of the plant becoming a perennial. Of course, the plants, in taking on the tree form, would require more room than when planted every year and their growth necessarily confined to a small bush form.

These trees are now five and six years old—fine spreading trees, ten feet high and six to eight inches diameter at the butt.

As a speculation, our informant does not regard his experiment as a very largely paying one, but thinks that with a steady and reliable market it would be profitable among other farming industries.

One or two of these trees present an elegant ornament in a front yard. Their beautiful leaves and fine pyramids of clustering cones of beans are superb. It is frequently stated that castor oil bean plants are disagreeable to gophers, and will drive them away from the grounds. Our informant refutes the notion, and says that the gophers have actually destroyed many of his plants by eating them entirely off below the surface of the ground.

Yaupon and Mate.—Prof. H. E. Colton considers the North Carolina tea plant, or Yaupon, and the Paraguayan tea plant, or maté, to be nearly allied; in fact, to be the same thing, altered by climate and soil. He calls the first *Ilex Cassena*, while the other is *Ilex Paraguayensis*. He believes that Yaupon tea might be made a source of great revenue to the South, and suggests that if the people will not take hold of the matter, Northern capital will occupy the field. He contributes an article to the *Scientific American* upon the subject.

A man may fleece his sheep, but not his land. The farmer's game is "give and take."

More About Alameda.

Along the gently sloping valley that borders on San Francisco bay, whose waters mirror upon their glassy surface the ever-changing sky—now gray with morning light, now dazzling with mid-day or mellowed in harmony with evening tints and shades—where gaped here and there with deep ravines that send across the valley to the sea the tree-fringed streams, the green-clad hills roll up their massive folds against the sky, the traveler passes over a fertile plain of generous soil, past gardens, farms and orchards, villages and schools,—a picture framed by Nature, and glowing with the arts of man. The rugged hillsides sown with grain; the waters furrowed with many a craft; the puffing engine's track; the highways worn with hoofs and wheels, present a busy scene of constant life and varied enterprise. Although this is in area the smallest part of Alameda county, it is, nevertheless, the most important, and one of the garden spots of the Pacific coast. At Hayward's, a village of hotels, I turned aside into the hills through

Castro Valley,

A little gem, nestled in the hills, whose gradual slope, inviting the farmers' plow, is dotted with happy, prosperous homes. The principal enterprise here is grain-growing, although gardening, dairying, and other industrial branches would pay better, if added to the former. I noticed one thing here which will yet become famous,

The Gum Tree Ranch,

A piece of ground consisting of fifty acres, and planted with the *Eucalyptus*, in rows eight feet apart each way, making a forest grove of about 39,000 trees, set this season, with one year old seedlings of the *blue gum* and *iron bark*, the most vigorous and tall-growing varieties of the *Eucalyptus*. This tree is a native of Australia, and is as yet little known in California. The largest of these trees which I have seen are but five years old, erect, straight, vigorous growth, and fifty feet high. They are elegant ornamental trees, somewhat resembling the laurel, but more majestic and massive in figure and foliage. They are hardy throughout the lower hill and valley country of California, and are the most popular street, shade, and ornamental trees now attracting attention here. They appear to be very healthy trees, and their peculiar flavor and fragrance being disagreeable to animals, keeps them from being eaten or gnawed. Hence the gum trees can safely be set where other sorts of trees would be destroyed. The past winter has been severely frosty, but not one of the tender little trees in this grove has been killed. Although some persons regard this as a rash experiment, I have every reason to believe that it will prove a magnificent success. I have not seen the proprietor, but I fully appreciate the enterprise. The wood of the eucalyptus tree is hard, and the timber is said to be very useful for many purposes.

No country in the world is better adapted to the vigorous and rapid growth of many sorts of hard-wood timber trees than California, and nothing is apparently more needed than the planting of forests of such trees here.

The timber of several varieties of nut trees is also very superior; and what would be better than a large forest of all sorts of nut trees? The fruit alone would warrant the undertaking.

A Suggestion.

If extortionists and land monopolists could be induced to see some advantage in an enterprise of this kind, it would be a good thing. They might dispose of a part of their land to improve the balance, and at the same time mitigate the miseries of a selfish life by leaving some prospect of good behind. Now that the trans-Atlantic railroad is finished, we have ready means of procuring all sorts of trees direct from the East. Seedlings or young trees are the best to bring here. The freight would be but a trifle on each thousand, while their value, when fairly growing in our soil, would be immense. Many of the sheltered ravines among the hills, now of but little value, would be better than gold mines, if planted to forests.

Squirrels.

While riding through the hills I was surprised to see so many of these little rodents. In many places the sidehills are honeycombed with their burrows, and grass and growing things are kept close shaved. The valleys are troubled enough with them, but the hills are fairly overrun with these plump, lazy, saucy little animals, that eat up the fat of the land. The farmers appear to be puzzled to know the best means of getting rid of these pests. The boys all advocate shooting them, while the sober father mixes strychnine or phosphorus with wheat, by the bucketful, and leaves it scattered where the squirrels may eat it; but the little rogues appear to dislike or suspect it, though many eat and die.

Another Suggestion.

If some scientific man would invent an economical and practical combination of radical poison with some ingredient that would be enticing to, and readily eaten by the pests, he would confer a lasting benefit to the farmers, and make a fortune besides.

The Amador and Livermore Valleys

Lay before me when I reached a little town, suggestively named Dublin. The spreading fields and circling hills shone *emerald* in the glowing day. Here grain raising is farming, and farming is grain growing—on every sort of soil, adobe, sandy, gravelly, level and hillside. When farmers learn the capabilities and adaptations of their soils—learn that a diversified culture is more profitable, is safer, and more economical of time and money than one eternal thing, and that alone—it will be better for them. I do not object to wheat culture, but it would improve the condition of our farmers if they would look after their own interests, by producing what they consume and having more stock, or better stock, to consume something of what they produce.

Grape Growing.

I am very favorably impressed with the idea that grapes would succeed finely along the hills sloping to the sun. A very perceptible difference is felt in the air here and that along the bay. The hills which intervene break the cool, damp sea breezes, and so obstruct their moisture that the air here feels dryer, and the sun gives his full radiance to the warm soil. Many of the showers that drench the slopes along the bay, are dispersed among the hills and leave the grain to suffer here. Indeed, before the late rains, the farmers began to despair of raising anything. Now their hopes are fresh as the fields of growing grain—they have been made happy by the rain.

There appears to be a certain medium between the moist winds and the drying heat of summer, most suitable to the perfect growth and maturity of the grape. Los Angeles is not far from the sea, but gets the full heat of the sun as well as the occasional moisture of sea air. Her grapes are unsurpassed.

In all places where the hot dry breath of constant drouth prevails through the summer, grapes are small but very sweet. Where a surplus of moisture and cool winds prevail, they are sour, and mildew. I am constrained to think that the sunny slopes of the hills, through the eastern part of Alameda county, are admirably adapted to the culture of the grape.

But very few grapes have been planted in this section, and those were not placed in very favorable locations. Mr. R. Livermore and Mr. J. Neal have planted a few vines, and feel encouraged with the trial.

Much of the rich hill land has never been cultivated at all, and was not considered fit to cultivate until lately. Now, settlers are covering everything. Unsettled titles hang like vultures' wings over the homes of many. The settlers fear to make permanent improvements, while outside claimants are pretending to own the whole country. This state of things has too long retarded the progress of many of the best spots in the State; has caused heartburnings and deadly enmity, squalor and ruin, where happy homes and enterprise, and schools and prosperity, and good will should rule and bless and elevate society. And what is, if possible, still worse, parties that might and should quickly and justly settle such disputes, like vultures, feed upon the gore of agonizing hopes and bleeding purses, while right is disregarded. S. H. H.

What I Know of Farming.—No. 8.

Growing Timber—Tree-planting.

We condense as follows from Mr. Greeley's eighth article under the above head: Mr. G. thinks that one-fourth of small farms should be devoted to fruit trees; and one third of those exceeding 100 acres. This is more particularly for a rough rocky country like New England; but the proportion of timber should not be greatly decreased even in prairie States.

The reason for poor farming and meagre crops is everywhere assigned to "too much land"—that is, too much for their capital, stock and general ability to till effectively. It would cost but little to increase the extent of forest, while the profits therefrom would be much greater than for a continuation of poor tillage. Two-thirds of our farmers would improve their circumstances and incomes by concentrating their efforts, means and fertilizers upon one-half or two-thirds of the area now cultivated.

Mr. Greeley devotes several paragraphs in urging this practice and in calling attention to the existing state of things in the neighborhood of his own farm and other localities near New York.

Were the rocky crests and rugged acclivities of the country which have been denuded of their timber once more covered with a forest growth, and kept so for a generation, our floods would be less injurious, our springs unfailing, and our streams more constant and equable. Our blasts would also be less bitter, and our winds less destructive to fruit, etc.

Mr. G. believes in *cutting* as well as *growing* trees. He would, therefore, cull out the worthless trees for fire-wood, and for every tree taken away two better ones should be set out.

We have pretty well outgrown the folly of letting every apple tree bear such fruit as it will. At the present time every farmer realizes that he *can't afford* to grow little, gnarly, villainously sour or detestably bitter-sweet apples, when, by duly setting a graft at a cost of two dimes, he makes that identical tree yield Greenings or Pippins as bounteously. The cumulative experience of fifty or sixty generations of apple-growers has ripened this conclusion. Why do they not infer readily and generally that growing indifferent timber where the best and most valued would grow as rapidly, is a stupid, costly blunder? It seems to me that whoever has attained the conviction that apple trees should be grafted ought to know that it is wasteful to grow red oak, beech, white maple, and alder, where white oak, hickory, locust, and white pine, might be grown with equal facility, in equal luxuriance, provided the right seeds were planted, and a little pains taken to keep down, for a year or two, the shoots spontaneously sent up by the wrong ones.

North of the Potomac and east of the Ohio, and in limited districts elsewhere, rocky sterile woodlands, costing $2 to $50 per acre according to location, etc., are to-day the cheapest property to be bought in the United States. The parent who would invest a few thousands for the benefit of children or grandchildren still young, may buy woodlands which will be worth twenty times their present cost within the next twenty years.

But better than this would it be to buy up rocky, craggy, naked hill-sides, and eminences which have been pastured to death, shut out the cattle, scratch over with plow, or pick, plant thickly with chesnut, walnut, hickory, white oak, locust, etc.

Plant thickly, and of divers kinds, so as to cover the ground promptly and choke out weeds and shrubs, with full purpose to thin and prune as circumstances shall dictate.

Many farmers are adverse to planting timber, because (they think) nothing can be realized therefrom for the next twenty or thirty years, which is as long as they expect to live. But this is a grave miscalculation. Let us suppose a lot of ten or twenty acres rudely scratched over as I have suggested, and thickly seeded with hickory nuts and white oak acorns only: within five years, it will yield abundantly of hoop-poles, though the better, more promising half be left to mature, as they should be; two years later, another and larger crop of hoop-poles may be cut, still sparing the best; and thenceforth a valuable crop of timber may be taken from that land; for, if cut at the proper season, at least two thrifty sprouts will start from every stump; and so that wood will yield a clear income each year while its best trees are steadily growing and maturing. I do not advise restriction to those two kinds of timber; but I must insist that a young plantation of forest-trees may and should yield a clear income in every year after its fourth.

But this paper grows too long, and I must postpone to the next my more especial suggestions to young farmers with regard to tree-planting.

Singular Surgical Operation on an Ox.—At a late meeting of the St. Louis Farmers' Club a gentleman related the following occurrence which came under his observation, in 1852, in the town of Alabama, Genessee county, N. Y.: "An ox broke into a field of corn during the night in the month of September, and ate immoderately of green corn. It was believed he would die from the effects; its suffering was such as to cause groans most piteous. The owner, Mr. Lyman Prindle, resorted to the use of the knife, with a view to present relief than permanent cure. The incision was made from about four inches of the back-bone and back of the last rib, but in a line with it, and long enough to admit the hand into the pouch or stomach. The animal never flinched, but, on the contrary, ceased to groan. Mr. P. took out fully two-thirds of a bushel of the corn, consisting of young ears mostly. The heat was very great. The ox was left easy, but with no expectation of recovery, in which we were all mistaken; for in less than one week it was so far recovered as to frolic among the other stock to such extent that Mr. Prindle concluded he could work as well as play, and he yoked him and finished his fall plowing, finding him to endure the heat and labor as well as ever. The orifice, I should say, remained open for some months, allowing free ingress and egress of air, which was observable at some distance. Whether it would have been better to have closed up the incision by stitches is uncertain. I doubt not it would have been done at first had it been considered possible for the animal to live."

Don't Feed Dirt to Your Cattle.—Some farmers are in the habit of feeding potatoes, turnips, and other roots to cattle, with a large amount of earth clinging to them. When eaten raw, the cattle will contrive to avoid eating the dirt as much as possible; but in cooking unwashed roots, the earthy matter is generally so mixed up with the food as to preclude the possibility of any separation by the animal in the process of mastication. This is a bad practice. Dirt is not only non-nutritious, but highly injurious when taken into the stomach of animals in any considerable quantity. This is especially the case with swine.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, March 10, 1870.

Flour, Extra, ⅌ bbl	$5 00	@	$5 50
Do. Superfine	4 50	@	4 75
Corn Meal, ⅌ 100 ℔s	2 00	@	2 25
Wheat, ⅌ 100 ℔s	1 30	@	1 65
Oats, ⅌ 100 ℔s	1 15	@	1 50
Barley, ⅌ 100 ℔s	1 15	@	1 25
Beans, ⅌ 100 ℔s	2 50	@	3 50
Potatoes, ⅌ 100 ℔s	1 25	@	1 75
Hay, ⅌ ton	11 00	@	17 00
Live Oak Wood, ⅌ cord	9 00	@	14 00
Beef, extra, dressed, ⅌ ℔	7	@	12½
Sheep, on foot	2 50	@	3
Hogs, on foot, ⅌ ℔	5	@	9
Hogs, dressed, ⅌ ℔	8	@	8½
GROCERIES, ETC.			
Sugar, crushed, ⅌ ℔	13½	@	14
Do. Hawaiian	8	@	11
Coffee, Costa Rica, ⅌ ℔	18½	@	19
Do. Rio	—	@	18
Tea, Japan, ⅌ ℔	75	@	90
Do. Green	60	@	1 25
Hawaiian Rice, ⅌ ℔	8	@	9
China Rice, ⅌ ℔	5½	@	6
Coal Oil, ⅌ gallon	40	@	45½
Candles, ⅌ ℔	16	@	20
Overland Butter	20	@	30
Ranch Butter, ⅌ ℔	25	@	30
Isthmus Butter, ⅌ ℔	25	@	30
Cheese, California, ⅌ ℔	18	@	22
Eggs, ⅌ dozen	30	@	35
Lard, ⅌ ℔	12½	@	15
Ham and Bacon, ⅌ ℔	13½	@	15
Shoulders, ⅌ ℔	10	@	12

Retail Prices.

Butter, California, fresh, ⅌ ℔	40	@	—
do. pickled, ⅌ ℔	35	@	—
do. Oregon, ⅌ ℔	25	@	—
Cheese, ⅌ ℔	20	@	25
Honey, ⅌ ℔	25	@	30
Eggs, ⅌ dozen	45	@	50
Lard, ⅌ ℔	20	@	25
Hams and Bacon, ⅌ ℔	22	@	25
Cranberries, ⅌ gallon	1 00	@	1 25
Potatoes, ⅌ ℔	2	@	5
Potatoes, Sweet, ⅌ ℔	—	@	2
Tomatoes, ⅌ ℔	—	@	—
Onions, ⅌ ℔	8	@	5
Apples, No. 1, ⅌ ℔	4	@	5
Pears, Table, ⅌ ℔	5	@	
Plums, dried, ⅌ ℔	10	@	12
Peaches, dried, ⅌ ℔	10	@	15
Oranges, ⅌ dozen	50	@	75
Lemons, ⅌ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ⅌ ℔	—	@	25
Soap, Pale and C. O.	10	@	12
Soap, Castile, ⅌ ℔	18	@	20

Scientific Press.

W. B. EWER..........................Senior Editor.

T. DEWEY. W. B. EWER.
DEWEY & CO., Publishers.
GEO. H. STRONG. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance	$4 00
One copy, six months, in advance	2 60
Delivered by city carriers, per month	60

Rates of Advertising.

One square (ten lines agate), one week	$ 1 00
One square, one month	3 00
One column, one month	40 00
One column, one year	400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

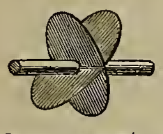
Saturday Morning, March 12, 1870.

Table of Contents.

Stow Foundation Pavement—Ill.............161
A New Gold Fever......168
Ice-Making.............168
Notes of Recent Patents169
To Correspondents......168
Full List of Patents....169
Report of Patent Commissioner............169
California Enterprise...169
Length of Forenoon and Afternoon—Ill........162
The Theory of Ore Deposits................172
Diamonds in California.162
Farming and Gardening.—The Castor-Oil Bean; Wheat Experiments; Points of a Good Horse—Ill; More About Alameda; What I Know of Farming; S. F. Market Rates, etc.166
Mechanical Progress—Hardening Steel; Crucible Steel; Bell-Casting; A Sixty-ton Crane, etc.163
Scientific Progress.—Tubercle Communicable; Liebeg vs. Pasteur; Organic Matter in the Atmosphere; Dissociation, etc....................163
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Montana; and Nevada..........164
S. F. Stock Market......165
S. F. Shareholders' Directory....................165
New York Metal Market.175
S. F. Metal Market..... 174
Gamgee Meat-Preserving Process..............172

Notices to Correspondents.

Austin Friends.—The object of the Loud-Cole invention is to provide an improved device for propelling vessels, and consists in the employment of two circular disks or rims mounted obliquely and in different directions, upon a shaft. It is claimed that the action of the wheel approaches nearly to that of the tail of a fish in its effect, or that of an oar when used in sculling. The accompanying cut gives the general idea of the patent, but a rim or wheel may be used as well as the disk.



D. S. N. sends us a request with regard to the highest rate of speed attained at the snow-shoe races in Sierra county. Accounts have appeared at some previous time in the *Mountain Messenger*. Will the editor of that paper please give us some facts as to the fastest time made, and the character of the ground over which the races were run?

Chloride Bill, Humboldt City, Nevada. We cannot notice communications which make statements without giving the real name of the writers.

Steam Plowing by Direct Traction. The English are experimenting upon this with Thomson's road steamer. At a recent trial, a single plow was drawn by it at the rate of six miles an hour. This speed was, however, too fast for the men holding the plow, and had to be reduced. The furrow was well and evenly turned. It was one of these steamers to which we alluded, a week or two since, as being on its way to California, to be used on the reclaimed tule lands of Sherman and other islands in the Sacramento river. These lands are of such a soft and spongy nature that they will not admit of the passage over them of a locomotive steam plow in one machine. By separating the plow from the locomotive, steam plowing will undoubtedly be made a success on our tule lands. The plows to be used will be constructed with knives for cutting, instead of with ordinary plows for turning a furrow. The latter cannot be successfully employed of such lands.

◆

Climate of California.—We are obliged to defer to next week the report of a very interesting paper read before the Academy of Science by the president, Dr. Blake. We shall give it in our next issue.

A New Gold Fever.

The reported discovery of exceedingly rich gold mines not far from San Diego has caused a tremendous *furore* in that and neighboring districts, and a general stampede to the locality of the mines. Some of the ore has been brought to San Francisco, and has given rise to considerable excitement in this city.

Exaggerated reports, as usual, reach us, but still apparently there is good authority for believing that very rich quartz has been found. We have seen several specimens, in which the crevices were bespangled thickly with the glittering metal, which, however, did not seem to impregnate the whole mass. We are always a little suspicious that such rock will not continue to keep up its yield, at least that has been our experience; and we note, in this connection, the report that, at only a very small distance from the surface, silver occurs.

The location is 2½ miles from the mining camps of the Coleman district, near the headwaters of the San Diego, within half a mile of the summit of the ridge forming the watershed between the San Diego valley and the desert. It is about 60 miles from San Diego by the wagon road, and 54 miles northeast of Point Loma. The formation is given as talcose slate, which extends for miles and disappears in the desert; to the west it gives place to granite, into which the veins are said to extend (?). The discoverers located 4,400 feet on the Geo. Washington lode, and two other locations had been made, covering in all over two miles. The ledge is two to four feet wide, but no one has sunk over six feet. The quartz is free from sulphurets, which, however, proves nothing, as this is to be expected so near the surface. The country is filled with fertile valleys, grass is abundant, and there is considerable timber.

Besides the first lode, another (and a richer still) is reported to have been found. Hundreds of men are on the ground, locating and jumping claims, and the region will undoubtedly be thoroughly prospected. We hope that the miners will have profited by their former experience, and that the region, if it turns out as is thought, will give rise to legitimate operations, and not to mushroom swindles and gigantic stock operations.

◆

Largest Pumping Engine in the World. The three pumping engines employed in keeping dry the Haarlem lake, in Holland, are noted by the New York *Engineering and Mining Journal* as being the largest in the world. They are each of 500-horse power. The cylinders have an interior diameter of twelve feet, with ten-feet stroke. The "Leeghwater," the first one built, drives eleven pumps of sixty-three inches diameter each, all moving at the same time, and attached to the upper part of the piston rod by means of huge walking-beams The cylinder is placed in the center of a circular building or tower of masonry, standing in the lake near the shore. The walking-beam projects through equi-distant openings in the tower. The three engines discharge two millions of tons of water in twenty-four hours.

◆

A Pioneer Enterprise.—A Weyer, proprietor of the Paris Scouring and Blanket Cleaning Works, at No. 1719 Powel street, was the first to introduce that special branch of industry on a large scale in this city, and we are pleased to learn that he is now meeting with great success. It is a real saving to our citizens (and those in the country who can readily send by express) to patronize his works. His advertisement mentions quite a number of articles entirely impracticable for the best of housekeepers to clean, owing to the liability of injury to the goods by inexperienced hands.

Our Home Industries.

Ice-Making.

In no other country is so much ice consumed as in the United States. The American must have his ice-water in winter and in summer, while in other countries this is demanded to no extent except in warm weather. Consequently, we hear more of ice-machines and ice-houses in America than elsewhere. We have published, of late, at different times, various freezing recipes and accounts of many ice machines, and this week we give an account of the Egbert process, as used by the Summit Valley Ice Co. It is from a communication sent us by Mr. T. McAnley:

Editors Press:—My promise to give you an account of the practical working of the making and storing of ice by the process as described in the claim in the "Egbert Patent," obtained through your office nearly two years ago, is not forgotten—but only delayed in fulfilment until now, in order that I could say what *has* been accomplished in place of what we *expected* or *hoped* to accomplish.

After obtaining the patent in the fall of 1868, I decided on Summit Valley, on the line of the C. P. R. R., within three miles of the great Summit tunnel, as the place for the first or experimental ice-house. The requisites for a suitable location being an unfailing supply of pure water, facilities for transportation of ice to market, and the indispensable requisite of *some* freezing weather, which is of much rarer occurrence, even on the very summit of the Sierra Nevada mountains, than most Californians suppose. For, although it is not unusual to have twenty to twenty-five feet in depth of snow, it is very unusual to have twenty-four hours of freezing weather at any one time during the most severe winter months, on or west of the summit. It seldom if ever freezes, except in the shade, and with the wind from northeast.

Temperature of Summit Valley.

The thermometer at this place last winter, from December 25th to March 5th, averaged (in the daytime) forty-four degrees, or twelve degrees above the freezing point of water, while at night, for the same time, the average was twenty-five degrees, or seven degrees below the freezing point. The coldest nights—January 15th and 27th—the thermometer stood at ten degrees above zero; January 21st, nine degrees above; February 4th, 5th, 6th, 17th, 20th, 21st and 25th, at 12 degrees above; February 22d, 11 degrees above; being from 20 to 23 degrees below the freezing point of water. The warmest days being—

Dec. 29,	at	noon	........45°	Feb. 8,	at	noon	........45°
Jan. 9,	"	"	........43°	" 17,	"	"	........45°
" 13,	"	"	........48°	" 18,	"	"	........46°
" 22,	"	"	........46°	" 28,	"	"	........60°
" 31,	"	"	........52°	Mar. 4,	"	"	........62°
Feb. 1,	"	"	........50°	" 5,	"	"	........54°
" 2,	"	"	........46°				

Or from 13 to 22 degrees above the freezing point of water.

This winter, from November 24th to the present time (February 10th) average (during the day) 37 degrees above zero—or five degrees above freezing. For the same time at night, average 26 degrees, or six degrees below the freezing point of water. The coldest nights being—

Nov. 27	......16°	above	zero	Jan. 6	....16°	above	zero
Dec. 18	...... 8°	"	"	" 16	......16°	"	"
" 19	...... 5°	"	"	" 17	...... 4°	"	"
" 20	......10°	"	"	" 24	......14°	"	"
" 21	...... 8°	"	"	Feb. 6	......13°	"	"
" 22	...... 6°	"	"	" 7	......16°	"	"
Jan. 1	......16°	"	"				

Or, from 16 degrees to 28 degrees below the freezing point of water.

During the whole time (from November 24th to February 10th) there were but 18 days in which the thermometer did not rise above the freezing point, and but five days that it did not go above 30 degrees, and but one day that it marked below 20 degrees at noon.

From this it will be seen that the climate of California in the most favorable location is not well adapted to the making of ice on an open lake or river.

It was for the purpose of overcoming the disadvantages of climate and utilizing what freezing weather there is, that our process was devised and put in execution.

The Ice-House.

Having indicated the peculiarity of climate to be contended with, I will now describe our ice-house and fixtures and the manner of operating. The experimental house (built last year) is 76 feet long, 20 feet wide and 20 feet from floor to joists, the pitch of roof leaving 10 feet clear between rafters and joists at center of building. We got water into the building on the 7th of January, 1869, and succeeded in making about 500 tons of ice between that and the last day of February, and should undoubtedly have filled the house within the next two weeks, only for an accident to the water pipe at that time, which prevented us from getting any more water into the house. Being thus encouraged, we built last summer in addition to the old house, a new one, 162 feet long, 40 feet wide, and 26 feet high from floor to joists, the pitch of roof giving an 8-foot space between joists and collar beams, and another 7-foot space between collar beams and rafters. A flooring laid on the collar beams gives access from the inside to ventilator doors in the roof on each side of the combing, while 12-inch plank laid parallel with the joists and midway between them (the joists being three feet apart), supported by bridgetrees between the joists, give free access to all parts of the building above the joists and the room for the ice. The lower floor is only loose boards resting on sawdust spread on the ground just thick enough to insure drainage. The side-walls of the building are made double; the studding, which stands three feet apart, is boarded up on both sides and the spaces between filled in with sawdust. In every other space between the studding are left openings, 2½ feet wide by seven feet high, which are opened or closed at will by means of double doors in each. The opening of these side doors near the ground, together with the opening of the ventilators in the roof, secures a steady draught of cold air through the building during the night, or, whenever the temperature is below the freezing point, thus making of the house a powerful refrigerator. The closing of the doors and the ventilators in the roof, when the temperature is above the freezing point, at once stops the influx of warm air from the outside and makes of the building a complete ice-house, and keeps from waste or damage all the ice made during the freezing hours of the night. And thus the doors and ventilators are opened or closed as occasion requires, from time to time, until the house is filled and the ice reduced to the lowest possible temperature the weather will admit of, after which they are closed and battened tight, to preserve the ice during the summer, as in any ordinary ice-house.

The joists of the building are three inches thick by twelve inches deep, and on the sides of each is spiked a board 1¼ inches thick by sixteen inches deep, so as to allow the lower edge of the board to drop one-half inch below the lower edge of the joist, to prevent the water from running back on the lower edge of the joist. The upper edge of the board extends above the joist 3½ inches, thus making a water trough or distributing sluice of each joist, which, being level and filled with water, and supplied with a constant stream from the main sluice, distributes the water over its sides equally, and from end to end of joist, or from side to side of building.

The Water Supply.

The main sluice, which furnishes water to all of the distributing sluices, runs through the center of the building from end to end, crossing the distributors at right angles and a few inches above them; three-fourth inch holes in the bottom of the main sluice, where it crosses the distributors, admit the water from the main to each distributor. The main sluice is supplied with water by an 8-inch iron pipe leading from the reservoir on the hill above the house, the pipe being covered out of reach of the frost. Tapered wooden plugs stop off or regulate the amount of water flowing from the main into the distributors, the surplus water pouring off at the end of the building from the main sluice.

[to be continued.]

◆

An Egg Substitute.—Messrs. Heathfield, Bogel & Co., 206 Battery street, are offering the public something entirely new in the culinary line—a preparation which answers the multifold purpose of eggs, baking powder, soda, saleratus, etc., alone, or in connection with flour. The article comes in the form of a powder, and is put up in cans, like yeast powder. It is said to be entirely free from all mineral alkalies, while at the same time it renders the food into which it is introduced light and wholesome. It is intended for use, however, only where eggs are required. It is especially recommended to miners. Try it.

◆

A London Omnibus Co. carried 20,000,000 of passengers during the last six months.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING MARCH 1ST.

ROCK DRILL.—A. Blatchley, Central City, Colorado.

FOUNDATION FOR BUILDINGS.—Almond F. Cooper, San Francisco.

MANUFACTURE OF ARTIFICIAL FLOWERS.—Catherine E. Howard, San Gabriel, Cal.

MACHINE FOR FEEDING ORES INTO SHAFT ROASTING FURNACES.—Charles Stetefeldt, Austin, Nevada.

CURTAIN FIXTURE.—James Turnbull and William Turnbull, Vancouver, Washington Territory.

GANG-PLOW.—George R. Duval, Salem, Oregon.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

GRIP PULLEY.—A. S. Hallidie, San Francisco.—This invention relates to an improved construction of that class of pulleys known as grip pulleys, which are employed more particularly wherever rope wire is used in transmitting power. The novelty of these consist in the manner of arranging the two gripping jaws or clips, so that they will be operated by the strain upon the rope, without the necessity of bolts, rivets, screws or other device for holding them in place. The rim of the wheel is made in two parts, one of which is formed solid with an arm, and of only half the desired thickness of the rim, so that it forms a shoulder. This is then bolted or riveted to the other part, thus forming a rim of the required thickness. The flanges, between which the gripping jaws or clips are placed, are simply spread apart in the ordinary manner of forming the groove in pulleys. At intervals around the entire grooved periphery of the wheel are cavities or recesses, placed opposite one another in the two flanges. These are made widest at the lower part. The clips or jaws are made with spreading arms, so as to admit the rope easily, and the corners extend into the cavities just mentioned, thus preventing their dropping out, while allowing of a slight motion to and from one another. A groove or space is made just below the point of meeting of the clips, so that when the strain comes on the rope or chain, which rests on the bottom of the groove between the two jaws, the central part of each clip will be depressed, thus causing the jaws to grip the rope and prevent its slipping, while the strain is on, but as soon as this is removed, the jaws will work freely in their sockets and allow the rope to open them, and thus free itself from the pulley. This invention, in which the jaws are operated automatically by the strain on the rope and their own weight, is exceedingly simple and effective, has no complicated parts to get out of order or break, and is cheaper than other kinds.

WHEELBARROW.—Henry Alter, Lakeport, Cal.—It has been remarked by travelers, that Americans are the only people who know how to make a wheelbarrow, the clumsy contrivances of other lands being so constructed as to throw a large part of the weight of the load onto the laborer's arms, thus rendering it impossible to carry such loads as are customary in our country. The present invention is designed to improve on our American patterns, and consists, first, in the peculiar construction of the front end of the timbers forming the handles in connection with the standards, so as to accommodate a peculiarly shaped bed or trough; and, secondly, in the manner of mounting the vehicle upon the wheel. This arrangement of the wheel and forward ends of the timbers causes the entire weight of the load to come upon the wheel, which is placed below the load, and thus the weight on the handles is taken off and the vehicle can be moved with greater ease than our common barrows. The inventor has originated several other very ingenious agricultural implements of considerable value.

BOAT DETACHING APPARATUS.—J. Ross, S. F.—This device is intended to render possible the instantaneous detachment of boats from the tackle, after lowering, and consists of two strong bent pins, one at either end of the boat, and each having at one end a loop or head, by which to attach a chain, while the other end extends through an eye at the bottom of the block and through another attached to the boat. The chains from the heads pass down to the bottom of the boat and along to the centre, where they pass around a sort of capstan or upright shaft, bearing a crank at the top and above the thwart, by which to turn it. When the boat is secured, a pin passes through the thwart, so that the crank bears against it and is thus prevented from turning. To detach the boat, the pin is withdrawn, and the axle revolves, unwinding the chain and allowing the ends of the pins to be freed from the eyes at the ends of the boat, after which they will both be drawn through the eyes in the blocks and the boat will fall into the water. The whole apparatus is very simple and is easily attached to any boat.

ROOFING AND FLOORING COMPOSITION. P. N. Mackay, Virginia City, Nev.—This is an improved composition for roofs, floors, pavements, etc., which is laid in a similar manner to the asphaltum pavement, and which secures ample protection against fire and water, and the troublesome intrusion of rats and mice, and "such small deer."

◆

AMERICAN LUXURY.—The Americans are accustomed to live much more luxuriantly than any other people, and what we are accustomed to consider, in many instances, articles of necessity, other nations hold as luxuries. In the matter of carpets, for instance, we indulge to a greater extent than other people. And, by the way, should any one desire to get a fine carpet, or handsome rugs, or lace curtains, or similar articles, we advise them to call on Messrs. Mitchell & Bell, 606 Clay street. This firm imports directly their foreign wares, and obtains from the factories the domestic articles, and is thus enabled to sell at a low price. For the politeness and attention of the proprietors we can vouch, for a customer happened in as we were in the store, and the room was speedily transformed into a parlor, or a dining room, or library, as the various patterns were exhibited. It will be remembered that Messrs. M. & B. furnished the "Washington Box" at the Musical Festival, and received the special thanks of Mme. Urso for their very kind and polite conduct.

◆

VENETIAN AWNINGS.—These articles, which add so much to the comfort of our rooms, in this warm sunny land, are manufactured in all shapes and sizes by J. M. Withers, at 120 Leidersdorff street. For elegance and comfort these are certainly highly to be recommended.

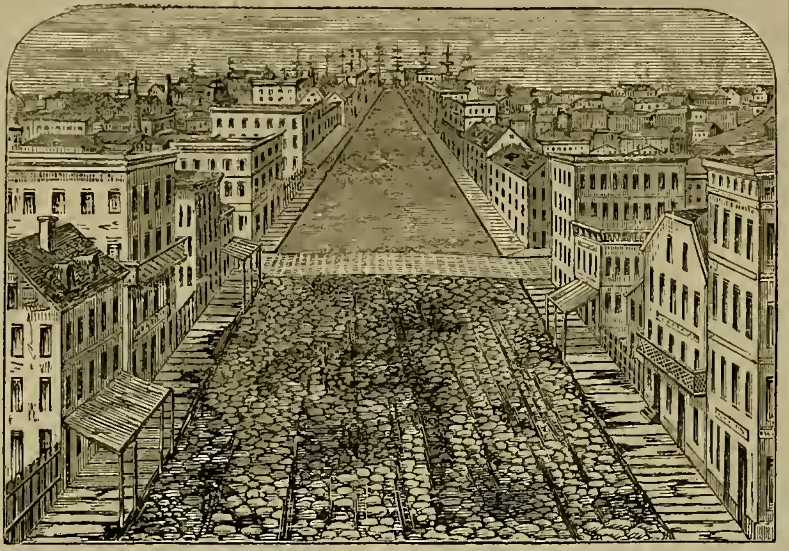


FIG. 3.—VIEW ON BATTERY STREET,

SHOWING THE WEAR ON THE COBBLE AND THE STOW PAVEMENT.

Report of Samuel S. Fisher, Commissioner of Patents, for 1869.

Growth of the Patent Office

Few persons realize the rapid growth of the office, and the annual accretion of material. The models increase at the rate of one hundred square feet per week, or five thousand square feet per annum. The drawings increase at the rate of seventy-two cubic feet per annum; the files at the rate of four hundred cubic feet; the printed specifications at the rate of four hundred and twenty-five cubic feet; the printed drawings at the rate of four hundred cubic feet; the books in the library at the rate of one hundred and sixty lineal feet of shelving, and the copyright books at the rate of one hundred lineal feet. There will be twenty thousand more cases to be examined this year; and, if the applications made in the present year should not exceed those of 1869, they will still add, with models and drawings, twenty thousand new cases to be inspected by the examiners of future years.

It must soon become a serious question to determine what disposition is to be made of the models. In a vast number of cases no such illustration is required, the inventions are so simple that they can be readily understood by good drawings. Models soon become broken and inoperative, and in some cases have been altered surreptitiously, so as to become false witnesses.

We may take just pride in our national museum of the mechanic arts, but it is questionable whether this museum can be allowed to grow at the rate of five thousand square feet per annum.

A remedy for the difficulty will probably eventually be found in dispensing with all models, except when, in the discretion of the Commissioner, such mode of illustration is absolutely necessary. This would relieve inventors of a very considerable tax, as the preparation of the model is usually the most costly part of the application.

It is also a question of serious consideration, whether the rejected applications should be used as references to defeat new applications. Many cases may have been rejected because the devices were impracticable and useless, because they in turn were anticipated by others. Since the rejection these cases have been kept in pigeon-holes not open to public inspection. The public has taken nothing by the description of the alleged invention, and probably in the great majority of cases the manufacture of the article has never been commenced. Such mere description or sketches of an invention not reduced to practice or made accessible to the public, but kept in the library of a private person, would not destroy a patent. It is not perceived that they should have this effect because the pigeon-hole in which they are entombed is in the Patent Office, rather than elsewhere.

To reject applications upon patented or published cases and pending application only, would probably protect the public from real injury as well as by the present system, while it would diminish the labor of the office in the work of examination fully one-third.

Otherwise, although the number of applications to be examined be the same from year to year, the work of the examiner is constantly increasing, since each year's accumulations are added to his portfolios. A gradual increase of the examining corps from year to year becomes, therefore, absolutely necessary.

◆

California Enterprise.

[Written for the Scientific Press.]

The *Bulletin* of March 2d published a memorial addressed by leading men of San Francisco to the Committee on Mines and Mining of the Senate of California, the object of which was to obtain "such State aid as will insure the early inauguration of the home production of iron and steel from the ores of California." To accomplish this laudable object, Mr. Maclay has introduced a bill to the legislature proposing to levy a tax of *one per cent. on every hundred dollars,* to pay interest at the rate of seven per cent. on $200,000 of bonds of the "Sierra Iron Company"—*vide Bulletin* of March 2d. What disposition they propose to make of the surplus we are not advised; no doubt there are some other little schemes to develop the resources of the State at the cost of the tax-payers.

Those who have not seen this memorial may desire to see the names of the signers who invoke State aid for such an insignificant amount. We refer them to the *Bulletin* of March 2d. At the same time we suggest to the press throughout the State that they publish this memorial with the names. If we mistake not, it will do more to attract the attention of men of capital and enterprise abroad to our great want than anything that has yet been done. Who signed this memorial? Nearly every man in San Francisco, prominent for his wealth. The signers number upwards of one hundred individuals and firms, including nearly all the bankers, money-lenders, speculators in real estate and mines, general and shipping merchants, etc., etc. Among the signers are men whose wealth is estimated at millions. Had they known what Mr. Maclay proposed, and what they were lending their influence to accomplish, we question whether their names would have been given. They are too expert in figures not to have discovered at a glance that by levying a tax of one per cent. upon *their own property,* they could raise more than the capital required, and, as a matter of course, their patriotism would have prompted them to do so.

Some years ago, our more enterprising neighbors of Oregon raised capital and incorporated a company; they erected, one, two, or more furnaces, and shipped parcels of their iron to San Francisco, which was distributed among our foundrymen, who pronounced it very superior, but, for some reason, we believe, not adapted for ordinary casting. It was stated that they could deliver their iron in San Francisco at about $45 a ton.

The questions for consideration are:

Has the Oregon enterprise proved a mercantile success?

If yes,—then can the Sierra enterprise hope to compete with it in the market of San Francisco and Sacramento?

If not,—then where will they find a market, unless where the farmers of Sierra Valley dispose of their produce—at *Virginia City,* and in that neighborhood?

Did all the signers of that memorial contemplate this, when they signed it?

The Committee on Mines, etc. will look over the list of names, and say, at once, there is no money in it, or it would not be here, did they require ten times the amount of capital mentioned. C.

◆

SILVER-PLATED COPPER AMALGAMATING PLATES are coming into very general use at the quartz mills throughout California, instead of the ordinary copper plates. One mill in Grass Valley now employs not less than ninety superficial feet of these plates. Mr. E. G. Denniston, of the San Francisco Plating Works, whose card will be found in our advertising columns, is doing a large amount of this work. We dropped in there, a few days since, and found quite a number of batteries at work, connected with one of which was a bath, in which were placed ten plates of copper, presenting an amalgamated surface of thirty square feet. Mr. D. makes the preparation of plates for miners' use a specialty, in addition to his general work for builders, plumbers, gunsmiths, etc. He makes use of the Smee battery.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

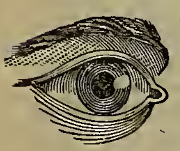
Traveling Agents.

Wm. H. Murray, California and Nevada.
G. H. Herring—California.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City and Idaho Ter.—Sam. Heidelberger.
Silver City, Idaho—J. Caplee.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hendon & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

DR. ABORN,



Oculist, Aurist,

AND

CATARRH, THROAT

AND

Lung Physician.

No. 22 KEARNY STREET,

SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox. Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.
San Francisco (Cal.), Jan, 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street, San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.
San Jose (Cal,), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California

To whom it may Concern.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.
WILLIAM BEARDSLEE.
Pacific House, San Francisco, Dec. 13, 1869.

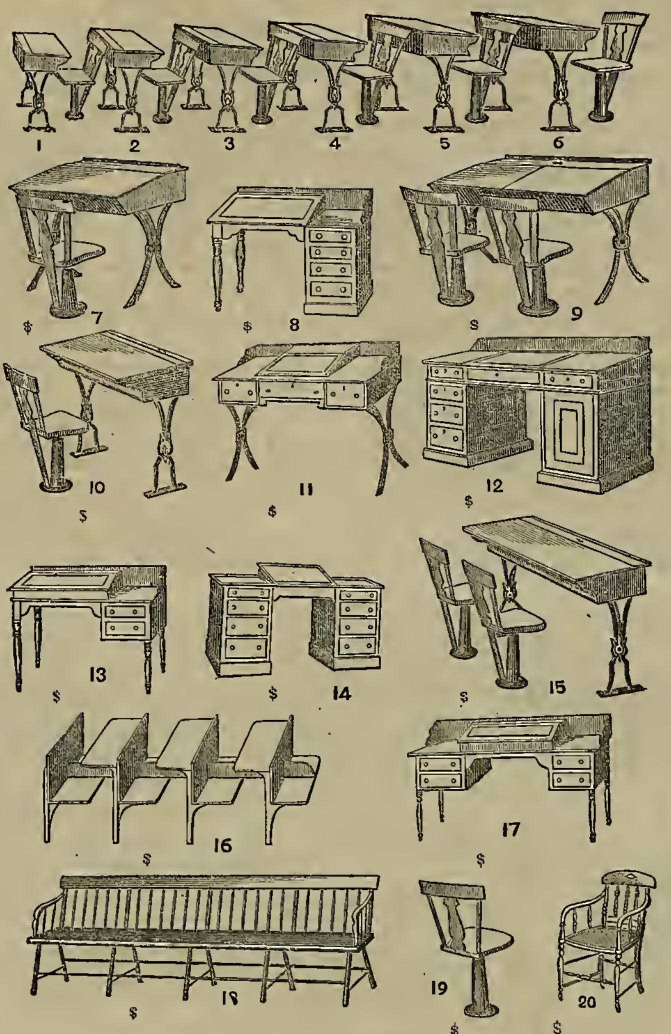
Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.
VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869. 7v20-3m

Somersville, Cal., August 25th, 186[illegible].

Messrs. Dewey & Co.—Dear Sirs: Allow me to return you my thanks for the very able manner in which you have conducted the business entrusted to your care. You will please forward the document (British Patent) by Bamber's Express to this place. Yours, respectfully,
Geo. Hawxhurst.

PACIFIC SCHOOL INSTITUTE.



PRICES:

No. 1	$ 6 00	No. 8	$20 00	No. 15	$ 9 00
No. 2	6 25	No. 9	12 00	No. 16—per set of three, Rankin's Patent	21 00
No. 3	6 50	No. 10	7 00	No. 17	25 00
No. 4	6 75	No. 11	16 00	No. 18—per foot	80
No. 5	6 75	No. 12	48 00	No. 19	2 25
No. 6	7 00	No. 13	14 00	No. 20	6 00
No. 7	8 00	No. 14	45 00		

BABBITONIAN PENMANSHIP,

Copy Books, Pencils, Pen-Holders, Paper-Cutters, Maps,

CHARTS, GLOBES, AND INK-WELLS.

A Large Map of California and Nevada, four feet by five,

IS NOW READY FOR DELIVERY.

This Institute is prepared to furnish Schools and Seminaries with the most approved School Furniture, Apparatus, Stationery, and all other SCHOOL SUPPLIES. Having ample facilities for manufacturing and importing most of the articles used in Schools, Teachers, County Superintendents and Trustees will find their orders promptly filled with articles that will give entire satisfaction. Office Furniture of every variety will be supplied. The numbers refer to each cut.

WARREN HOLT,

No. 411 Kearny Street, between Pine and California, San Francisco.

8v20-q1am2

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

10v20-3m10p

Notice to Miners,

Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
8v13.1y Stove Store, No. 1 Clay Street, below Davis

OCCIDENTAL

Insurance Company,

OF SAN FRANCISCO.

Cash Capital, - - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 2gv17

M. M. COOK. H. N. COOK.

M. M. COOK & SON,

MANUFACTURERS OF

LEATHER HOSE,

Belting, and Horse Collars,

801 Battery street, Corner Broadway,

SAN FRANCISCO.

☞ Belt Leather for sale. 26v19-3m

Valuable Stock Ranch For Sale.

IN ALAMEDA COUNTY.

The attention of miners, "new-comers," or others, who wish to buy desirable real estate, is called to

675 ACRES

— OF —

Excellent Pasture, Grain, Garden

— AND —

ORCHARD LAND

FOR SALE AT A BARGAIN.

TERMS EASY.

This Ranch comprises hill and valley, is supplied with an abundance of good living water, is well fenced, buildings good, and is stocked with implements and animals. It is one of the best DAIRY RANCHES in the State, and is near the Railroad. Inquire of
JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

SPECIAL NOTICE.

TO DEALERS AND CONSUMERS

—OF THE—

H & L

AXLE GREASE.

Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possible meet the market of our Chicago friends, we have made a great reduction in prices, and from our long experience we will satisfy you that there is none BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,

144 Natoma Street.

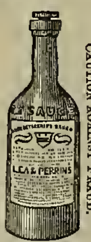
Depot, 320 Jackson Street.

N. B.—We are prepared to furnish Bulk Packages to contractors on equally liberal terms.

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.



CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good Sauce The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for Lea & Perrins' Sauce, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed,

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c,; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

---

HIBBERD, SANBORN & CO.,

STAIR

BUILDERS.

South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

California Steam Navigation

COMPANY,

Steamer CAPITAL........ ....CAPT. E. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE .... —— ——
" CORNELIA................CAPT. W. BROMLEY
" JULIA...................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE,
13v12 President

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 6v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street.......... ....San Francisco
(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing, Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v18-ly

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.
2v15-lqy

J. VAN O. HORNER,
DENTIST,
COR. J AND THIRD STREETS, SACRAMENTO.
☞ All work warranted. 7v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

DR. R. R. ROBERTS,
The Great Magnetizer,
Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all CURABLE Chronic Diseases by ANIMAL MAGNETISM and the SWEDISH MOVEMENT CURE. 2v20-ly

DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.
All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

REFERENCES.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramanto St., cor. Webb, San Francisco.
☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

FITLER, QUIGG & CO.,
RAILWAY ADVERTISING AGENTS,
—AND—
Railway Supply and Insurance Brokers,
Continental Hotel, Philadelphia.
☞ Subscription and Advertising Agents for the SCIENTIFIC PRESS. 9v20

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.
24v18 1m

W. C. CAMPBELL,
PATTERN AND MODEL MAKER,
No. 20 Fremont street, over Phœnix Iron Works, San Francisco.
Particular attention given to MODELS for the Patent Office Brands and Pattern Letters Cut. 4v18mtf

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
GOLD PENS REPAIRED. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.
6v16

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

EVENING DRAWING SCHOOL
—BY—
N. P. LANGLAND,
(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 536 MARKET STREET, over Occidental Market. ☞School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3v20-3m

W. C. & JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line promptly attended to.
SECOND DEPARTMENT.—Feed Ground, Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

FROM The WEED Sewing Machines—the **$65** WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED **WEED** Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Act. TO **$500**

Metallurgy and Ores.

Metallurgical.

The undersigned respectfully announce to the public (especially to parties interested in mining) that they have opened an office at

No. 30 FREMONT STREET.

And WORKS at H. J. BOOTH & CO'S FOUNDRY, northeast corner First and Mission streets, San Francisco, where Ores in small or large quantities of all kinds can be worked by Pan Amalgamation, Chlorination or Smelting, and all kinds of Assays and Analyses made. We will also sample any Ores entrusted to our care; and in all cases returns made in the shortest time possible. We will give consultations on the best methods of successfully working Sulphurets or Refractory Ore.

Drawings Furnished for Quartz Mills, Smelting and Chlorination Furnaces.

By having had long practical experience in working Gold, Silver, Copper and Lead Ores, we hope thereby to get a share of the patronage of the mining public.
☞ Mines Examined and Reports made.

REFERENCES.—William Bosworth, Thomas Varney, Egbert Judson, E. T. Steen, Wm. Bellshaw, P. Reichling, W. O. Sleeper, J. L. N. Shepard, Norbert Landry.

CHAS. PLETZ & CO.
CHAS. PLETZ, Analytical Chemist.
FRED. MORRIS, Amalgamator and Millman. 25v19-3m

S. W. HOWLAND. J. W. THURMAN.
S. W. HOWLAND & CO.,
Crushers and Samplers
—OF—
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

☞All work done at the shortest notice. All orders promptly attended to.
REFERENCES—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co., Assayers. 7v20qy

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

CALIFORNIA ASSAY OFFICE.
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE..............................Manager.
J. A. MARS..............................Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

H. W. GRAY. J. ROSEBERRY. D. S. LOOMIS.
Ores of all Kinds Crushed and Sampled.
H. W. GRAY & CO.,
YOLO MILLS.
Corner Market and Beale Sts., San Francisco
24v19-3m

SILVER AND LEAD ORES
Of every description purchased or worked at
The Oreana Smelting and Refining Works.
JOSEPH MOSHEIMER,
Oreana, Humboldt County, Nevada.
Office in San Francisco, 323 Montgomery street. 6v20

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street, San Francisco.
Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES. Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

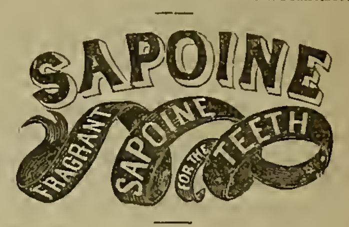
FRANCO-ITALIAN MANUFACTORY.
NEW CALIFORNIA
Chocolate and Coffee Steam Mills.
DESCALZO, LASTRETO & CO.,
526 WASHINGTON STREET.
MANUFACTURERS OF
Hygienic Chocolate of Every Variety,
Ne Plus Ultra Ground Coffee,
And sole manufacturers in California of the world renowned Coffee,
"CAFE DES GOURMETS,"
CORCELET PROCESS. 9v20-q

R.H. McDONALD & Co.
DRUGGISTS
SAN FRANCISCO, CAL.
ESTABLISHED 1849

WHOLESALE DEALERS IN
DRUGS, CHEMICALS,
Patent Medicines,
DRUGGISTS' SUNDRIES,
TILDEN & CO'S
SOLID AND FLUID EXTRACTS,
Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.



THE GREAT MEDICAL DISCOVERY!
Dr. J. Walker's California
VINEGAR BITTERS.
More than 500,000 Persons
Bear testimony to their wonderful Curative Effects.
WHAT ARE THEY!

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN, TAPE, [and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ SEND FOR A CIRCULAR.

They are not a vile
FANCY DRINK,
Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, FREE FROM ALL ALCOHOLIC STIMULANTS. They are the GREAT BLOOD-PURIFIER AND LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition. No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it, when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

R. H. McDONALD & CO.,
Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞ SOLD BY ALL DRUGGISTS AND DEALERS.

The Theory of Ore Deposits.

All explanations and theories on the formation of ore deposits are in the highest degree interesting to those whose attention is directed towards mining. Many ideas have been broached and discussed; but, in the great majority of cases, these have been founded on insufficient data, and have not been satisfactory in general. Among the theories on the formation of veins which have been worthy of particular attention, either from their own intrinsic value or the reputation of their authors, are those of *contemporaneous formation*,—the lodes were formed at the same time as the enclosing rock, or subsequently by a metamorphosis in the altered regions of the same; of *descension*,—by material which came from above; of *lateral secretion*,—by material which came from the enclosing rock; of *ascension*,—the matter came from below, either in a state of aqueous solution (by *infiltration*), in a gaseous condition or introduced by steam (by *sublimation*), or in an igneous-fluid condition (by *injection*). These various theories have been criticised and discussed for years. Those of contemporaneous formation and of descension have had no upholders since the time of Werner; the others, however, from examination of different localities, and from the researches of eminent chemists and geologists, seem to be all possible.

We have long felt the need of some book in English which should give some account of the various theories and of their grounds, and some general information with regard to the ore deposits in the various parts of the world. Such a book, and but one such, has existed, and has gone through two editions, but being in German, has remained up to the present time a sealed volume to most of our readers. We refer to Cotta's *Erzlagerstdattenlehre*. A graduate of Freiberg has, however, recently done a public service in translating this work.* The reputation of Prof. von Cotta is a sufficient guarantee for the work; and we may remark that the translator took the first degree at the Freiberg Academy in the geological examination, that the professor has lent considerable assistance by suggesting some alterations and additions, and, after revising the translation, pays the translator the high compliment of allowing this to be considered a new (the third) edition of his work.

The work is divided into two distinct parts. The first treats of veins and other ore deposits in general. It contains various definitions, a list of the minerals which commonly occur as ores, a classification of the various kinds of deposits, and it treats of their origin, formation, distribution, etc. It contains, in short, the results which are deduced from the examples which form the second or special part of the volume. This second part contains descriptions of the most important ore-districts of Europe, viz: Germany, the Carpathian countries, the Alps, Italy, France, Spain, Great Britain, Scandinavia and Russia.

The reputation of the author and his prefatorial endorsement of the translator's efforts are all that is required to recommend the book. Its perusal cannot but be of great interest and benefit to those intimately or remotely connected with mining, and we hold it as one of the most valuable books in our library. We can only regret the unavoidable absence of the translator while the book was in press, which resulted in quite a number of typographical errors. We hope the work will lead to a similar one on the deposits of our own country.

We would quote largely, but want of space prevents our giving but one extract, and that a short one. We take the last sentence of the concluding observation on the formation of lodes:

"Thus the formation of lodes shows itself to be not only possibly, but also probably, very manifold, and appears to have always stood in some connection with neighboring eruptions of igneous rocks. The local re-action of the igneous-fluid interior of the earth created fissures, forced igneous-fluid masses into many of the same, caused gaseous emanations and sublimations in others; and, in addition, during long periods of time, impelled the circulation of heated water, which acted dissolving at one point and depositing the dissolved substances at another, dissolving new ones in their stead. The whole process is thus not confined to any particular geological period or any particular locality; but recurs at all times, either in the same or new regions, at the point where a re-action of the interior of the earth has taken place. So much on the general formation of lodes; in detail, it can only be proved for the particular case."

Gamgee Meat Preserving Process.

Professor Gamgee's process for the preservation of meat is, since the late improvements, pronounced a complete success. As it is in that case a most important example of applied science, we give an outline of it from the London *Times*:

"The chief agent employed is sulphurous acid; but in order to prevent this from flavoring the meat, there is a preliminary exposure to carbonic oxide, by which the coloring matter of the blood and tissues is rendered able to resist the reducing of decomposing action of the acid. In the first place the animals are killed by being made to breathe carbonic oxide,—that is, by a process analogous to the administration of chloroform. Insensibility is quickly produced, and then the animal is bled, and the carcass dressed in the ordinary way. In a temperate climate an artificial process of refrigeration is required. By this the carcass is reduced to about 50° Fah.; it is then placed in an air-tight chamber, into which an atmosphere of mixed carbonic oxide and nitrogen is driven by a blower. In this chamber there is a wooden case, containing charcoal, charged with sulphurous acid; and after the carcasses have been for a certain period exposed to the carbonic oxide and nitrogen alone, the lid of the case is drawn off by a thong passing through a stuffing box, and the charcoal gradually gives off its acid to the meat. The chamber is left undisturbed for seven or eight days in the case of sheep, ten days for pigs, and eighteen or twenty for bullocks. After this the door is opened, and the meat is taken out ready to be stored or packed."

"The Scientific Press" is the name now adopted by the publishers of the Mining and Scientific Press for their journal. It has been for many years, and still is, the leading mining journal of the United States. Every number contains a resume of the entire mining news of California, Nevada, Montana, Idaho, Colorado, and other mining States and Territories. Also, designs of new and useful inventions, with full descriptions. Its editorials are able, dignified, and comprehensive. It is just the paper that our mining friends require Terms, $4, coin, per annum. Address, Dewey & Co., 414 Clay street, San Francisco.—*Virginia City (Montana) Times, Feb.* 16.

Treatment of Rebellious Silver Ores, by Charles H. Aaroo—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Co-Operative Union Store.—This is becoming one of the most useful Institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block San Francisco. 24w

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Layres' Elements of Composition.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Surveyors can have their instruments repaired at C. Muller's, 205 Montgomery street. *

New Mining Notices.

Cordillera Gold and Silver Mining Co.—Notice.—The Annual Meeting of the Cordillera Gold and Silver Mining Company, Chihuahua, Mexico, for the election of officers, will take place on Monday evening, March 21st, at three o'clock P. M., at the office of the Company, 321 Washington street, San Francisco.
mar12-2w HENRY R. REED, Secretary.

Glenwood Mill and Mining Company.—Location of Works: Greenwood, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the seventh day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of March, 1870. to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.
Office, 418 California street, San Francisco. feb52

Postponement.—The day for deeming stock delinquent on the above assessment is hereby postponed until the sixth day of April, 1870, and the sale thereof until Wednesday, the twenty-seventh day or April, 1870. By order of the Board of Trustees.
mar12 O. D. SQUIRE, Secretary.

Kincaid Flat Mining Company, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of March, 1870, an assessment of two dollars ($2.50) and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fifth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 23d day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, 220 Clay street, San Francisco. mar12

North San Francisco Homestead and Railroad Association:—Location of Property: City and County of San Francisco, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Association, held on the ninth day of February, 1870, an assessment of seven dollars and fifty cents was levied upon the capital stock of said Association, payable immediately, in United States gold coin, to the Secretary, at his office, No. 415 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the ninth day of March, 1870, shall be declared forfeited, and duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the thirtieth day of March, 1870, to pay the delinquent assessment thereon, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

EDWARD C. LOVELL, Secretary.
Office, 415 Montgomery street, San Francisco. feb12

Postponement.—The publication of the delinquent list of the North San Francisco Homestead and Railroad Association is hereby postponed until the twenty-third day of March, 1870, and the sale thereof until the fourteenth day of April, 1870. By order of the Board of Trustees.
mar12 EDWARD C. LOVELL, Secretary.

U. S. Grant Mining Company.—Location of Works: Carlisle, Nevada County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the nineteenth day of January, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Jno Gillig	4	218	$109 00
J E Squire	35	10	5 00
J E Squire	36	10	5 00
J E Squire	42	10	5 00
J E Squire	43	10	5 00
J E Squire	44	20	10 00
Jno Vail	34	20	10 00
F Panson	52	35	17 50
N H Wilson	53	8	4 00
Samuel Goshen	54	8	4 00
W H Kinder	56	95	47 50
C O Brogan	57	50	25 00
W D Aplin	not issued	200	100 00
D E Martin	not issued	300	150 00
W L Tisdale	not issued	160	80 00
J Biggs	not issued	4	2 00
McFarland	not issued	16	8 00
Sarah Snyder	not issued	32	16 00
N M Baxter	not issued	20	10 00

And in accordance with law and an order of the Board of Trustees, made on the nineteenth day of January, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by J. O. Merrill & Co., at 204 California street, on Saturday, the twelfth day of March, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

ENOS TAYLOR, Secretary.
Office, 226 Clay street, San Francisco. fy26

Postponement.—The above sale is hereby postponed until Saturday, the twenty-sixth day of March, 1870, at the same hour and place. By order of the Board of Trustees.
mar12-2w ENOS TAYLOR, Secretary.

Yosemite Mining Company, Humboldt County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventh day of March, 1870, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to James T. Maclean, Superintendent, at the mine.

Any stock upon which said assessment shall remain unpaid on the seventh day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the twenty-third day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By ordar of the Board of Trustees.

D. H. CROWE, Secretary pro tem.
Office, 220 Clay street, San Francisco. mar12

Returned.—Dr. J. H. Paine, Dentist, Wadsworth House No. 225 Bush street, between the Occidental and Cosmopolitan Hotels, San Francisco. 21v17-4m

Mining Notices--Continued.

Alameda Coal Mining Company, San Francisco and Alameda Counties, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of February, 1870, an assessment of thirty (30) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 409 (first floor) Battery street. San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on the twenty-second (22) day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

M. PHILIPP, Secretary.
No. 409 (first floor) Battery street, between Clay and Merchant streets, San Francisco. fe19

Alleghany Consolidated Gold Mining Company. Location of Works: Sierra County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the thirtieth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
W H Tompkins	34	1000	$500 00
A L Whitney	32	185	92 50
John J Rorhe	4	15	7 50
Chas Adams, Trustee	12	1000	500 00
I N Thorne	13	125	62 50

And in accordance with law and an order of the Board of Trustees, made on the thirtieth day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room 37 New Merchants' Exchange, on the twenty-eighth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.
Office, No. 37 New Merchants' Exchange, third floor, California street, San Francisco. feb5

Postponement.—The above sale is hereby postponed until Monday, the twenty-first day of March, 1870, at the same hour and place. By order of the Board of Trustees.
mar5 J. M. BUFFINGTON, Secretary.

Cordillera Gold and Silver Mining Company, Morelos Mining District, State of Chihuahua, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company No. 321 Washington street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.
Office, 321 Washington street, San Francisco, Cal.

Hartwell Mining Company.—Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of February, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Treasurer, at the office of the Company in San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Saturday, the twenty-first day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-first day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
fy26 A. J. HOYT, Secretary.

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of February, 1870, an assessment of two and one-half cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the fifteenth day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fifth day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5 No. 302 Montgomery street, San Francisco, California. feb12

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of March, 1870, an assessment of four dollars per share was levied upon the capital stock of said Company, payable immediately, in U. S. gold and silver coin, to the Secretary, at the office of the Company, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the second day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 28th day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. A. JENNINGS, Secretary.
Office, 419 California street, San Francisco, California.

A Valuable Book for Inventors and Artisans.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Press office, postpaid, for $1.—*New Age.*

---

*A Treatise on Ore Deposits, by Bernhard von Cotta, Prof. of Geology in the Royal School of Mines, Freiberg, Saxony. Translated from the Second German Edition by Frederick Prince, Jr., Mining Engineer. Revised by the author, with numerous illustrations, 8vo; pp. 574. New York: Van Nostrand, 1870.

New Advertisements.

A Mining Blacksmith

Wishes a situation. Is familiar with General Blacksmithing. Has had long experience in sharpening tools and doing other work about a mill and mine. Reference given. Address MORGAN GALE, No. 1705 Stockton street, or Scientific Press office. 11v20-1w

---

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.

Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 Clay Street, bet. Kearny and Montgomery, San Francisco. 11v20-3m

---

H. G. STILLEY,
PLANE MAKER.

Planes of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 Belden Place (near Bush street), below Kearny, San Francisco. 11v20-3m

---

Carmen Island Salt Works

Manufacture and offer for sale, Table, Dairy, Coarse, Fine, Carmen Island Rock, and Liverpool Coarse and Fine

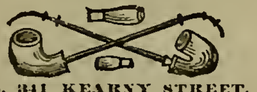
SALT.

Dealers and Packers supplied in quantities to suit, at the lowest market prices.

MILL, 249 STEWART STREET.

HOLLADAY & BRENHAM, Agents,
325 Front Street, San Francisco.
11v20-3m

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

☞ Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted. 11v20-3m

---

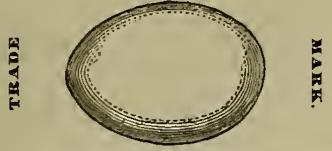
M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞ Can compete in prices with any other dealer. 11v20-3m

---

MINERS, ATTENTION!

SOMETHING NEW.

EAKIN'S EGG SUBSTITUTE



We would call the attention of Miners and Families to this new article for Cooking Purposes. Price, 35 Cents per Can.

Equal to Three Dozen Eggs. Supplies the place of Yeast Powder.

MANUFACTURED BY ADAMS & CO.

HEATHFIELD, BOGEL & CO.,
Wholesale Agents,
206 and 208 Battery Street, San Francisco.
11v20-3m

DR. MABON,
ORTHOPÆDIST,

(Late of the City and Royal Orthopædic Hospitals of London),

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the

MOST EFFICACIOUS INSTRUMENT

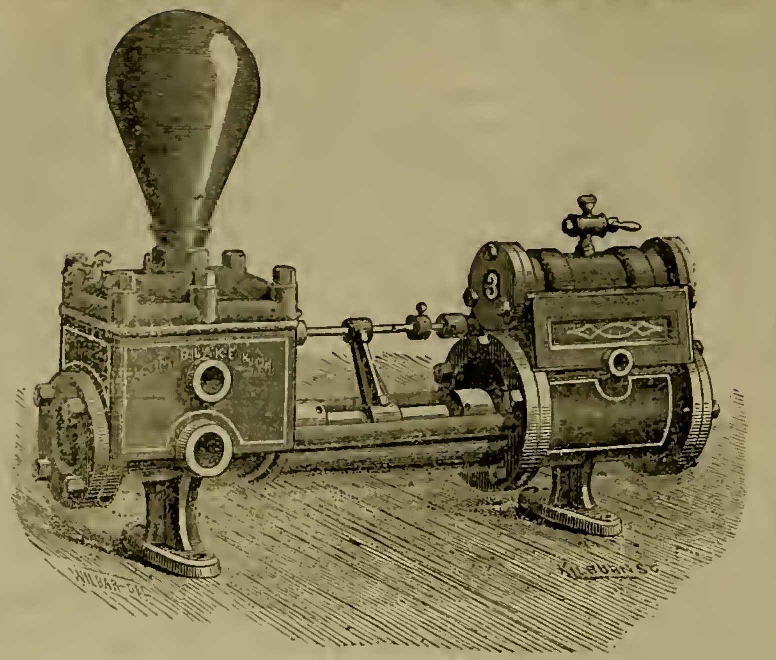
Yet invented for the cure of

RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment.

Office, No. 128 Kearny Street, near Sutter,
San Francisco. 11v20-3m

BLAKE'S PATENT STEAM PUMP.



THESE PUMPS

Have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—specially calculated for SIMPLICITY, DURABILITY and POWER.

Some of the advantages of the Blake Pump may be summed up as follows:

It is positive under any pressure. *May be run as slow or fast as may be desired.* Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility. Will start at any point of the stroke, and will discharge all the water of condensation.

The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having no dead points, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used

On Railroads and Steamboats; in Hotels; for Mining and Fire Purposes; in Breweries, Tanneries, Sugar Houses, Factories, Mills, Laundries,

And as Boiler Feeders, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the

Cheapest and Best Pump that Can be Used.

It is offered to the public as the most perfect independent Steam Pump ever invented. Twelve different sizes are made, capable of throwing from 1,000 to 180,000 gallons an hour, and adapted to any class of work that might be required. For sale by

BERRY & PLACE,
112 and 114 California Street, San Francisco.

☞ Every pump will be warranted to perform the work required of it by the purchaser, or it may be returned and the money will be cheerfully refunded

Awarded a SILVER MEDAL at last Exhibition of Mechanics' Institute, San Franoisco; as being the Best Steam Pump on Exhibition.

This was no empty honor, as four of the principal Steam Pumps of the country were on Exhibition as competitors for the prize beside "The Blake," neither of which received any higher recognition than a diploma or certificate of merit.—*See Official Report of Awards.*

USE
DR. S. GIRARD SMITH'S
ARAMIRACULAS
—FOR—
RHEUMATISM, GOUT AND NEURALGIA.

CURES GUARANTEED.

Has cured Thousands. Has never been known to fail. One bottle will relieve you.

OFFICE, No. 621 KEARNY STREET.

Dr. S. Girard Smith, 621 *Kearny street.*—Dear Sir: It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.

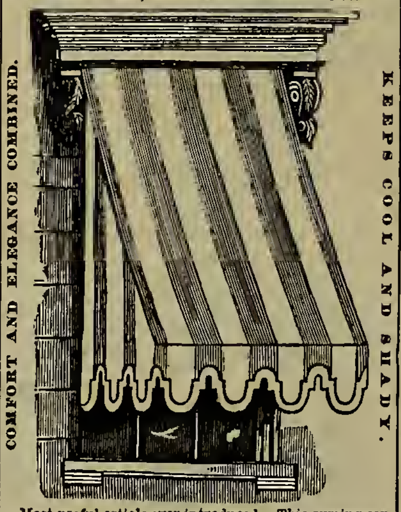
Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.


COMFORT AND ELEGANCE COMBINED.
KEEPS COOL AND SHADY.

Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., 120 Leidesdorff street, bet. California and Sacramento. T. G. ANDERSON, Agent. 11v20-3m

---

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Belting, Coats, and those without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in tin cans only, with full directions. Take no other. Giant Cement and Miners' Rubber Cement are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

PARIS
Scouring and Blanket Cleaning
ESTABLISHMENT.

Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling.* Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

---

PATENTS FOR SALE.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

HOTCHKISS' CLOTHES DRYER.

This invention is for house use. It can be fastened to the wall with two screws, and removed without taking them out. When not in use the arms can be folded closely against the wall. Each arm has an iron brace to support it. This is really a "good thing in a family." County or State rights for this will be sold very low. Full particulars given on application.

BURGESS' PATENT PAPER FILE.

This is a recent patent, and one of no ordinary merit. It is light and complete, yet costs but little. In all file-holders before presented to the public, the papers are very liable to tear, or else the method of inserting them requires too much time and trouble. This device is easily adjusted, is not liable to tear the paper, nor let it loose. This patent is also used in combination with covers for forming music folios. Musicians who have seen it, speak in the highest terms of its value. No person can fully appreciate the Paper File or Music Folio without seeing one.

THE RANDALL RAKE.

Here is an article that we take pleasure in recommending. This patent has been for some time on this coast, but for want of means has been allowed to remain comparatively quiet. It will require from seven thousand to ten thousand dollars to handle this invention successfully on the Pacific Coast, and we would advise any one with this amount of capital to look into the merits of this patent before embarking in other business. We cannot see why it will not eventually supersede all other horse rakes. It does its work completely and is easily operated. It is so constructed that the teeth play on an iron rod independently of each other, and therefore accommodate themselves to any surface. The inclination of the teeth to the surface prevents them from raking up sand and dust with the hay, and causes them to glide easily over the ground. The driver has a spring seat to sit upon, and a simple action of the foot is all that is necessary to drop the hay. A complete model can be seen at our office, or references can be had to parties who have them in use on their farms.

OTHER PATENTS.

We have a number of small patents, for which the right of the United States or any State can be bought very reasonable.

WIESTER & CO.,
11v20 314 Bush Street, San Francisco.

FOR SALE.

The Right of a very valuable invention secured by Letters Patent. An article of real merit, that will sell in nearly every family. Here is an opportunity for a young man to do well with a few dollars. Call and examine it.

WIESTER & CO.,
10v20 314 Bush street, San Francisco.

Our Home Physician.

AGENTS WANTED—OUR HOME PHYSICIAN, by Geo. M. Beard, A. M., M. D., of New York. Copyrighted 1869. The only complete Family Medical Book written since 1860. Plain, practical and reliable. Its superior merits are indorsed by leading medical journals and physicians at the East and on the Pacific coast. Send for circular representing its merits. WESTERN PUBLISHING AGENCY, 411 Kearny street, San Francisco.

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, March 10, 1870.

IRON.—Duty: Pig, $9 per ton; Railroad, 60c ₩ 100 lbs.; Bar, 1@1½c ₩ lb; Sheet, polished, 3c ₩ lb; common, 1½@1¾c ₩ lb; Plate, 1½c ₩ lb; Pipe, 1½c ₩ lb; Galvanized, 2½c ₩ lb.		
Scotch and Eng. Pig Iron, ₩ ton...	$30 00	@$32 50
White Pig, ₩ ton	28 00	@ 30 00
Refined Bar, bad assortment, ₩ lb..	— 03	@ — —
Refined Bar, good assortment, ₩ lb.	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
COPPER.—Duty: Sheathing, 3½c ₩ lb; Pig and Bar, 2½c ₩ lb.		
Sheathing, ₩ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
TIN PLATES.—Duty: 25 ₩ cent. ad valorem.		
Plates, Charcoal, IX, ₩ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ₩ lb	— —	@ — 42
STEEL.—English Cast Steel, ₩ lb	— —	@ — 15
QUICKSILVER.—₩ lb	— 55	@ — 60
LEAD.—Pig, ₩ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
ZINC.—Sheets, ₩ lb	— 10½	@ — 11
BORAX	— —	@ — 45

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

GLASGOW

Iron and Metal Importing Company,

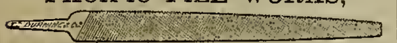
Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.

2v17-3m **T. G. DURNING & CO**

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of House-smith Work; Bridge, Prison,

FORGING AND MACHINE WORK,

FIRE AND BURGLAR-PROOF SAFES,

BANK VAULTS,

Improved Monitor Safes,

Constructed of Welded Steel and Iron, fastened with conical steel bolts.

Safes Let by the Month.

Manufacturer of the

Duplex and Excelsior Combination Bank Locks.

Agent for the ISHAM KEY REGISTER BANK LOCK.

1v17-tf

D. SAVAGE. R. E. DORAN.

SAVAGE & CO.,

Empire Iron Foundry,

No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices. 9v20-3m

---

GEO. T. PRACY'S

MACHINE WORKS,

109 and 111 MISSION STREET,

SAN FRANCISCO

MANUFACTURER OF

PRACY'S IMPROVED

PATENT STEAM ENGINE

GOVERNOR.

These Governors are the most sensitive built, running at a high velocity and maintaining a uniform speed.

SOLE AGENT FOR

L. W. POND'S CELEBRATED TOOLS,

—SUCH AS—

Lathes, Planers, Drills, Boring Mills, Milling Machines, Etc.,

Which I will offer at very low rates. Also,

MORSE'S TWIST DRILLS,

AND CHUCKS OF ALL KINDS.

MANUFACTURER OF

Steam Engines, and Mill Work Generally.

☞ Sole Agent for TAFT'S PATENT SHEARS AND PUNCHES. 24v19

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery,

Front Street, between N and O streets,

1tv1 SACRAMENTO CITY

SACRAMENTO BOILER WORKS,

I Street, between Front and Second,

SACRAMENTO.

All kinds of Marine and Stationary Boilers, Wrought Iron Tanks, Girders, Bridges, Gasometers, and all kinds of Sheet Iron Work, etc. All work warranted. Mill-men and Grain Threshers are cautioned to look to the safety of their boilers. Repairing promptly attended to at the lowest possible terms. Refers to Huntington, Hopkins & Co. and H. Adams, Esq.

J. V. HALL, Practical Boiler Maker,

6v20-3mnuf Proprietor, Sacramento.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL.

9v13-1y

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders, and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and **15** Fremont street, near Market, San Francisco.

10v14qr

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

---

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

NEW FILES OF EVERY DESCRIPTION

ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended 9v19 qr

---

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v13tf

---

THE RISDON

Iron and Locomotive Works.

INCORPORATED............APRIL 30, 1868.
CAPITAL............$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	Wm. Alvord,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON............President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD............Secretary.

24v17-qy

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

THOMPSON BROTHERS,

EUREKA FOUNDRY,

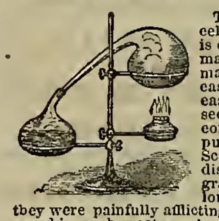
129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

Ayer's Sarsaparilla,

FOR PURIFYING THE BLOOD.



The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this *SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears*, and other eruptions or visible forms of *Scrofulous* disease. Also in the more concealed forms, as *Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia,* and the various *Ulcerous* affections of the muscular and nervous systems.

Syphilis or *Venereal* and *Mercurial Diseases* are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. *Leucorrhœa* or *Whites, Uterine Ulcerations,* and *Female Diseases,* are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. *Rheumatism* and *Gout,* when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also *Liver Complaints, Torpidity, Congestion* or *Inflammation* of the *Liver,* and *Jaundice,* when arising, as they often do, from the rankling poisons in the blood. This *SARSAPARILLA* is a great restorer for the strength and vigor of the system. Those who are *Languid* and *Listless, Despondent, Sleepless,* and troubled with *Nervous Apprehensions* or *Fears,* or any of the affections symptomatic of *Weakness,* will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 7v92eow-4m

---

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.

DIVIDED INTO 1,200,000 SHARES OF

TEN DOLLARS EACH,

FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President............SAMUEL MERRITT.
Vice-President............MICHAEL REESE,
Treasurer............J. SELIGMAN & CO.
Secretary and General Agent.........W. K. VAN ALEN.

BOARD OF TRUSTEES—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm. H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, SEVEN MILES IN LENGTH BY FOUR THOUSAND FEET IN WIDTH, EMBRACING FIVE THOUSAND AND TWENTY ACRES.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of ALL mines discovered by the Tunnel.

4th—A royalty forever of TWO DOLLARS on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel,

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of his great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast,

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
Secretary and General Agent,
625 Montgomery street
3v20-3m Opp. Montgomery Block.

New York Metal Market.

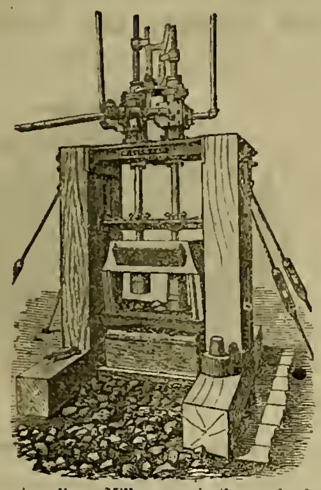
[Corrected weekly from the American Artisan.]

New York City, Saturday, Feb. 26, 1870.

IRON.		
Pig, Scotch, No. 1 (cash), per ton..	$37 50 @	$42 00
Pig, American, No. 1 (cash)........	42 00 @	— —
Pig, American, No. 2...............	38 00 @	39 00
Swedish, ordinary sizes............	140 00 @	155 00
Common.............................	87 50 @	92 50
Refined............................	95 00 @	— —
Rods...............................	100 00 @	155 00
Horse-shoe.........................	115 00 @	— —
Hoop...............................	125 00 @	180 00
Scroll.............................	110 00 @	145 00
Nail-rods, per lb..................	— 8¼ @	— 9¼
Spring.............................	— 9¼ @	— —
Tire...............................	— 9¼ @	— —
STEEL.		
Bars, best cast, warranted, per lb...	— 23 @	— 23¼
Sheet, best cast...................	— 23 @	— —
Sheet, second quality..............	— 20 @	— —
Sheet, third quality...............	— 18 @	— —
Saw-plates, circular...............	— 27 @	— —
Double-shear, warranted............	— 23 @	— —
Single-shear.......................	— 19 @	— —
Montague & Co. (cast bars).........	— 18 @	— —
Machinery, round...................	— 16 @	— —
German, best.......................	— 16 @	— —
German, goat.......................	— 13¼ @	— —
German, eagle......................	— 13 @	— —
Blister, warranted.................	— 16 @	— —
Blister, common....................	— 15 @	— —
Jessop & Sons', common.............	— 17 @	— —
Double-refined.....................	— 26¼ @	— —
Stone-ax shapes....................	— 26¼ @	— —

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S
PATENT AMALGAMATOR.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,
1v1 San Francisco.

Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, Sacramento. COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs—or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds.

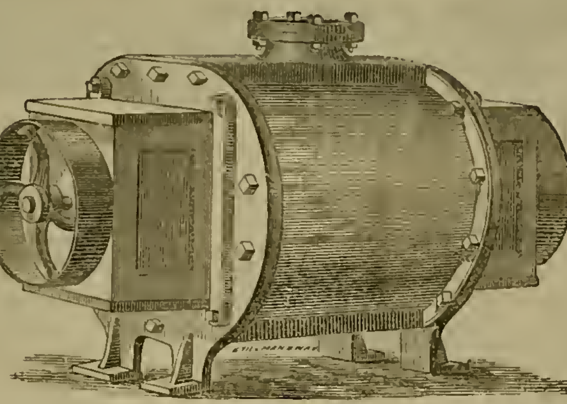
☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER

MANUFACTURED BY KEEP & BARGION,

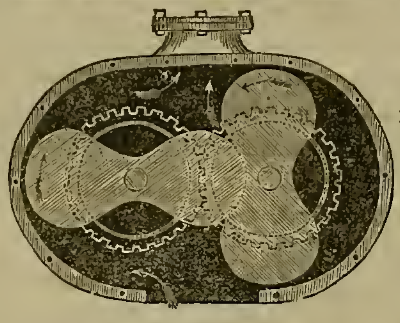
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 21, 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.



REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

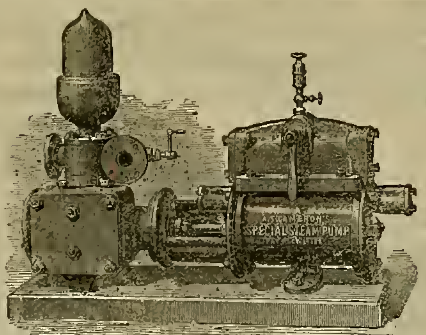
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m Globe Iron Works, Stockton, Cal.



CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

GIFFARD'S
INJECTORS.

MARINE
ENGINES.

SURFACE
CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

Rails, Newel Posts,

AND BALUSTERS.

Constantly on hand for sale, and shipped, together with all kinds of

STAIR WORK,

To any part of the coast. Practical workmen sent, when desired, to put up the same.

Work Warranted to Fit

by simply sending a correct ground plan of stairs, together with hight of story.

Wood-Turning and Scroll Sawing of all kinds promptly executed.

☞ Spanish Cedar, Walnut and California Laurel always on hand for sale.

Langland & Cameron,
STAIR BUILDERS,
309 Market street,
And 485 and 487 Brannan street,
SAN FRANCISCO.
16v16-1y

CROSS' COMBINED
Heater & Sediment Collector

This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal.

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

Scientific Press.—Dewey & Co. are the publishers of this sterling paper. It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican.*

"The Manufacturer and Builder."

A PRACTICAL JOURNAL

—OF—

INDUSTRIAL PROGRESS.

PUBLISHED MONTHLY.

NOW IN ITS SECOND YEAR.

Every Manufacturer and Builder should have it. Every Operative and Mechanic should have it. Every Architect and Mason should have it. Every Painter and Plumber should have it. Every Carpenter and Blacksmith should have it. Every Counting-room and Library should have it. Price within the reach of all.

Subscription only $1.50 per year.

32 Large Quarto Pages for 15 cents.
348 Large Quarto Pages for $1.50.
Filled with valuable reading matter.

It costs less than Three Cents per Week!

A single hint in this paper may be worth hundreds of dollars, or prove a fortune to many.

"The Manufacturer and Builder"

Is splendidly illustrated with engravings of everything new relating to manufacturing and building.

Get Your Clubs Together.

PREMIUMS.

We are induced to offer the following Cash Premiums to those who will work to get up those clubs. $5, $10, $15, $20, made in as many minutes! Read! Read! Read!

On every club of 4 names, at $1.50 each, $ 1 cash.
On every club of 10 names, at $1.50 each, $ 3 cash.
On every club of 15 names, at $1.50 each, $ 6 cash.
On every club of 20 names, at $1.00 each, $10 cash.

Including twenty and for every additional name obtained above that number, fifty cents each.

Where from ten to five hundred men congregate daily, there is no difficulty in raising these clubs. If the money be forwarded to us with a list of names, the amount of premium may be deducted from the same.

Push the good work, and make glad the hearts of your fellow-workmen.

CLUBS IN VILLAGES AND TOWNS may be procured by any enterprising man or woman. Send for specimen copy, circulars, instructions, etc., free. Take them and go among your friends and neighbors. In a half day you will often accomplish the task, and five, ten, or fifteen dollars will be earned, together with the satisfaction of knowing that you have benefited your fellowmen. Adress your orders plainly,

WESTERN & COMPANY, Publishers,
P. O. Box, 5969. 37 Park Row, New York.
☞ For sale by all newsdealers. 9v20-4w

STEAM
FIRE-PROOF
SAFES

SANBORN'S PATENT.

Perfectly Dry in Use.

ACTUALLY FIRE-PROOF.

GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

☞ Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by

ROSS, DEMPSTER & CO.,
105, 107 and 109 California street,
5v20-3m San Francisco.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf 414 Front street, San Francisco.

Mechanics' Institute, No. 27 and 29 Post street, San Francisco.

The Library contains 16,000 volumes of the best works of Science and General Literature, all the popular works of the day being added as soon as published.

The Reading Room is regularly supplied with all the City Papers, and Papers and Magazines from all parts of the Pacific Coast, the United States, Europe and the Colonies.

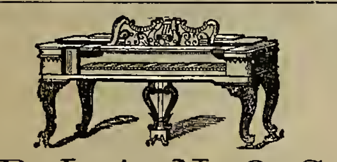
Terms of Membership: Entrance Fee, $1; Quarterly Dues, payable in Advance, $1.50.

☞ Non-residents of the city allowed the use of the rooms on payment of fifty cents per month, in advance.

A. S. HALLIDIE, President.
GEORGE PARDY, Secretary. 10v20-1m

The Aerial Steam Navigation Company.

At a meeting of the stockholders of this company, December 17th, 1869, Messrs. Eugene Sullivan, Thomas N. Cazneau, Henry F. Williams and Simon L. Jones were appointed a committee to receive subscriptions for one thousand shares (one-tenth of the capital stock of the company) at the rate of ten dollars per share of the par value of one hundred dollars, said shares to be *unassessable.* The funds thus raised are to be devoted exclusively to the construction of the first aerial steam carriage, and to be deposited in the Bank of British Columbia, to be disbursed upon requisition of Mr. George K. Gluyas, Engineer of Construction. The working, drawings, etc, can be seen at the office of Gen Thomas N. Cazneau, No. 321 California street, where subscriptions will be received. No invention for navigating the air has before received such positive indorsements from engineers of reputation, or so liberal encouragement from prominent capitalists' as Marriott's Avitor, which now seems sure of being thoroughly tested on large scale. 2v20-my



PIANOS

From the following celebrated Makers:

CHICKERING & SONS, MARSCHALL & MITTAUER, J. W. VOSE.

— ALSO —

Mason & Hamlin's Cabinet Organs,

— AND THE —

METROPOLITAN ORGANS.

KOHLER, CHASE & CO., Wholesale and Retail Agents corner Sansome and Clay streets, San Francisco. 11v20

SAN FRANCISCO Gold and Silver Plating Works.

ATTENTION.

Quartz Mill Men,
MINERS,
HOTEL KEEPERS,
— AND —
OTHERS.

ATTENTION.

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

☞ The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. A full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

SPAULDING & BARTO,

BOOK AND JOB PRINTERS,

Scientific Press Office,
NO. 414 CLAY STREET,

CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,
AND
PRINTING OF ALL KINDS FOR BUSINESS MEN
BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,
Neatly, Correctly and Promptly Printed.

☞ ☞ ☞ ☞ ☞ ☞ ☞ ☜ ☜ ☜ ☜ ☜ ☜ ☜

TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. C. ALLEN & CO., Augusta, Maine. 5v20-3m

---

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

- Patents Obtained Promptly.
- Caveats Filed Expeditiously.
- Patent Reissues Taken Out.
- Patents Secured in Foreign Lands.
- Assignments Made and Recorded in Legal Form.
- Copies of Patents and Assignments Procured.
- Examinations of Patents made here and at Washington.
- Examinations made of Assignments Recorded in Washington.
- Examinations Ordered and Reported by Telegraph.
- Rejected Cases taken up and Patents Obtained.
- Interferences Prosecuted.
- Opinions Rendered regarding the Validity of Patents and Assignments.
- Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.

Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

SAN ANTONIO PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of

STONE WARE,

Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also

Chemical Ware, of Sorts Made to Order.

We manufacture to order

Terra Cotta Equal to the Best French.

Samples on hand.

FIRE BRICK.

A No. 1 article made to order, warranted superior to any imported.

Flower Pots and Ornamental Vases

Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

☞ Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.
8v20-tf

MAGAZINES.	P.An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

To Solicitors.

AGENTS WANTED.

One or two active and reliable Agents can obtain permanent and profitable employment by addressing or calling at this office.

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods CHEAPLY, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $25 per hundred; 20 per cent. off to the trade. Address,

HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of

Melting Pots, Portable Furnaces,

CRUCIBLES, and other fire-standing Goods,

Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco. 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S. Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696.854 80

ASSETS IN GOLD.

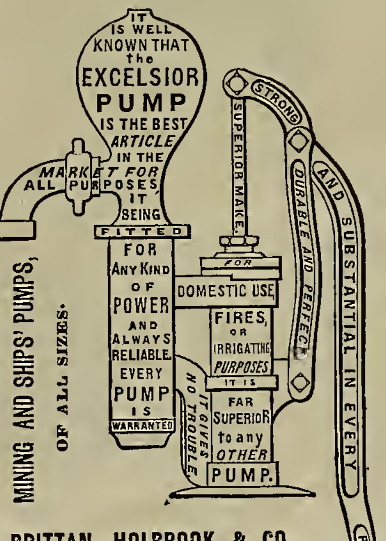
Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.
9v20-qy16p


IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE, FIRES, OR IRRIGATING PURPOSES
IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE
SUPERIOR MAKE.
STRONG
DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

W. T. GARRATT,

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURER OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells,

TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —

HARDWARE,
BAR AND SHEET IRON,

Steel, Coal, Smiths' and Miners' Tools,

Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and

RAILWAY SUPPLIES.

— ALSO AGENTS FOR —

ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY.

54 K Street, Sacramento.
7v20-ng

N W. SPAULDING,

Saw Smithing and Repairing ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

PACIFIC Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

— AND —

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

— ALSO —

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology. and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v16-1y16p

ENGRAVING ON WOOD

DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO., Patent Solicitors.

San Francisco, Saturday, March 19, 1870.

VOLUME XX. Number 12.

Bull Run District.

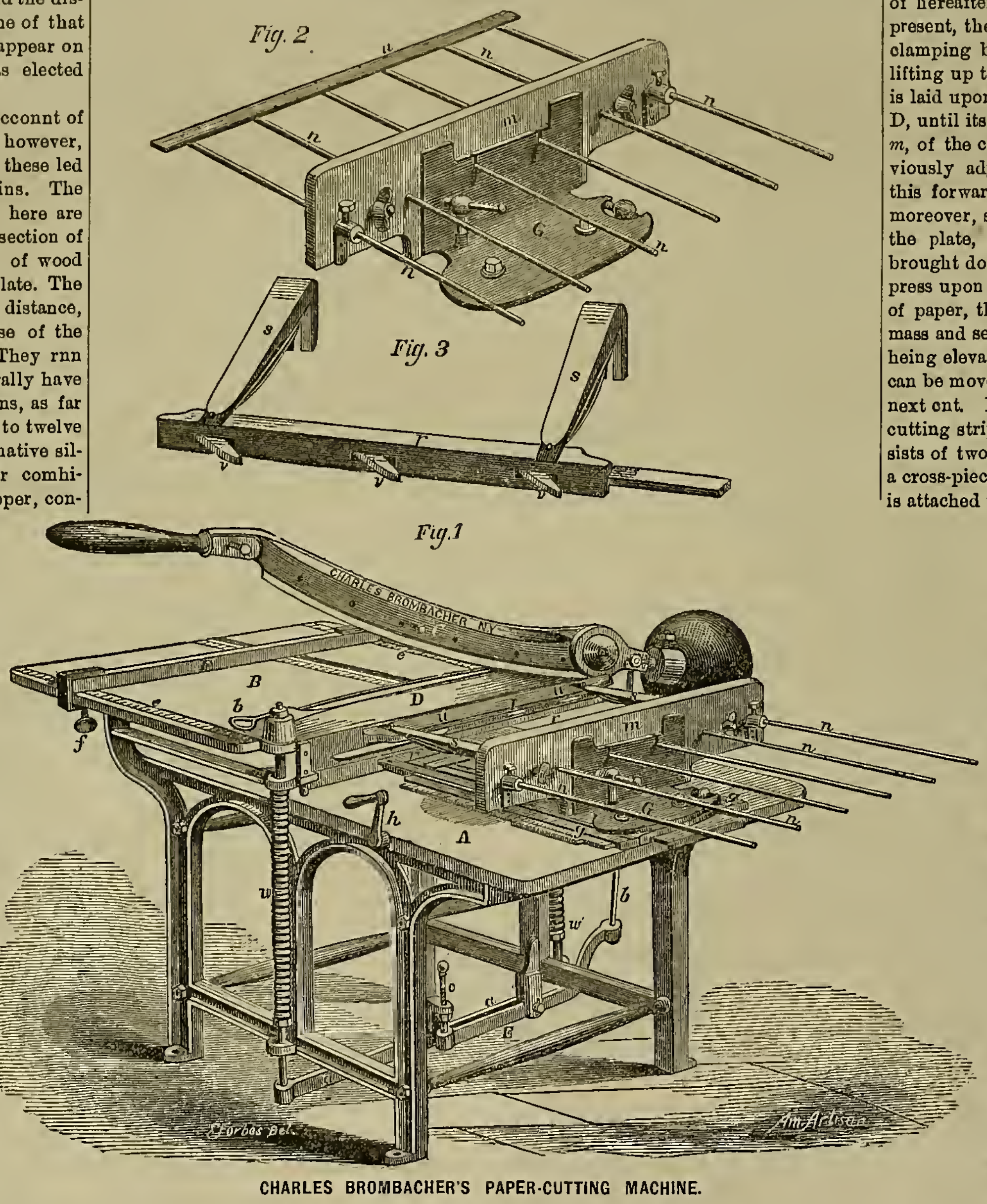
We received a call last week from Mr. J. Johnson, who is engaged in practical operations in the above-named locality, and who gives us some data with regard to the place. This is situated on the line of Idaho and Nevada, about fourteen miles south of Cope, and eighty miles from Elko. The discoveries were made in 1869, and the district organized on the 22d of June of that year. About 150 to 200 names appear on the papers. James Patterson was elected Recorder.

The first excitement was on account of the placer diggings, from which, however, not much has been obtained; but these led to the discovery of the quartz veins. The country is mountainous, in fact here are the highest mountains in that section of the country. There is a plenty of wood and water. The country rock is slate. The ledges have been traced a long distance, from one to two, and, in the case of the Nevada, five miles, it is said. They run about north and south, and generally have a dip towards the east. The veins, as far as opened, vary from six inches to twelve feet in width. The ore contains native silver, horn silver, and several other combinations of that metal, some copper, considerable arsenic, and in places large amounts of galena and pyrites; oxide of iron is also found and some native copper. The principal mines are the Porter, Nevada and Found Treasure. Ex-Governor Chellis is one of the most extensive operators, and proposes putting up a 20-stamp mill in the spring. Considerable of the rock has been worked in various places. Three and a half tons from the Porter, worked in this city, yielded $3,700 to the ton. Mr. J. showed us a certificate of assay of ore from the Ophelia, which yielded $125.48 gold, and $948.81 silver, or a total of $1074.29 to the ton. The only mines worked this winter are the three mentioned above and the Norwich, but a number of others will be opened up in the spring. The greatest depth reached, so far, is twenty feet, and the ledge shows well.

* * *

The State Normal School.—The exercises of the graduating class were held at Platt's Hall on the evening of the 10th inst. Essays were read and songs sung, and the evening passed very pleasantly. Such an institution as this should have the greatest care and attention bestowed on it, as one of the most important in promoting civilization, or, in other words, education. The number of graduates this year is 44. We cannot speak too highly of the exercises, which reflected great credit on teachers and scholars, and wish we had the space to particularize.

Brombacher's Paper-Cutter.



CHARLES BROMBACHER'S PAPER-CUTTING MACHINE.

Among the numerous machines for cutting paper, we give this week an illustration of an ingenious but rather complicated apparatus which is intended for this purpose, although we think that all knives of this kind are, in practice, better adapted for cutting board for the binder than for paper. A suitable frame-work supports a table, A, which, in turn, sustains the gaging mechanism, and also, at its back part, the platform, B, whose principal use is to hold the paper. The front edge of B is so formed as to constitute the fixed shear-edge past which works the cutting-blade, C, which has a counter-weight at its outer end. A clamping-bar, D, is secured to vertical rods, which are connected by a transverse bar, *a*, a lever, E, and the rod, *b*, with the arm of the cutting blade. The vertical rods have spiral springs, *w*, which tend to press D down on the paper; the lever, E, is furnished with a short stem, *c*, which passes through a vertical socket in the bar, *a*. These parts are so arranged that when the cutting-blade is raised up beyond a certain point, the lever, E, will be operated to raise the clamping bar, D. When thus raised, this bar may be retained in an elevated position, irrespective of the movements of C, by means of a simple device operated by a horizontal rod, *b*, shown above D. The platform, B, is provided with scales *e*, and a gage-bar, F, which can be adjusted in any position, and there retained by means of the screws, *f*. On A are two guides, or ways, *g*, upon which is placed an adjustable carriage, G. On the under side of this carriage are racks which gear with pinions on a transverse shaft turned by a handle, *h*, so that the carriage may be moved in or out. The upright plate, *m*, of the carriage is furnished with a series of horizontal rods, *n*, connected at their inner ends by a flat strip, *r* (on Fig. 1, or *u* in Fig. 2). These constitute a gage-frame, which supports the paper to be cut from the mass and gaged by the plate, *m*.

A supplemental device, I, is applied when strips, instead of sheets, are to be cut from the mass of paper, and this will be spoken of hereafter. This being removed for the present, the operation is as follows: The clamping bar, D, having been raised by lifting up the blade, C, the mass of paper is laid upon B, and brought forward, under D, until its forward edge touches the plate, *m*, of the carriage, G, which has been previously adjusted in the proper position, this forward portion of the paper being moreover, sustained by the gage-frame of the plate, *m*. The cutting-blade is then brought downward, thereby causing D to press upon and hold in position the mass of paper, the cutter shearing through the mass and severing the sheets: The cutter being elevated, D is raised and the paper can be moved to the proper position for the next cut. In order to fit the machine for cutting strips, the appliance, I, which consists of two elastic horizontal arms, *s*, and a cross-piece, *r*, (in Fig. 3, or *u* in Fig. 1), is attached to and behind the plate, *m*, of the carriage, G. The portions of paper to be severed from the mass are supported during the cutting operation by short studs, *v*, which project from the cross-piece, as shown in Fig. 3. This cross-piece serves as a stop in the place of the plate, *m*, against which the front edge of the paper may be gaged, and the arms, *s*, being elastic, are capable of yielding beneath the back of the cutting-blade when it descends, so that strips, no matter how narrow, may be cut from the mass without interference from the gaging devices.

This paper-cutting machine, which is patented and manufactured by Charles Brombacher, of New York, has been previously illustrated and described in the *American Artisan*. It is worthy of notice, although, as before remarked, experienced workmen are generally opposed to this style of cutting-blade, and it would seem as if simpler constructions might answer in many cases equally well.

* * *

W. T. Garratt & Co.—On the first of February, W. T Garratt, pioneer brass foundryman, admitted to partnership with him Messrs. W. T. Little and James Hillman. Mr. Little is an old hand in the business with Mr. Garratt, and Mr. Hillman has been master mechanic at Mare Island for some six years. Mr. Garratt has just returned from a trip to the Atlantic States.

Communications.

Mills and Mines of Colorado.—No. VIII.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

At the lower end of Georgetown is a large mill, with a sign about twelve feet long and in great bold letters—"No admittance. By order of the trustees." Of course I did not put myself out of the way to ask admittance. I stopped, however, and looked at it, and not a sound was to be heard. Dead, thought I, as mills generally get to be which put on so much "fuss and feathers." I always think when I see signs like this, that the best things trustees could do would be to get one more keg of nails and board up windows and doors, and save money for stockholders thereby. I don't pretend to say how it is here, but in California and Nevada, where Eastern companies have started in with such excessive exclusiveness, they generally come out at the little end of the horn. It is a good evidence of nonsense, rather than of practical common sense work. Profitable mining has more solid practicability about it than almost any other business, and the moment it steps so far into laboratory workings as to require exclusiveness, why, it's on an unsafe track, to say the least, and, on general principles, the sooner they get out of it the more money is saved.

As I have started out fault-finding, I will keep it up for this letter, for fear I may not be in as good humor for it at another time.

In Colorado they rate ore by the cord, which sounded rather odd; but as they say nothing is odd when you get used to it, so I presume Coloradians don't notice it. A cord of wood and a cord of quartz is the same, excepting that you know what a cord of wood is, but how many tons there are in a cord of quartz you can't tell without weighing, as some will go ten and some five, and all intermediate amounts.

American quartz miners generally calculate ore by the ton. It is so in California, Nevada, Arizona, Idaho, Montana; and why Colorado should keep all the rest of us in the dark as to her riches, by using the indefinite term "cord" (and seven-eighths of the miners don't know what it means when they see it) is a query. I have rebelled against the word whenever I have heard it used, and am in hopes to see it dropped by the press if not by the community. Cord is an English term, at all events, Australian, but none of the worse for that; uniformity is what I look at. As things look about here, to an outsider they are rather slow; the stamps go slowly, they build mills slowly, in fact, its rather slow going generally. There is not that "git up and git" that can be seen in the mining districts of Nevada especially. The stamps, instead of going thump, thump, thump, at the rate of sixty to eighty per minute, go chug, chug, chug, at from fifteen to thirty, and much oftener the latter. I saw one twenty-four-stamp mill which took ten months to build, and another institution that has been two years, either one of which would have been put up in California or Nevada, and "busted" a whole host of stockholders, or made them rich, in half the time.

A few weeks ago there was quite a controversy, through the Central City *Register*, a live paper which gives us "Pacific telegrams," as to leaks in low mortar batteries, and it was decided, I believe, that there never was obtained enough gold from under them to pay for cleaning. The reason probably is, because so little is used. In California low batteries were abandoned, for the reason that there was no such thing as keeping them from leaking more or less; and neither can you, Coloradians, if you use mercury in your batteries in desirable proportions. In all our mining we use too little mercury, and in so doing "hold in at the spiggot and let out at the bung." Use plenty of mercury, and look out for it when using it. Well, I can't think of anything more to grumble at just now, and from this fact you may see that most of their faults are readily overcome, and then it may be simply a difference of opinion between Coloradians and a California-Nevadian.

California Gold Nuggets.

[Written for the Scientific Press.]

EDITORS PRESS:—As we have had hitherto no particular record of the large nuggets of gold which have been discovered from time to time in this State, I present you with the following list of some of the localities, as near as can be ascertained, for the purpose of adding something on this interesting point:

SISKIYOU COUNTY.—In a gulch near the Klamath river, a short distance above *Groot's Ferry*, some years ago, a nine-pound lump of almost pure gold was found; and at various times numerous smaller ones, weighing from a few ounces upward, have been discovered.

SIERRA COUNTY.—At *French Ravine*, at various times, large nuggets have been found: In 1850, a mass of quartz and gold, weighing about 36 pounds, over half of which was gold; in 1851, a mass of quartz and gold, worth about $8,000, besides numerous smaller ones, weighing a few ounces and more; in 1855, one of quartz and gold, valued at $10,000; and in 1860, one worth $1,760.

At *Smith Flat*, a short distance above the last locality: In 1861, a mass of quartz and gold worth about $1,500; in 1864, one weighing about 140 ounces, and with but very little quartz; in 1866, one weighing about ten pounds, most of which was gold.

At *Forest City*. In the Live Yankee claims, from 1854 to 1862, twelve nuggets, some of them very interesting specimens, were found, weighing from 30 to 170 ounces each. The Oregon Co's claim, adjoining the last, furnished, between 1856 and 1862, numerous nuggets weighing from 30 to 100 ounces. In other claims in the vicinity numerous large ones have been found. In the Hope & Co. claims, four miles below the Mountain House, a nugget of almost pure gold, valued at $1,770, was taken out.

In *Minnesota*, at various times, numerous large boulders have been found, some yielding over $5,000. In 1869, a nugget of almost pure gold, worth about $2,000, was found at the Little Grizzly Diggings. The same year the Monumental Q. M. Co., at *Sierra Buttes*, took out a piece of quartz and gold worth some $30,000, according to reports.

NEVADA COUNTY.—At *Remington Hill:* In 1855, a nugget of quartz and gold, worth $3,500; in 1867, one worth about $2,400; and at numerous times various pieces, weighing a few ounces and more, have been taken from the same hill.

At *Lowell Hill*, in 1865. a mass of quartz and gold, worth about $1,100, was found, besides numerous smaller ones at different dates.

EL DORADO COUNTY.—In the vicinity of *Pilot Hill*, various boulders of quartz and gold have yielded large amounts; one, in 1867, yielded about $8,000. At the Spanish Dry Diggings, a few years ago, a beautiful mass of dendritic crystallized gold was found, which weighed about 16 pounds, besides numerous smaller pieces.

PLACER COUNTY.—In 1864, on the middle fork of the American river, two miles from *Michigan Bluffs*, a fine large mass of almost pure gold was found, which weighed 15¼ pounds.

CALAVERAS COUNTY.—In the quartz claims at *Carson Hill* numerous masses of gold weighing from six to seven pounds have been found. In November, 1854, a nugget of quartz and gold was discovered in this county which weighed 195 pounds troy, valued at $37,400. This is the largest piece ever found in the State.

There is no doubt but that many other large masses of gold have been found in the State, and it is to be regretted that we have no full list. I give the above as a start in this matter. C. D. V.

* * *

TOBACCO.—Professor Sée, of Paris, in a recent lecture on tobacco, pointed out that the proportion of nicotine varies according to the kind of tobacco. Thus, that produced in Germany and Alsace contains from seven to three per cent. of nicotine, while that from Havana and Maryland has only two per cent. In small doses, nicotine aids respiration, and does not affect the heart; but in larger quantities the Professor showed that it produces convulsions of the respiratory muscles, an accelerating and intermitting pulse, and a tremulous condition of the muscles.

* * *

A NEW French invention is a portable fresh butter churn, to be used at each meal. It is made of crystal and mounted on silver feet. A silver rod revolves quickly in the cream, and presents a pat of butter every three minutes.

The Climate of California.

At a meeting of the Academy of Sciences in this city, last week, a very interesting paper was read by the President, Dr. Blake, on the climate of this State, more particularly in relation to our extreme seasons of drought and rain. After alluding to the laws which govern the general movement of the atmosphere—laws as inevitable and determinate in their action as the ordinary changes in the weather are apparently capricious—it was remarked that the

Polar and Equatorial Currents

which in the regions of the trade winds are superimposed, the one on the other, in the more northern or southern latitudes run in parallel streams over the surface of the earth, the southern or equatorial current, with the warmth and moisture, most frequently reaching the polar region over the surface of the larger oceans, whilst the polar currents predominate in the interior of the continents. These currents are evidently subject to great lateral displacements, and it is to the mixing of cold and dry polar currents with the moist and warm equatorial current that most of the storms and rain in the temperate zone are to be attributed, and not, as is usually supposed, almost exclusively to the vertical descent of these air currents. These vast air currents often occupy a large portion of the earth's surface for considerable periods of time, without apparently any lateral disturbance, causing extreme seasons of drouth or rain, as the regions over which they prevail are situated under a polar or equatorial current. In applying these laws to the climate of this State, it was stated that in our ordinary winters,

Our Geographical Position

is such that we are situated about in the parallel where the two currents mix, so that the frequent lateral displacements to which they are usually subject give us a sufficient rain-fall; but in extreme seasons of drouth we are more completely under a polar current, and in seasons of great rainfall we are more in the equatorial current, or, more probably, about at the point where the two currents meet, and where the greatest atmospheric disturbances take place. The influence of our mountain chains in deflecting the S. W. equatorial current is shown by our storms when we are fully under the influence of this current, being almost always accompanied by a S. E. wind, whilst in Europe the S. W. winds give the most rain. The same barrier to the eastward, by opposing an obstacle to the sudden lateral eruption of masses of warmer or cooler air into the colder or warmer currents, prevents the occurrence of thunderstorms and cyclones in our State, and also accounts, probably, for the barometer not falling so low in our southern storms as is usually the case in other portions of the temperate zone when equatorial storms prevail, the air being heaped up by striking against the Sierras. Illustrating the above observations by the more marked features of our climate during the present winter, it will be seen that

Our Early Rain

In October was caused by our coming for a short time under the influence of the southern current which had been prevailing in Oregon during the latter part of September and in October, causing very heavy rains. On this occasion the northern current was not displaced far enough for the equatorial current to reach the southern part of the State, although all the northern part of the State, and as far as some fifty or sixty miles south of San Francisco, came under its influence. From October until February the northern current prevailed over the whole State, with occasional irruptions of moist air from the edge of the south current which was prevailing at a hundred or two miles to the westward of the coast, as during the month of December, particularly, almost every ship that arrived reported heavy weather, with strong S. W. winds, at a short distance from the coast. About the 7th of February indications of the coming southerly current were observed, and on the 9th it reached the surface here about noon, although it was felt at Virginia City some hours earlier, as a S. W. storm of great intensity, the greater elevation of this point (about 8,000 feet) accounting for its being first reached.

The Details of the Last Storm,

As it reached different points of the State, were shown to be connected with the lateral displacement of the air currents, and from a comparison of the weather here with that prevailing during the winter in the Western and in the Eastern States, it was shown that the breadth of the Polar current, near the western edge of which we were situated, had its eastern border in the western part of the Mississippi Valley, whilst to the east of this an equatorial current has prevailed during the greater part of the winter, ensuring a warm, moist season, over most of the Middle and Atlantic States, whilst that part where the borders of two currents came into opposition has been marked by severe tornadoes and storms in the Mississippi Valley, on the eastern edge of the Polar current, and also on the western edge, at a short distance from our coast. At the time of the great displacement of the Polar current on this side of the continent, it would seem that the southerly current that had been prevailing in the Eastern States was displaced in the same direction as the eastern border of the Polar current reached the Atlantic coast, even in the Southern States, on the 21st—the time of the greatest lateral displacement on this coast; and it is

An Interesting Fact

That at the time these movements were taking place in the currents prevailing here, violent atmospheric disturbances were being felt on the Atlantic side and in Europe. There undoubtedly must be some law which governs these great atmospheric movements—some cause which makes a polar or equatorial current flow in some seasons for months apparently undisturbed between certain parallels of longitude, whilst in other years they occupy very different positions—which in some seasons causes these vast air currents to flow in a broad and apparently stationary bed, and in other seasons to be subject to frequent displacements. If ever meteorology shall afford a scientific basis for predicting the character of our seasons, it must be by a more careful investigation of atmospheric phenomena, in relation more particularly to the laws which govern the movements and positions of these large atmospheric currents.

Unfortunately, up to the present time but little attention has been paid to the subject under this point of view; but the extension of telegraphic communication over so large a portion of the northern hemisphere affords facilities for studying the subject, which it is hoped will not be long neglected. This continent, from the direction of our mountain chains, being more or less parallel to the direction of the air currents, offers a much better field for their investigation than the old world, in which the principal mountain chains are at right angles to the currents, causing much greater and more irregular atmospheric disturbances.

The memoir, of which the above is but an abstract, corrected for us by Dr. Blake from the reports in the dailies, will be published in the transactions of the Academy.

* * *

SWINDLES PRACTICED ON INVENTORS.—The *American Artizan* says: We have constantly brought to our notice the dishonest means of obtaining money from inventors and patentees practiced by a certain class of patent attorneys. Some of the dodges resorted to are so ingenious that we do not wonder so much at their success. Others are clumsy, and only succeed through the barefaced effrontery with which they are carried out. Among the latter, is the latest one we have heard of, in which an attorney, after having prepared a caveat and received the Government fee and a fee for his services in preparing it, persuaded the inventor to pay him fifty dollars additional to take it to Washington and see it properly filed.

Such cases, and worse, occur in California as well as in New York.

* * *

THE Russian newspapers announce that experiments will shortly be made on the Neva, with a new invention for propelling ships without using either paddles or screws. The author of this invention is M. Liwczak, an Austrian by birth, who, some time ago, invented a flying machine propelled by steam, and subsequently became the editor of a Panslavist paper published in Vienna.—*Van Nostrand's Eclectic Magazine.*

* * *

THE Western Pacific Railroad Co. are going to build, at Oakland Point, a large and commodious boarding and lodging house, for the accommodation of their workmen. This action has been brought about by the high prices charged for board and lodging in Oakland, which are twenty-five per cent. higher than in San Francisco.

* * *

THE manufacture of alcohol from reindeer moss, which was set on foot in 1867 by Prof. Sternberg, of Stockholm, is now carried on to a considerable extent in Sweden and Norway.

Mechanical Progress.

Progress in Boiler Engineering.—We quote and condense the following from the Chief Engineer's last monthly report of the Manchester Steam-Users' Association: "On the whole, the standard of boilers is improving. A greater number of furnace tubes are constructed with encircling hoops, flanged seams, or other suitable appliances for preventing collapse, and with the longitudinal joints welded instead of riveted, while the shells are more generally double-riveted at the longitudinal seams, and less frequently weakened at the base of the steam dome by a large opening. In many boilers steam domes are now discarded altogether, internal anti-priming pipes being substituted. Added to this, the boiler ends, instead of being in two or more plates riveted together, are made in one piece, those for the fronts being turned up at the outer edges, and bored out to receive the furnace tubes, the special advantage of which is that it insures a true circular shape. Also it is becoming more general to equip every boiler with a separate steam pressure gauge, as well as with a duplicate glass water gauge, and duplicate safety valve. Feed valve boxes are more generally attached to the boiler fronts, being placed where they are more accessible. In setting boilers, midfeathers, so conducive to external corrosion, are rapidly giving way to side walls. The watchword of all boiler construction, equipment, and setting, should always be, and is becoming, everything above board, open to view, and easy of examination."

The Secret of the Nickel-Plating.—At a late meeting of the French Academy, M. Dumas, the Secretary, made some remarks in reference to the invention of Dr. Isaac Adams, of Boston, noticed some time since in the Press, which made nickel-plating for the first time a practical success. He spoke of it as a "victory" which was likely to "throw light upon many of the phenomena displayed by electro-deposits." We quote:

"The discovery of Mr. Adams consists, above all, in having observed that when a solution of nickel contains the slightest traces of potash, magnesia, etc., the metal, instead of being deposited pure, will be found mixed with little particles of peroxide of nickel, which take from the adherent plating all its cohesion and its beauty. Further, the American chemist employs nickel salts entirely free from a fixed alkaline substance, such as the double sulphate of nickel and ammonia, or the double chlorate of nickel and ammonia. From this moment the operation is made with the greatest ease. The salt is decomposed in the bath, the nickel is deposited on the object placed at the negative pole, and the solution keeps neutral."

An Electro-Heating Apparatus.—*The Journal of the Telegraph* describes an arrangement for warming railway cars, the plan of which is based upon the fact that electricity, in passing through a conductor of insufficient capacity (such, for instance, as a wire of very small diameter), evolves or develops heat. The invention consists in providing an electrical conducting coil, or chain, with intervals of small conducting power, in traversing which the electricity will be caused to evolve heat; and further, in interposing between said obstructing intervals, free conductors of much larger size, which constitute reservoirs of electricity and radiators of heat. In the application of the invention for railway carriages or cars, it is proposed to employ magneto-electric machines, constructed especially for this purpose, for producing the requisite current, placed, if necessary, under the car, and to obtain the power to operate them from axle of the car.

A New Lock-nut.—Another device for the nuts on fish-plate bolts, described by the *Artisan*, consists in having a washer which turns with the nut, and when in place, has its edge indented by the blow of a hammer into a groove in the fish-plate. It is made of soft iron, in order that this may be easily done. It is made to turn with the nut by means of a depression, into which fits a corresponding projection on the nut, or by two leaves, left when it is punched, between which the nut is placed. When the nut is to be removed, it is first tightened a little. This drags the bend straight again, and it thus offers no hindrance to the unscrewing of the nut.

Another Anti-Incrustator.

Engineering describes a device for preventing the incrustation of boilers, designed by Herr Popper. The arrangement, as applied to a plain cylindrical boiler, consists of long strips of sheet iron, twelve inches in width, which are introduced through a man-hole into the boiler and there united, so as to form a half cylinder parallel to the lower half of the boiler. This is supported at a certain distance from the shell by projections on its exterior. Sigl's boiler, to which the apparatus was applied, is four feet six inches in diameter, and the space was an inch and a quarter at the sides, and two and a half at the bottom, the upper edges of the half cylinder being on the level of the low-water line. Herr Popper attaches to the half cylinder a series of central pipes, through which a downward current can flow to the bottom of the boiler. These pipes are five inches in diameter, and twenty-four inches apart. Around them, and filling the half cylinder for a depth of eight or nine inches, are placed pebbles. It is found that all the matters which would form incrustation are deposited upon and between these pebbles, and that the internal surface of the boiler remains perfectly clean.

Steam Engine Economy.—"It is easy to show that it is true economy to sell an old engine for scrap iron and purchase an improved one at full rates rather than pay for the extra coal. For instance, there are few engines working of the old style, regulating by the throttle valve, that furnish an indicated horse power for four and one-half pounds of coal per hour. This is equivalent to say five pounds per hour for each net or effective horse power. An engine developing eighty net horse power would then require 4,000 pounds of coal per day, or say 4,200 including banked fires at night. This for a year, or 300 working days, would equal 630 tons, which would cost, in many localities, upwards of four thousand dollars. Now, a new engine, with cut-off adjusted automatically by the governor, of a size capable of furnishing economically eighty net horse power, costs from $4,000 to $4,500. So it is safe to say that engines constructed with no regard for economy, require yearly, for fuel alone, an expenditure of money equal to the first cost of a new engine."—*Scientific American.*

New Steam Gauge.—At the meeting of the Polytechnic Club of the American Institute, Feb. 26th, a mercurial steam gauge, called the "American Eagle Steam Gauge," was presented. Its essential parts are a steel diaphragm, plated with nickel to prevent corrosion, and, resting upon it, a column of mercury, which is put in a chamber formed by an upper cover and a steel bottom. As the pressure acts upon this steel bottom or floor, the mercury is forced up in the tube, and the scale on the guard indicates the amount of pressure. The diaphragm being some three inches in diameter, gives the mercury in the glass tube above considerable motion. An adjusting screw at the base of the tube gives at once the means of always bringing the column to the zero point, and correcting any variation. The gauge shows remarkable accuracy, following the readings of a syphon gauge without variation through the whole length of its graduation.

A New Dyeing Material.—*Engineering* for Feb. 18th says that a discovery has just been made which promises to prove as important as the discovery of the aniline colors. It is that certain West Indian plants, which have been imported of late years for their fibrous material, have been found to yield a liquid which is a powerful dye, equally brilliant and beautiful with the aniline colors, and at the same time far more permanent, as has been proved by severe chemical tests. The colors, moreover, fix themselves without any mordant. The names of the plants are not given The process of manufacture has been patented, and the article will soon be introduced to the public.

The 600-Pounder Gun.—The 12-inch rifled muzzle-loader of 25 tons, now under test at Shoeburyness, Eng., is to be fired 500 times with a charge of 67 pounds of rifle large-grain powder and Palliser shot and shell of 600 pounds weight. The mean range of the gun at 10° elevation is 4,000 yards.

Scientific Progress.

Calorific Effects of Gases.

At the Salem meeting of the American Association in August, a paper upon this subject, prepared by Profs. Silliman and Wurtz, was read. We have space only for the conclusions arrived at. They are as follows:

1. That of all known gases, the highest calorific effects, under ordinary atmospheric conditions, are obtainable from *carbonic oxide;* whose calorific value, above 100° C., is about 3,000° C.
2. That in absolute calorific value, below 100° C., in the atmospheric medium, *hydrogen* surpasses its volume of any other gas; giving a temperature of about 3,200° C.
3. That for all modes of application—that is, for producing both high and low temperatures—the total maximum calorific effectiveness of carbonic oxide is a *constant quantity*.
4. Compound condensed submultiple volumes of hydrogen, like that in marsh gas, have much *less* calorific value in air than their volume of free hydrogen.
5. Condensed compound submultiple volumes of gaseous carbon, like that in olefiant gas, have no greater total calorific value, in air, below 100° C., than their own volume of carbon gas in the form of carbonic oxide; while above 100° C. their value is even considerably less.

What is Bathybius?—In remarking upon the sarcode which was brought up in abundance in the course of Atlantic soundings some years since, and to which Prof. Huxley gave the name of *Bathybius* (literally, "living in the deep"), Prof. Williamson, F. R. S., says in a late number of the *Popular Science Review:* "There can be no question that Bathybius is the lowest of those known protozoa, which, like the foraminifera, secrete calcareous elements. Remembering the extent to which the sacrode is diffused through the mud of the Atlantic, there appears much that is suggestive and important in the observation of Dr. Carpenter, that, had its power of secreting a calcareous framework been somewhat increased, so that instead of detached structures in the form of coccoliths, etc., it had produced a continuous calcareous mass, it would have given us a living prototype of the Laurentian eozoön. The discovery sustains Dr. Carpenter in his convictions of the animal origin of that primæval structure."

Spontaneous Motion of Protoplasm.—Prof. Schnetzler, who has made observations on the motion of protoplasm in the cells of the leaves of the water weed *anacharis alsinastrum*, believes,—says *Nature*,—the principal cause of that motion to be the action of oxygen, which passes through the walls of the cell, and of which a portion is probably transformed into ozone under the influence of light, as occurs also in globules of blood. The most strongly refracted rays of light have a marked influence on these currents, which are also no doubt affected by currents of electricity between the surface of the leaf and the contents of the cells. The energy of the motion depends principally on the temperature, showing the greatest vigor between 16° and 20° C. The anacharis is especially favorable for the observation of these motions; as, in consequence of the transparency of its tissue, they can be watched under the microscope without any preparation.

Geology of Alaska.—The *American Naturalist* remarks as follows upon Mr. Dall's explorations: "The most interesting results are the determination of the facts that west of the 105th degree of longitude the Alaskan coast is rising, that the former violence of volcanic forces is diminishing throughout the territory, and that there are no evidences of general glacial action. Mr. Dall has traveled thirteen hundred miles up the valley of the Yukon, and explored on the shores of Norton Sound, without obtaining any evidences of glacial action. The whole territory north of the Alaskan Mountains could not, therefore, have been covered by the same general sheet of ice which has scratched the section east of the Rocky Mountains. This raises an unexpected obstacle in the path both of the hypothesis of a general terrestrial glacial sheet, and the theory of floating ice."

The Anti-Development Theory.—T. P. Barkas, F. G. S., recently delivered a lecture to the members of the Newcastle Philosophical Society, upon the coal measure fishes and reptiles, in which he made use of the following language:

"Where is the connecting link, material or psychological, that indicates absolute progress from the lower to the higher, other than that of direct creative interposition? What amœba has become a chambered foraminifera? Where are the indications of articulate forms becoming molluscs? What proof have we that fishes have a tendency to reptilian specialities? Where in the whole wide range of creation is there a single indication that a lower creature has in the long course of ages been the progenitor of a higher? Notwithstanding protoplasmic and other theories, we appear to be no nearer the solution of the deep mysteries of life than were the philosophers of the world's grey dawn; and unless we obtain help from Sweden's greatest seer, and suppose that the material is an outbirth of pre-existing spiritual, we cannot improve upon referring all our problems of life, its succession and mysteries, to the direct fiat of the Almighty artificer."

Improvements in Electric Light Apparatus.—Prof. Jenkin, of Edinburg, has patented an arrangement for lighting up a buoy by a battery on shore connected with it by a submarine cable. The light is produced by a rapid succession of sparks, due to successive charges and discharges of a condenser charged directly from a voltaic battery, without the intervention of any induction coil. The condenser is charged and discharged by a tongue or contact-maker moving backwards and forwards between the battery terminal and an earth terminal. The motion of the tongue may be produced by clockwork wound up by the motion of the buoy, or by currents sent from shore through a second wire.

Action of Magnetism upon Gases.—M. Treve found that when the spark from an induction coil passes through a Geissler tube filled with hydrogen the gas becomes luminous, having a blue tint, plainly violet at the extremities of the tube, and of a fine red color in a capillary prolongation of it. But upon placing the latter part of the apparatus between the poles of a magnet the red instantly disappeared, giving place to a perfectly white light. In like manner oxygen, which gives a milky white light in the capillary tube, became red; nitrogen deepened its blue to a still deeper blue; the brilliant white of carbonic acid became deep blue; the blue of silicium fluoride became a bluish violet. The spectra of these luminous tubes changed when the capillary portions were subjected to the action of magnetism.

Cause of the Ignition of Meteorites. *Les Mondes* says that in a recent communication to the French Academy, Regnault stated that when any gas, as air for example, is traversed by any movement sufficiently rapid like that of sound, or by a body moving with a velocity comparable to that of sound, it may be considered as having lost its elasticity; it is compressed, but does not expand again; and hence the heat produced by the compression not being neutralized by the cold coming from subsequent expansion, may go on accumulating indefinitely. In the case of a meteorite, this increase soon brings it to a point of ignition, then to that of fusion. This theory appears to be more satisfactory than that which attributes the heat to friction of the moving body against the air.

Light of Phosphorescence.—Becquerel, who has been investigating that class of cases in which light is given out without appreciable heat, urges the study of the phosphorescent effects produced by the different refrangible rays which emanate from luminous sources, both artificial and natural. "These effects, like the chemical actions produced by radiation, need to be of but feeble intensity, far less than in the case of calorific rays, to be susceptible of observation. For instance, rays from sources scarce appreciable by our thermoscopic means, as those from the moon and the stars, afford very manifest phosphorescent effects; and, moreover, produce quite energetic chemical reactions."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Exchequer.—*Chronicle*, March 5th: This company continues to take rich ore out of Buckeye 2. Chalmers has several tons of average ore ready for shipment to Reno, for testing by the Stetefeldt process.

AMADOR COUNTY.

The *Ledger* of 12th says: Last week, a little son of Frank McBride picked up a specimen of nearly pure gold, near the Vaughn mine at Pine Grove, weighing two and a half ounces. The same week, Joseph Genazzi found one on Else's creek which weighed $36.

BUTTE COUNTY.

The Indian Valley correspondent of the Oroville *Record* writes Feb. 28th: The storm has been a great blessing to miners and ranchmen. The Round Valley dam was nearly empty, but the supposition is now they will have a fair supply for the reason. The Judkins & Kellogg mill is running on good rock. T. F. Emmons has bought the New York mill. The Crescent is again in full blast. The mill was idle nearly two weeks, on account of a strike by the workmen (Cornish) for the eight-hour system. Mr. Bearsford went below and obtained a new lot of hands. The Light mill and ledge is now owned by Blood & Co., and they are making preparations to commence work. Genesee, or Copper Town proper, has gone down. Only three men are stopping there. Placer mining will take a fresh start in the spring. At Greenville, prospecting is going on extensively, and some are making six to eight dollars per day.

CALAVERAS COUNTY.

Railroad Flat.—*Chronicle*, March 10th: Our neighbors at West Point and Sandy Gulch exhibit considerable activity. Moss & Doyle, at Skull Flat, own the champion mine in that section. They have over 100 tons of rock on the dump that will average $100 per ton. Fifteen tons of inferior ore crushed last fall paid $74 per ton. Gawne & Co., at the same place, who own the old "Zacetara," have resumed work.

EL DORADO COUNTY.

Placerville *Democrat*, 12th: About two weeks ago our townsman, L. C. Fiske, commenced prospecting on Quartz hill, a short distance from town. He had worked for several days with little encouragement, when observing a piece of decomposed quartz which he had thrown out of the hole, he broke it and found a specimen of gold. He has since realized from such detached pieces, from 25 to 40 ounces.

MONO COUNTY.

Dunderberg.—The Carson *Appeal* learns from Dr. Munckton, one of the owners, that two men by the names of Ayres and Isaacs, who had taken a contract to drift one hundred and fifty feet along the Dunderberg lode, struck exceedingly rich ore in large quantities.

NEVADA COUNTY.

Eureka.—Grass Valley *Union*, March 10th: The same old $2,000-a-day rock is running through the batteries.

Last year a Grass Valley gentleman paid a tax on an income of $1,000. His friends thought that he gave in his income at a large figure. He was in the quartz mining business, and he stuck to it. This year he returns an income of $35,000.

Mining Items.—Same of 12th: The mines are all steadily at work, and prospecting is active. The Coe mine is one of the revived ones. A new incline shaft is down 90 feet, and in a few days it will connect with the old incline, which will put the miners down 149 feet. In a few days rock for milling purposes will begin to come out. Webster & Co., on Randolph Hill, are drifting, and are finding very rich gravel. This gravel is of the compact kind, which is always full of gold. The Mammoth Co., just east of Webster & Co., are pushing their works steadily to find the lead. So far the Mammoth Co. have the boulders, cement and such other things as are just above an old river bed. The Empire Co., on Ophir Hill, are raising about 50 tons of rock per day, and the mill is crushing 40 tons. The rock is looking better than it has for some time past, and the supply is more abundant.

Eureka.—13th: Yesterday was the regular day for a clean-up of the mill. We have frequently announced that the Eureka gives about $2,000 per day of gold. Yesterday's proceeds showed better—the last twelve days giving between $26,000 and $27,000 as a yield without the sulphurets or the cleanings from the batteries.

Ditch Enterprise.—*National*, March 9th: Spooner & Co., owners of the American mining claim at Sehastopol, have located the waters of the Middle Yuha river, not heretofore appropriated, at Mississippi Bar, Eureka township, for the purpose of conveying said waters in a ditch to San Juan, Sweetland, Sehastopol, Birchville, French Corral, and other parts of Nevada county, for mining, manufacturing and other purposes.

Mutual.—Same of 10th: We understand the Mutual Co., four miles from Graniteville, are driving their incline shaft night and day. They have it down 250 feet on the ledge, which looks well, but is quite small—varying in thickness from 6 to 20 inches.

Alison Ranch.—From a clean-up last Saturday, from 60 tons of ore taken from the old shaft, we understand about $50 per ton was realized. The shaft is now down 100 feet.

Inkerman.—A perpendicular shaft has been sunk 75 feet, and the company are taking out some very good ore. They are now delivering 30 tons at the Gold Hill mill, which will be crushed in a few days.

Saulsbury Mine.—*Transcript*, March 10th: Saulsbury is taking out a large lot of specimen rock, and some of it looks as though there was more gold than quartz. He is satisfied that it is not a pocket, for a great deal of the fine gold can be seen all through the ledge in the tunnel. He will commence in a day or two to pound up in a mortar, the barrel or two of specimens he has been taking out. It is undoubtedly the very richest ledge ever found in this township.

Mulberry.—Same of 12th: The Mulberry ledge is a recent location of 1,200 feet, on Gold Flat. The discoverers sunk eight feet, in Burnell's lot, and the ten-inch stringer upon which they started was enlarged by another about the same size, making at that depth a well defined 20-inch ledge. The rock looks well.

The same of 13th suggests that a prospecting company be formed in that vicinity, with say 500 shares, and a paid-up capital of 10 per cent.; the money to be expended in the opening of mines where the investment appears good to a board of five trustees.

PLACER COUNTY.

The Ophir Good Friday.—Auburn *Herald*, 12th inst.: Six tons of rock from this mine, Jacob Cowan lessee, was cleaned up one week ago, yielding $2,080 pure gold, an average of $347 to the ton. The quartz was crushed at the old Schnable steam-mill. We are told this quartz scarcely showed gold to the naked eye.

St. Patrick.—We learn that the purchaser, C. F. Eaton, is taking out very rich rock, but no crushing has been had since McLaughlin cleaned up the refuse rock on hand when he sold the mine, and which yielded $300 to the ton. New hoisting works are to be erected.

Placer Canal.—A. J. Angel commenced the construction of this ditch five years ago. It is now completed, and will supply 1,000 inches of water the year round. It furnishes water for the working of numerous high bars and bank diggings, heretofore untouched, except for prospecting. It is estimated that this will furnish work for two hundred and fifty miners. The section where this ditch runs lies a little south and east of Michigan Bluffs.

Rattlesnake Bar.—*Stars and Stripes*, 10th: The late rain has given life to things. Our miners are going to work in earnest. There are several new claims to be worked on old ground, and there are many others that would pay well if worked with cheap labor and water—with large heads of 300 or 400 inches. Heretofore they used small heads, 75 or 100 inches, labor and water were high, and they made small wages. Now, with such apparatus as the globe nozzle, on the Crary & Boles claim, they would certainly pay.

Empire Quartz Mill.—The rock crushed is taken from the company's ledge at Doty's Flat, two miles distant. Stephen Quinn and John McFadden are the owners of the mill and mine. The mill is a water-power ten-stamper. While at the office, we were shown a large amount of bullion, the result of a few day's crushing.

The Shipley ledge is owned by Charley McFadden. The specimen rock from this mine shows a large quantity of free gold, with a more than average quantity of rich looking sulphurets.

American River.—Grass Valley *Union*, March 10th: A company has been organized in this county to work the Mammoth Bar, on the middle fork of the American. The company have plenty of capital and will commence work as soon as the water in the river will permit. This bar is just above Murderer's Bar bridge, six miles east of Auburn.

SAN BERNARDINO COUNTY.

A Los Angeles telegram of March 10th, says: Dr. Wozencraft brings specimens of ore from another tin ledge discovered by his son at Cajon Pass. Gold and silver-bearing specimens were brought from the same locality.

SAN DIEGO COUUTY.

Los Angeles telegram, 14th: From this county, San Bernardino, and every part of San Diego, the rush is to the new diggings. San Juan Capistrano is nearly deserted. From near Anaheim a large party has gone. Quartz has been brought into Anaheim, some pieces of which are fully one-half pure gold. The great extent of the district, it is thought, will start an unprecedented rush from all parts of the State.

A Los Angeles telegram of 24th says:—About forty men in small parties left for the mines to-day; more will leave to-morrow. The increased stampede seems to originate from favorable information received this afternoon from friends upon the ground. It is reported that the best lode yet found was discovered by some Chinamen; this has been jumped and the Chinamen driven off and three Celestials killed. It is said the quartz taken from this mine rivals the specimen rock from the Washington, and the ledge is wider and better defined.

SIERRA COUNTY.

Soale's Diggings.—Correspondent of the *Messenger*, 12th, says: Since my last, the flood-gates have been opened, and the miners are rejoicing in an abundance of water. The Enterprise Co. commenced washing this week.

Some of the old mine owners at Monte Cristo are selling out at $1,350 per share.

The Brush Creek quartz mill is running steadily day and night, and the mine is one of the best in Sierra. The Oriental mine, near Alleghany, is paying well, and other claims are prospecting better than heretofore. Judge Sherwood, of the Blue lead, told us that times were brightening.

TRINITY COUNTY.

Dutton Creek Mines.—*Journal*, March 5th: The general opinion is that it is the biggest strike made in this county for years. A large number of claims have been located, and the owners are starting in to work in earnest. The prospects obtained with pan and rocker range from 3 to 35 cents to the bucket. The only sluicing of which we have been informed, paid at the rate of $12 to the pan, and the gold was brought to town to show for it. The work was done in the first claims located, with a scanty head of water. Only four small boxes were used, and the bed-rock was not cleaned.

A careful estimate shows that the country intervening between the head of the proposed Stewart's fork ditch and Oregon gulch divide, comprises 120 square miles of good mining ground. All of this could be worked from the ditch, and one head of water used from two to six times before reaching the river. We doubt if there is such another opening for capital in the State.

YUBA COUNTY.

Oregon Hill.—Cor. of *Appeal*, 9th: The preparations made by the Union Hill Mining Co. have not been so advantageous as they would have been if rain and snow had fallen in abundance. This company has washed a good deal of "top dirt" by means of their reservoir, which now holds water to its utmost capacity. The three undercurrents in their flume work satisfactorily.

Arizona.

Walnut Grove.—Prescott *Miner*, Feb. 26th: A large party started Thursday for Walnut Grove and Wickenburg. Among them, C. B. Genung, J M. Tiernan, and P. Smith, go back to start their arastras, being satisfied that they can work their ores with profit. Mr. Genung intends soon to erect a few stamps and run them by water-power. Mr. Tiernan has presented us with a very rich specimen of ore from the Sutler lode, at Walnut Grove. The free gold crops out all over it. John White, Fred. Henry, and others, have struck it rich at the old Placeritas, near Walnut Grove.

Colorado.

Nevada District—Central City *Herald*, March 2d: B. C. Watterman is getting the water out of the "Flack," and will soon begin to take out ore.... Whitcomb is about to commence work on the Indiana lode.... Six Cornishmen, under the firm name of Roborts & Co., are working the claim 300 feet east of the Stalker shaft, on the California lode, and are taking out very rich ore in large quantities. For a long time three of the men worked out for other parties, and supported the three who were sinking the shaft. They are now getting from three to five cords of ore crushed daily, and reserve a large quantity of select ore for smelting. They are said to have $50,000 worth of ore on the dump.... Sweetzer & Bennett have commenced work on the Bad Joe lode.... Wm. Lyons, who has leased of Capt. Phillips the claim on the Jones formerly worked by Sullivan & Andrews, is taking out ore which runs 13 ounces to the cord.... The Howke claims on the California is being worked by a party of Cornishmen on half interest. They are taking out splendid looking ore.... Judge Morse's claim on the Indian, 200 feet west of the Howke, has been leased by Cornishmen, who are getting out first class quartz for smelting.

Idaho District.—The creek miners are beginning operations. Bruno & Co. are at work at Stony Bar. John Edwards is working on the lower end of Grass Valley Bar. La Caille & Co., on Buckeye Bar, and Schwartz has been working all winter on Illinois Bar. Theo. H. Lowe proposes to begin on Monday. The indications are that more gold will be taken out this season than last. On the Seaton lode 15 men are at work, in three parties. Capt. Dean is working his own claim, No. 7, and the other two parties are working under a lease. The ore is worth $70 per ton; a small lot sold for $100. The vein is large. S. C. Bennett is working the Terrific, half way down to Virginia cañon. It is a silver lode and assays from $50 to $300 per ton. Dr. Noxen is working the Crisis lode, and is producing a fair quantity of very fine looking silver ore.

Briggs.—Same of 9th: The Co. deposited this evening 390 oz. 14 dwt. gold, valued at $7,500 currency. It is the product of three weeks' run. Besides this, they have sold 44 tons of ore to Prof. Hill for over $100 per ton, making the gross product of the mine $12,000 for three weeks work.

Cyrus Hurd has leased the American Flag property, which has lain idle for two years and a half. It consists of 550 feet, and has several shafts, averaging in depth from 80 to 267 feet. It has an engine, hoisting works, and pumps, on the ground.

A sample of ore from the Seaton lode, Clear Creek county, assayed by Prof. Burlingame, gave 414 oz. 2 dwt. silver, and 2 oz. 2 dwt. gold. A sample from the Medlay lode gave 533 oz. 8 dwt. silver, and 4 dwt. gold.

Stewart's new reduction works will be completed early in the summer,

The Bullion Consolidated and Incas Silver M. companies have been making a test hole with the diamond drill, in the mountains, to prove the value of their property. The hole was started in the end of a tunnel 650 feet long, and has been driven 417½ feet. The main lode is 800 feet from the end of the tunnel. Another vein is 600 feet. To drive the tunnel to the main vein, a distance of 1,450 feet, would have cost $72,500 at least. To bore the testing hole, will cost about $17,400.

From the Boulder *News*, March 1st: We were shown on Saturday some specimens—gold bearing—by James Pell, owner of the Sucker lode, Gold Hill district. This is worked to a depth of 30 feet, showing a 3½ foot crevice of pyrites of iron and white quartz mixed. He is taking out ore for crushing, and has six cords on top of the ground.

The Georgetown *Miner* of March 3d says the contractor who has been running the diamond drill in Ten Mile district, in the Bullion-Incas tunnel, reports that he has bored a distance o. 317 feet.

Idaho.

Items.—*Avalanche*, March 5th: Doc. Waldref is working the Richman mine. The entire length of the tunnel, a portion of which runs through a snow bank, is 200 feet. The ledge looks well.... This week we were shown a purse containing about $100 of fine bright gold dust, from the Wagontown diggings.... Twenty tons of Home Resort ore, recently worked at Minear's mill, left a snug sum to the owner after the expenses were paid.... Geo. King, of Flint, is working the Pioneer mine with a prospect of good pay.

Bullion.—Wells, Fargo & Co. shipped from Owyhee during 1869, $835,181.07 worth of bullion, coin value. The total for 1869 may be put down at a million dollars, as the aggregate carried away in private hands would bring it up to that amount. This is from only two or three mines, and most of the time but two mills were in operation.

Mining Items.—*Chronicle* Feb. 26th: The mine known as the Gold Hill is turning out one of the most valuable in the Territory. They have a 25-stamp mill. One of their tunnels is over 500 long. They have struck the ledge at a distance of between 200 and 300 feet. The level that they are running drains the mine at a depth of over 600 feet.

A gentleman down from the Middle Boise informs us that Flournoy & McCall's ditch will be completed in two weeks. Plume & Co. have 2,000 feet of lumber on hand to build sluice-boxes and a hydraulic. There is 20 inches of snow on the claims of Plume & Co. The miners expect a good season, plenty of water and plenty of ground.

From Henry May, Willow Creek, we learn that everything bids fair for a prosperous mining season. Wright's ditch is completed, and conveys 1,000 inches of water to the mines. Chinamen were at work on the Williams claims.

Montana.

The Virginia *Times* of Feb. 23d has these items: The miners in Adobe Town have piled up a very large amount of pay dirt for the spring washing.

The vein in the Green-Campbell lode was laid open on Friday last. It is 5½ feet in width, and is tapped 110 feet from the surface. Another tunnel on the south extension has been driven in 380 feet. The rock is hard. As soon as the lower tunnel strikes the lode, it will be driven along the vein, securing an unbroken development 1,500 feet.

Everything is prosperous at Bannock. Large amounts of gravel ready for washing. It will be one of the best camps in the Territory.

Same of 28th says: We learn that the run made in Naves' 5-stamp mill, near Radersburg, of 100 tons from the Keating lode on Cow creek, yielded $36.50 per ton.

During the pleasant weather, in addition to the large dumps of pay gravel along Alder gulch, there has been sluicing done that yielded $5,000 a week during all weather suitable for sluicing—and more than half of the winter has been of that character. This would give an aggregate of $30,000 actually sluiced out.

The only thing going on in Sterling is the organization of a joint stock company to prospect Hot Spring creek. Work will be commenced this week.

Helena correspondence of same, March 2d: Reports from Cedar are mixed. There is no use of trying to do anything for the next three or four months. The snow is too deep for prospecting or mining, and the chances for starvation and hardships to parties trying to winter there, are lively.

The 10-stamp water-power mill in Granite gulch will start up in three or four days on ore from the Flying Cloud, a gold-bearing lead known to be rich.

Prospects at Mill creek are good.

The Iron Rod lead, Silver Star district, owned by Stevens & Trivitt, is yielding good returns. On Monday, Mr. Trivitt deposited in bank 150 ozs. of gold retort, the result of one week's run of their 10-stamp mill.

From same of 4th: Wisconsin gulch contains 800 inches of water. The present company have expended $25,000 in prospecting. In Nugget gulch, a right hand tributary to Wisconsin, as high as $50 to the pan have been obtained, and in the latter, $15 per day to the hand.

The Montana Mining Co. have a flume 4,000 feet long. The total cost foots up $55,000. The company started work in 1865, and now own three miles of ground in the gulch, which is so flat that it has been found a necessity to put up machinery. The top loam will be run off, as there is full enough; but the gravel will be hoisted into the sluices by water-power, supplied by a ditch which taps the gulch a mile above. The bed-rock is from 16 to 18 feet, and the dirt pays an average of five cents to the pan.

Miners' Ditch Co.—*New North-West*, Feb. 25th: The ditch will be the largest in Montana. It will carry 2,500 inches of water. Work was begun in December, 1869, and will be completed in July, 1870. It is being built on the joint-stock principle. Twenty five men have been employed during the winter. The number will be increased to fifty in a few days. Two miles are completed.

Cedar.—W. J. McCormick left Cedar a week since. When he left, only one string of sluices were set. These were Jim Lore's. It was reported that in two days, from eight set of timbers, he cleaned up $300, and that the ground had prospected $1 to the pan. No. "60 below" is the lowest claim yet opened to bed-rock. At "62 above" there was five feet of snow; "21 below," prospects from 5 to 50 cents in the gravel; and "58 below"—Joe. Carroll & Co's—from 3 to 15 cents. McCormick has $4.50, which he panned himself from five pans of dirt in "54 above" and "21 below." The bars are now attracting attention. They prospect well up 150 feet above the creek level. The abundance of water in the gulch, and the heavy grade facilities for hydraulicing these, if they prove good, will give permanency to the camp. A. J. Simmons and Jack Allport purchased the bar claim opposite "88 below," for $250, the other day. It has prospected as high as $3. A great deal of prospecting is going on in the neighboring country.

Philipsburg.—Deer Lodge *Independent*, Feb. 26th: The mill suspended operations last week, but we learn will be running again in a few days. The ores so far have not turned out so rich as had been expected. The chief cause assigned is, that the persons employed to select the ore did not understand their business. Mr. Saunders is keeping a force of hands employed on the Trout and Queen lodes. Pervine & Co. will now do custom work at their mill.

Emigrant Gulch.—Recent reports are to the effect that rich diggings have been struck. For a number of years, parties have been operating there with very good success. If reports are substantiated, there is little doubt that a large number will be attracted in the spring. The great drawback to prospecting is the treaty with the Indians, which gives them a right to prevent prospectors exploring the country.

Lower California.

A La Paz letter dated Feb. 18th, says the mines and works of the old Triunfo had been transferred to a new company, and that machinery to work the rich mine of Mendosina had been shipped; also, machinery for the Codicia mine and the reduction works.

Nevada.

COPE DISTRICT.

The Mountain City correspondent of the Elko *Independent*, March 9th says: A number of very rich ledges have been recorded within the past few days. The latest is the Sultana, three miles from town, discovered by W. G. Hanks. The ledge is five feet wide, is full of black sulphurets, and is literally covered with horn silver. Next is the Cocoanut. This is two miles west of town. From an assay made it returns $3,400 in silver and $127 in gold per ton. The first eastern extension has been taken up by Stanburn & Co., who have found the ledge, and are at work on it. Next comes the Capital, owned by Cowles & Co. It is six miles north of town, and is said to be a splendid ledge; New York, owned by Savage & Co., is turning out splendidly. They are working night and day. Next comes the Bourbon, situated on Crescent hill, owned by Taylor, Norton & Co., which looks fine. Whilst I am writing I am informed that a new ledge, which looks well, has been discovered by Mr. Martin, known as the New Brunswick.

Work is progressing on the Argenta, Mountain City, Great Republic, and Crescent. The Canty mill is working Crescent rock. When finished, they will commence upon Argenta. They have not made a clean-up as yet. It might be well to state, however, that the pans have choked up more than once, so great has been the amount of amalgam gathered in them.

The most energetic company in camp is Fuller, Ferguson & Co. They own the Mammoth, Estoll, Keystone, and others in Bull Run district. Another fine lead, the Virginia, is owned by Colgan & Co. They are down 58 feet, the ledge being two and a half feet in width, the rock assaying $556 to the ton. The Pride of the West is about to be worked by Handy & Co. It is rumored that a mill has been procured by this company. Lytle & Co. are working on their celebrated California tunnel. They are now in 482 feet.

Bullion.—Monday's stage brought in three bars of bullion worth $1,800, the result of the workings of 16 tons of ore from the Crescent mine in Mountain City, by Canty's mill.

Same of 12th: A party of prospectors from the Bruno mines have found what is supposed to be the very rich mine discovered in 1864 by men from Silver City, and abandoned on account of the Indians.

Capital and Crown Point.—The Capital, four miles north from Mountain City, is seven feet in width, the quartz being charged with sulphurets of silver. The Crown Point carries a larger percentage of gold than any mine in the district.

REESE RIVER.

Mineral Hill.—*Reveille*, Feb. 26th: The mild weather has enabled miners and prospecters to carry on their work with little interruption. Claims have been developed, large bodies of valuable ore extracted, and a number of new ledges discovered and located. The machinery for a 10-stamp mill, which has lain at a depot on the railroad for some time, will be erected immediately.

Sierra District.—Same of March 7th: Already a number of tons of ore have been shipped to Austin for reduction, and have yielded from $200 to $600 per ton.

Manhattan ore (Oregon mine) roasted at the Auburn mill at Reno, showed the percentage of silver chloridized to be 93 75-100 and 93 12-100.

Latest.—An Austin telegram of 14th, says: Eleven hundred and eighty-two pounds of bullion were brought to this city yesterday from Belmont for shipment. The Manhattan mill produced last week 13,603 ounces of bullion.

WASHOE.

Yellow Jacket.—Gold Hill *News*, March 12th: The body of ore recently developed at the 1,020-foot level looks better and better to the northward. It breasts out fully ten feet in width, and the south shaft being completed to that level, with a good drift connection, the ore is being taken out that way at the rate of 50 tons per day, milling on the average $30 per ton.

Imperial-Empire.—The new 120-horse power hoisting engine is completed, and starts up this evening for the first time. Next week it will be put into practical service raising the water from the shaft, there being about 110 feet of it at the bottom.

The old upper works of the Imperial are yielding from 35 to 40 tons of $20 ore per day.

WHITE PINE.

The *Empire* of 13th says: All the mines now being developed are showing better prospects than ever. A gentleman from Treasure Hill informs us that the general aspect of things is promising. Although parties are making an effort to bear the mines in order to buy at a low figure, miners are not to be gulled, but are determined to take out ore and send it to mill. The Silver Springs smelting works during the past four days turned out 122 bars of 120 pounds each. The Alsop works are in full operation with a large pile of bullion on hand. The mines of Blue and Bullion Hills are yielding well. The usual number of mills are busy. Ore is hauled on sleds to supply them. Work will be commenced on many of the mines as soon as the storm abates.

The *News* says that Melville Atwood, the distinguished mining engineer, has arrived in behalf of an English company who are in negotiations for five of the leading mines on Treasure Hill, at a price well up in the millions.

Items.—*News* 8th: Monte Christo mill and furnaces running on Mt. Ophir ore.....9th: Twenty tons Silver Wedge ore cleaned up yesterday at Tregloan's mill, $81 20 per ton....The Alsop Works, during the few days' run since the stoppage, turned out 800 bars of bullion of 90 pounds each, or 72,000 pounds of metal....10th: The dispute about title between the Pogonip and Othello and the West Point companies, after twelve months litigation has been settled by compromise....11th: The Magary Smelting Works yesterday shipped 32,773 pounds of base bullion. The same teams took away 6,000 pounds of bullion from the Shermantown Smelting Works.

Items.—*Empire*, 8th: All the furnaces of Shermantown and Swansea will be in full operation this week....9th: It is said that the Chicago Pioneer Co. are taking steps to purchase the Tom Paine mine....10th: Forty tons of bullion are piled up at the Alsop works ready for shipment. ....Wieland smelting works are stopped; doubtless for want of proper fluxes....The Big Treasure mill runs six days out of seven as smoothly as possible. It is well managed....10th: White Pine Smelting Works advertises for 5,000 tons of carbonate ore.....11th: We saw specimens from the Buttercup mine yesterday which are equal to anything we have seen in White Pine in the way of chloride ore. The ledge is six feet wide, and shows splendid metal all the way across the face of the excavation.

The Base Metal Interest.—Both of the White Pine journals contain articles upon the importance of this interest. J. E. Clayton says, in the *Empire*, that the mines now partially explored, and showing promise, could turn out four or five hundred tons of ore per day that would yield 25 per cent. of crude bullion. He says also, that it appears probable that by the middle of summer there will be in operation at least 50 furnaces, with a capacity of a hundred tons of bullion per day; and that if the ores are properly assorted and mixed, this bullion ought to be worth $225 per ton in San Francisco or New York.

New Mexico.

From the *Press and Telegraph*, March 2d: The Chester quartz mill, commenced last November, started up its twenty-five 612-pound stamps on Wednesday, for a trial. Everything worked well. It will run on custom work until a tramway to the company's lode is built. On the Great Eastern lode, Messrs. Rowe & Young have a shaft down 45 feet, well timbered. The vein is large and the quartz looks well. Crawford, Mitchell & Co. are running a tunnel to find the Gladstone silver vein, which they lost by a cave. Vernon & Co., on the Tecumseh lode, have good walls and a wide seam of quartz. Conley & Co. are developing the Atlantic. The shaft is down 80 feet. A number of tons of ore assorted for the mill, are ready at the surface. The Floorman & Smith lode has also a quantity of quartz piled up.

Moreno.—The *News* gives these items: Frank Daniels has just completed a 25-stamp steam quartz mill. He employs 60 men in the running of the mine and mill. Mr. Maxwell is running his mill successfully.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment.	Day Delinquent.	Day of Sale.
Alameda Coal, Feb. 16, 30c	March 30	April 22*
Bullion, Feb. 8, $4	Pay immediately	
Columbia, Cope, Jan. 29, 50c	March 5	March 25
Cordillera, Mexico, Feb. 17, 25c	March 25	April 11*
Cherokee Flat, B. G., Feb. 17, $5	March 22	April 8
Daney, Lyon co., Feb. 9, $1	March 14	April 2
Dutch Flat G. & O., Feb. 11, 75c	March 18	April 8
Eagle Quicksilver, March 14, $20	April 16	May 2*
Green Monster, Inyo co., March 10, $1	April 16	May 2*
Glenwood, El Dorado, Feb. 4, 25c	April 6	April 27*
Hartwell, W. P., Feb. 19, 5c	March 25	April 21*
Hope Gravel, Nev. co., Jan. 28, $1	March 1	March 21
Imperial, Storey co., March 7, $10	April 11	May 3
Julia, Storey co., March 12, 50c	April 15	May 3
Kincaid Flat, March 4, $2.50	April 5	April 23*
Meadow Valley, Jan. 29, 50c	March 3	March 22
Nevada L. & M., Feb. 8, 2½c	March 15	April 5*
Noonday, W. P., Jan. 20, 30c	March 2	March 23
N. S. F. Homestead, Feb. 9, $7.50	March 23	April 14*
Pocahontas, El Dorado, March 2, $4	April 2	April 28*
San Jacinto Tin, March 4, 5c	April 4	May 4
Segregated Belcher, S. co., March 2, $2	April 5	April 29
Savage, Storey co., Feb. 7, $10	March 14	April 2
Silver Wave, W. P., Feb. 19, 20c	March 21	April 11
U. S. Grant, Nev. co., Jan. 19, 50c	Feb. 21	March 26*
West Point, W. P., Feb. 22, 50c	March 26	April 18
Yellow Jacket, March 16, $7	April 18	May 19
Yosemite, March 7, $1	April 7	April 23*

MEETINGS TO BE HELD.

Cons. Chlorida Flat	Annual Meeting March 23
Cordillera, Mexico	Annual Meeting March 21*
Overman	Meeting April 11

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable Feb 7, 1870
Chollar-Potosi, div., $1	Payable March 10, 1870
Eureka, div., $7.50	Payable Feb. 7, 1870
Hale & Norcross, div., $6	Payable March 10, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

◆

San Francisco Prices of Copper Ores.

San Francisco, March 17, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	26 65	19 " "	44 85
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

◆

The California Silk Manufacturing Company.—We have received the prospectus of this association, which was incorporated on the 4th instant. The capital of the company is $50,000, in shares of $100 each. The formation and origination at the present time is very auspicious, and its want and importance is recognized by large numbers of our practical business men, all of whom are in warm sympathy with the enterprise, and the most of whom believe in its success. Over one-third of the stock is already taken, and it is confidently expected that discriminating men of business will promptly avail themselves of the opportunity to become pioneers in an important enterprise, and incidentally secure their own pecuniary benefit, while they lend important aid in promoting the prosperity and trade, not only of this city, but of the whole Pacific coast as well. Office of the company, 121 Post street.

San Francisco Mining Stock Market.

MINING SHARE MARKET.

The mining share market has been characterized by unusual activity during the week under review, and the recorded transactions at the Board show a larger weekly aggregate than for many months past. Nearly all the leading stocks have been in request at enhanced rates, and, at the same time, it will be observed that very violent fluctuations took place from day to day, showing that the market has been manipulated by speculators to a very great extent, and, we may add, to the injury of not a few dealers. However, all these improvements are based upon an improved condition of the mines, of which we have some evidence in a number of claims upon the Comstock lode, and to which many look for very satisfactory developments in the future; as it is, we believe that the dullness so long prevalent in the mining stock market will not recur very soon.

Hale & Norcross—was in moderate request, at an improved price. The weekly report of ore extracted, closing March 12th, is as follows: From 175-level, 117¾ tons; 300-level, 53; 535-level, 38; third station, 54; fourth station, 69; and sixth station, 742; making a total of 1,073¾ tons: previous week, 1,027¾ tons. They had on hand 7,207¾ tons, of which 2,485 tons is low grade. At latest date, the shaft was 44 feet in depth beyond the sixth station, and extended into the ore-body.

Gould & Curry—has not been in the market to so large an extent as the previous week. During the week ending March 14th, 518½ tons of ore were extracted, showing an average assay value of $49 25 to the ton; the previous week the ore product amounted to 368 tons. The work at the 20th floor in the North Potosi shaft has been steadily carried forward, and is developing a greater quantity of ore than first indications promised, samples assayed ranging from $200 to $800 per ton. The El Dorado section exhibits an improvement over previous reports. Since the last weekly report they have carried their operations a floor and a half further, and all in ore, average assays giving $50 to the ton. So far as this body has been opened, the indications point to an extensive deposit. Last Chance and United States stopes are yielding more abundantly, and of a better quality. At the seventh station nothing of an encouraging nature has been met with, samples of the best material in the northwest drift No. 2 giving $2 50 to the ton. Owing to the hard rock they now encounter, they are making slow progress.

Chollar-Potosi—was in good request at a moderate advance. For the week closing March 11th, 1,234 tons of ore were extracted, showing an average assay value of $50 78 per ton. During this time the drift running west from the New Shaft has been extended 27 feet, making the total distance from the shaft 307 feet. The water has increased considerably, and the work will progress more rapidly for some days to come. On the 15th inst. $23,370 in bullion was sent forward to the office in this city, and car samples of this date show an assay value of $62 10 per ton.

Kentuck—fluctuated considerably, rising to $105, and receding to $80 per share. A letter of the 12th inst. states that 335 tons show a yield of $20 78 to the ton. The prospecting drifts from the Sage Brush Station and the 230-level, running west, have as yet developed nothing that will pay to extract, and unless those drifts will cut bodies of ore, the chances of any material discovery being made in the old west works will be very small. The drift running north, commenced on the Crown Point ground, 150 feet from the Kentuck south line, has been pushed to the north line of the Kentuck Company, and a cross-cut east has not developed anything encouraging.

Crown Point—has been in large demand, under a general improvement. On the 11th inst. they sent forward $7,315 in bullion. During the week ending March 12th, the 65 per cent. assay value of 405 tons amounts to $5,847 51—equal to $14 44 per ton.——Overman makes the following ore exhibit for the week ending March 13th: from the lower tunnel, 488; upper tunnel, 497; and 500-level, 74 tons, making a total of 1,059 tons; previous week, 834 tons. On the 14th inst., $14,500 in crude bullion was sent to the office in this city.——Yellow Jacket levied an assessment of $7 per share on the 15th inst.

—*Commercial Herald.*

MINING STOCK QUOTATIONS, MARCH 17, 1870.

WASHOE.

	Bid.	Asked.		Bid.	Asked.
Alpha Con.	$ 14½	$ 15	Gold Hill Q M Co.	$ —	$20
American	—	—	Hale & Norcross	133	135
Belcher	21½	22	Imperial	32	32½
Bullion	5	—	Justice	75c	80c
Crown Point	22½	23	Julia	—	1
Cols, Va.	—	—	Kentuck	85	—
Confidence	15	20	Lady Bryan	4½	5[illegible]
Chollar-Potosi	26	25½	Occidental	15½	15[illegible]
Con. Virginia	10	—	Ophir	15½	17
Daney	4½	5	Overman	85	87
Empire	30	—	Savage	45½	46
Exchequer	10	11	Sierra Nevada	8½	9
Flowery	—	—	Seg. Belcher	6½	7
Gould & Curry	300	305	Yellow Jacket	43	43½

WHITE PINE.

	Bid.	Asked.		Bid.	Asked.
Aurora Con.	$ 2½	$ 3	Noonday	—	1
Brodt	—	—	Orig. Hidden Tr.	15	15¼
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	—	Silver Wave	1½	—
Mammoth	1¼	1½	Virginia	—	2

CALIFORNIA.

Amador	$360	$375	Eureka	$240	$ —

IDAHO.

Golden Char't.	$ 17	$ 18	Silver Cord	$ 2	$ 2½
Rising Star	—	—			

◆

School of Mines.—Senator Stewart has introduced a bill into Congress for the establishment of a National School of Mines.

◆

Railroad Map.—Next week we shall publish a map showing the railroad system of the central portion of California, with some facts about California railways.

◆

The Pastor is a zealous little sheet, published by Rev. Addison Jones, and printed by Spaulding & Barto.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Cultivation of Tropical Fruits.

The tropical sun distills many rare and costly juices, and produces spices, pleasant and fiery, in indescribable abundance and multitude. The variety of tropical fruits is wonderful indeed; but, as yet, very few have been *cultivated*, in the proper sense of that word. The lamented T. Starr King, in one of his inimitable addresses, portraying the miracle of the seasons—the mystery of fertility and production—the summer advancing northward, *like a spreading smile of God*, and the most helpless inhabitants of the globe living only in the brightest of that smile—referred, as follows, to the bounteous provisions of Nature within the tropics: "Every day," said the orator, "He sets a table for a thousand millions, and they are all fed on the influence of sunshine!"

The inhabitants of the Torrid Zone pay little if any attention to "cultivation." As a general thing, every production of Nature is there spontaneous. Man has, as yet, done but little to improve, by care and art, the bountiful gifts of Nature within the tropics; yet there is every reason to believe that they *may* be thus improved almost or quite as much as the native production of the Temperate Zone have been. Tropical fruits are, as yet, in their wild state, as were once our apples, peaches, grapes, cherries, and the whole family of berries. Hence, with rare exceptions, the delicious flavors for which our native fruits are indebted to centuries of cultivation, are wanting in those of the Torrid Zone.

The few experiments which *have* been made in the careful cultivation of tropical fruits have been abundantly rewarded. As a general thing, however, these experiments have been undertaken in the extreme northern limits of their native climate, or still beyond, and hence, under much disadvantage. Even the pine-apple, when carefully raised, and properly stimulated with fertilizers, in northern hot-houses, is said to acquire a size and perfection which it never attains in its original home—thus showing how much it might be improved in its native places of growth if cultivated there with the same industry and intelligence. In the gardens of the United States and of Europe, Pomona, like her admirers, appears in the refined garb of civilization; while in the tropics she still remains as a native beauty, unrefined, and requiring the aid of culture for the full development of her attractions.

The Creator evidently desires that the human race should have perfect apples, peaches, cereals, berries, vegetables, and grapes. Those inhabitants of the earth, who have submitted patiently to the penalty imposed upon the earliest trangressors, have very nearly attained this end, and have themselves improved, morally and socially, in a similar ratio. The same physical and moral work is yet to be wrought in the land of the orange, the pine-apple, the bananna and the bread-fruit tree; for the time will surely come when *all* of God's commands will be obeyed, and man will everywhere live by the sweat of his brow.

[Foreign Grapes in the Atlantic States.—The Commissioner of Agriculture says that much money, time and labor have been expended in endeavoring to make the foreign grape a success in the Atlantic States; but all such efforts have proven failures. The Commissioner thinks that east of the Rocky mountains no climate has yet been found suitable for the continued and healthy growth of the foreign grape.

Eight large forest trees have been transplanted to Chicago, to be planted around the fountain in Dearborn Park.

Points of a Good Horse.

[concluded from last week.]

In our last issue we referred to some general considerations to be taken into account in the purchase of a horse, and described at considerable length what should be sought for in the head, chest and physiognomy of this animal. In the further elucidation of the points of a good horse, we come to

The Back and Loins.

The back of a good horse should sink a little below the withers, but not too low. The croup (26, in our illustration of last week) should always be a little lower than the withers; otherwise, the animal will be pinched in his shoulders, and be both weak and unsightly. Moreover, his hinder parts will be too heavy, imparting an awkward gait and slow motion. Some horses have very long backs and necks; some very short ones. A happy medium should be sought for—inclining to length when speed is the desideratum, to shortness when strength and endurance is the object. The consideration of a "point" in a horse should always be made in connection with the general conformation of the animal, and the uses for which he is wanted. A long and hollow back is accompanied with general weakness; under the saddle the spine is thus liable to sink below its natural limits of flexibility, when the limbs will falter, and the entire machinery succumb. For general use, he had better be short rather than long, in proportion to his bulk. He may thereby lack a little in speed; but he will hold out better on a journey, and be better adapted to support weight. When a short back is properly combined with a broad chest and loins, and full behind the quarters, much strength and endurance is indicated. Such a build is essential in a draught horse, as it is more compatible with the full concentration and coöperation of the bodily powers generally. It also implies a short, quick step, enabling the animal, under draught, to husband and maintain his powers; while a long step would exhaust them without gaining anything in speed. To have the back a little arched behind the saddle is indicative of strength. Nature appreciates and employs the arch fully as much in the animal economy as man does in architecture. It is a matter of great importance that a horse should have good loins, which can hardly be too wide or muscular.

The Hind Quarters

Are literally the *propellers* of the animal, and if these are lacking in strength and proportion, no kind of work to which a horse is put can be properly performed. In order to judge intelligently upon the points connected herewith, some knowledge of the anatomy of the animal is indispensably necessary; but as we have neither space nor time to go into such a consideration, we must suppose the reader already possessed thereof, or refer him to some work devoted especially to that subject.

The most important bone in the horse, as well as in man, upon which depends strength and speed, is the *femoral* or thigh bone. This is the longest bone in man; but proportionately a very short and much stronger one in the quadruped. A horse with long femoral bones is able, in action, to throw his hind feet further forward than one with those bones short; such a motion in the hip-joint as will advance a short femoral 3, will advance a long one 4. Hence the importance of long femoral bones when stride or speed is desired. The straight and lengthy quarter, providing the length of body is undiminished, is indicative of length in the femoral—the short and drooping quarter, the opposite.

The examiner generally likes to look at a horse from the rear, to judge of his hind quarters. They should present a good volume; otherwise, he suspects a lack of constitution. The muscles should be of full size, and the joints should indicate strength to properly bear the strain which must come upon the propelling points, one of the most important of which is the hock. This should be of good size, but clean and flat, and with a clean point, standing clear of the rest of the joint. The spavin place should also be free from enlargement. The hocks should be well set down, requiring a somewhat lengthy thigh and short cannon-bone.

The Legs.

The legs of a horse should bear a due proportion, in their length and strength, to the weight of the carcass. Short, straight cannons are most desirable. While the distance from the elbow to the knee can hardly be too lengthy, that from the knee to the fetlock can scarcely be too short. The form of the leg should be flat and broad, rather than round. The sinew should stand out far behind the bone and feel terse and hard, while the space between it and the bone should feel *hollow*, as it were, and not as though filled with the soft substance technically called "gum." The only way to judge of the legs is to feel them—run the hands down and span them.

The foregoing description of the essential points of a horse are very meagre and imperfect, so far as completeness is concerned; but we think our querist, at whose suggestion they have been prepared, and those who may peruse them, will find them as reliable, so far as they go, which is to about the full limit of a newspaper article. In conclusion, and as a summing up, we cannot refrain from copying the *Atlantic Monthly's* graphic description of what may be considered

A Perfect Horse.

"In weight, she might have turned, when well conditioned, nine hundred and fifty pounds. In color, she was a dark chestnut, with a velvety depth and soft look about the hair indescribably rich and elegant. Many a time have I heard ladies dispute the shade and hue of her plush-like coat, as they ran their white, jeweled fingers through her silken hair. Her body was round in the barrel, and perfectly symmetrical. She was wide in the haunches, without projection of the hip-bones, upon which the shorter ribs seemed to lap. High in the withers as she was, the line of her back and neck perfectly curved, while her deep, obliquo shoulders, and long, thick fore-arm, ridgy with swelling sinews, suggesting the perfection of stride and power. Her knees across the pan were wide, the cannon-bone below them short and thin; the pasterns long and sloping; her hoofs round, dark, shiny, and well set on. Her mane was a shade darker than her coat, fine and thin, as a thoroughbred's always is whose blood is without taint or cross. Her ear was thin, sharply pointed, delicately curved, nearly black around the borders, and as tremulous as the leaves of an aspen. Her neck arose from the withers to the neck in perfect curvature, hard, devoid of fat, and well cut up under the chops. Her nostrils were full, and thin almost as parchment. The eyes, from which tears might fall or fire flash, were well brought out, soft as a gazelle's, almost human in their intelligence, while over the small bony head, over neck and shoulders, yea, over the whole body and clean down to the hoofs, the veins stood out as if the skin were but tissue paper against which the warm blood pressed, and which it might at any moment burst asunder. 'A perfect animal,' I said to myself, as I looked her over,—'an animal which might have been born from the wind and the sunshine, so cheerful and so swift she seems; an animal which a man would present as a choicest gift to the woman he loved, and yet one which that woman, wife, or lady-love, would give him to ride when honor and life depended on bottom and speed."

Angora Goats near Stockton.—The *Independent* says that Gov. Edwards, who resides a few miles east of Stockton, has some 800 Angora goats on his farm—few of which, however, are pure, nearly all being graded stock. A very small admixture of Angora blood greatly improves the fleece of the common goat, and the wonder is, that with the evidence before wool-growers in this State, more attention is not paid to breeding the goat.

What I Know of Farming—No. 9.

Planting and Growing Trees.

In further considering the planting and growing of trees, Mr. Greeley gives additional suggestions with regard to the economy thereof, and the points to be considered in selecting locations for timber. We condense as follows:

I. Land wisely planted with trees and fenced so far as need be to keep out cattle, costs nothing. Whatever else you grow involves labor and expenditure; trees grow of their own accord. Unlike any other product, you may take crop after crop of wood from the same lot, and the soil will be richer and more productive after the last than it was before the first. Whether wholly because their roots permeate and break up the soil during their life and enrich it in their decay, or for diverse reasons, it is certainly true that land—and iespecially *poor* land—is enriched by growing trees upon it, the evergreens possibly excepted.

II. Your springs and streams may have become scanty and capricious under a policy of reckless destruction of trees; they will be reënforced and reinvigorated by doubling the area of your woods.

III. All ravines and steep hill-sides, every acre too rocky to be thoroughly cleared of stone and plowed, any soil that is liable to be gullied or washed away by violent rains if under tillage, should be excluded from cultivation and given up to trees.

IV. Trees, especially evergreens, may be so disposed as to modify agreeably the avérage temperature of your farm, or at least the most important parts of it. Mr. Greeley planted four rows of evergreens (balsam fir, pine, red cedar, and hemlock) along a low ridge bounding his farm on the north, following an inward curve of the ridge at its west end; and those evergreens have in sixteen years grown into very considerable trees, forming an inviting shade in summer, and modifying the average temperature of the soil for some yards southward so that it is now at least five degrees higher, throughout the growing season, than it formerly was or would now be if these evergreens were swept away.

V. I firmly believe that the slope of a hill whose crest is heavily wooded will yield larger average crops than slope and crest together would do if both were bare of trees.

VI. The banks of streams so planted with trees are materially protected from abrasion by floods and rapid currents.

VII. A good tree grows as thriftily as a poor one. Many a farmer has to-day ten to forty acres of indifferent cord-wood where he might have had instead an equal quantity of choice timber, worth ten times as much. Hickory, chesnut, and walnut, while they yield nuts that can be eaten or sold, are worth far more as timber than an equal bulk of beech, birch, hemlock, or red oak. Chesnut has more than doubled in value within the last few years, mainly because it has been found excellent for the inside wood-work of dwellings. Locust also seems to be increasing in value. Ten acres of large, thrifty locust near the city would now buy a pretty good farm; as I presume it would, if located near any of our great cities. [It certainly would if located near San Francisco.]

VIII. Suggests that a diversity of trees should be planted.

IX. Wherever timber has become scarce and valuable, a wood-lot should be thinned out, nevermore cleared off, unless it is to be devoted to a different use. Destroying a forest because we want timber is like smothering a hive of bees because we want honey.

X. Timber should be cut with reference to the future. Locust and other valuable trees that it is desirable should throw up shoots from the stump, and rapidly reproduce their kind, should be cut in March or April; while trees that you want to exterminate should be cut in August, so that they may *not* sprout. Evergreens do not sprout; and I think that these should be cut in winter—at all events not in spring, when full of sap, and thus prone to rapid decay.

A Strange Shrub.—The Virginia *Enterprise* is responsible for the statement that a shoot "of the broom species" in that city, bloomed the day before Christmas, and has continued in flower ever since, without a single leaf on the bush. As fast as the old flowers drop off, new ones appear. Will it never stop?

Horse-Breeding in Alameda County.

Near the growing little village of Pleasanton, which is situated on the line of the Western Pacific Railroad, close to the outlet of the Amador Valley, is the large estate of the Martin Brothers, where immense grain fields and pastures are spread out for miles in extent. It is not my intention, however, to speak approvingly of the acquisition of large amounts of land by any one individual; I would sooner see numerous homes, where a generous culture, social worth, and schools are fostered. But I saw much here that is worthy of mention.

The Martin Brothers are engaged in breeding fine bands of Clydesdale stock, and make a specialty of the business. They have been engaged therein since 1855, and have used none but imported stallions since. They now have five imported horses from the river Clyde, Scotland, weighing from 1,800 to 2,000 pounds each. They have many fine colts from these horses, bred from mares of ordinary and of improved stock.

Accepting an invitation to go and examine the colts, I was expecting to see the usual *vaquero*, saddles, heavy spurs, lariats, etc., and was agreeably surprised to find myself among pets that came flocking around us, to be fondled, rubbing their noses or playfully nipping our clothing, without fear. This was a gratification, when I considered the mad careering of, and harsh treatment usually extended towards, young horses in California. The result of humane treatment is the triumph of mind over the brute, by inspiring confidence and affection, thus commanding obedience by the firm, consistent power of reason over animal sense.

The Clydesdale stallions have an intelligent expression and a generous, confiding look. The magnificent proportions of these ponderous animals gave me a new conception of combined strength and beauty. It was a pleasure to see such devotion and practical attention given to the breeding of really useful animals—the draft horse, and crosses suited to farm labor—in preference to the elegant, hound-shaped, fleet, but tender-blooded racers.

The Clydesdales are not suited for trotting or racing; but are fitted with a build and muscle for moderate movements, great strength and endurance. For hauling heavy loads, as quartz, timber, etc., and for draying, they are certainly superior.

Whether these horses, when pure blooded, are fitted for farm work as conducted in California, may be a matter of opinion. They could not stand the severe and abusive "knocking around," so universal on our ranches. Californians generally require everything *fast*, whether in the field, on the road, or hitched to heavy loads. Our people are also sometimes too fast for their own good, and may be too fast to properly appreciate such stock as the Clydesdale.

Be this as it may, the Martin Brothers are earnestly engaged in a laudable enterprise, and their management of young stock is admirable and worthy of imitation. The horses are grand and the colts are fine; and it is my opinion that such stock, if not above criticism, is at least above prejudice, and will eventually be appreciated. S. H. Herring.

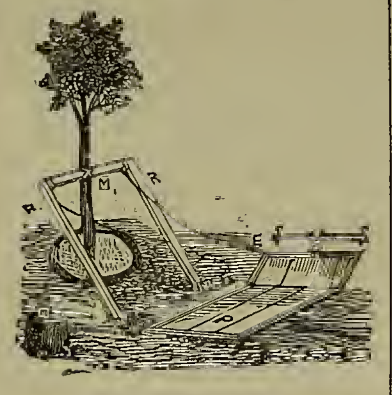
Flavor of California Fruits.—Josiah Hoopes, in his late annual address before the Pennsylvania Fruit-Growers' Society, said of his observations in California: "I may say in regard to the larger fruits, such as the apple, pear, peach, etc., that their remarkable size and beauty appeared very little short of a miracle; indeed, I was totally unable to detect old standard varieties, time and again. Their enormous size and perfect shape, together with that peculiar waxen appearance proverbial to all California fruits, was a continual picture, and will not soon be forgotten. But beautiful and large as all these vegetable productions are, there is lacking that delicious flavor, the agreeable aroma, and the richness of our less perfect, but better fruits. We search in vain for these requisites beyond the Rocky Mountains, and I very much doubt if *they* have the more preferable acquisitions, or that we would exchange our *quality* for their appearance."

Transplanting Large Trees.

In landscape gardening it is often desirable to transplant large trees, and as much of this kind of work is now being done in California, it may be of interest to many of our readers to learn of some practical way by which it can be done. No tree of over three inches in diameter should be removed without a ball of earth attached to its roots. It should also be kept in mind that all trees cannot be treated alike in transplanting. The slow-growing, hard-wood tree requires more care than the soft-wood, rapidly-growing one. The roots of the former should be taken up deeper below the surface of the earth, and a larger bulk of earth should be removed with the roots, when transplanting is done after the tree has attained any considerable size. This operation of transplanting large trees may be easily performed by means of the following simple device and directions:

Transplanting Trees.

Referring to the engraving—first dig around and loosen the tree, far enough from the butt to avoid serious injury to the roots, then place the connecting piece, M, of the standards, R, R, against the tree, as shown. Fasten it with ropes, first winding cloths around the tree to prevent injury to the bark. The inclination and length of the standards should be regulated by the height to which it will be necessary to raise the tree to place it on the "drag," upon which it is to be conveyed to its new locality. A horse, or a tackle worked by means of man-power, attached to the ropes shown, will easily raise the tree and ball of earth attached, and swing the same over upon the drag, P.



Directions for Taking Up the Tree.

The amount of earth taken up should vary with the character of the tree—whether hard or soft-wood; also with the thickness of the butt. A tree 4½ inches diameter should be taken up with a ball of earth not less than three feet in diameter; one of ten to twelve inches in diameter should retain a mass of earth of from 4½ to 5 feet in diameter. The soft-wood trees that will most easily bear transplanting are, the willow (which will require very little transfer of earth), the linden, the alder, the cottonwood, the horse chestnut, the common chestnut, the ailanthus, etc.

Hard-wood trees should be transplanted younger than the soft-wood trees, or when equal bulks of earth are to be removed the butts should be smaller. It is not safe to attempt to transplant an elm over seven inches in diameter, even with the largest bulk of earth mentioned. This also holds good for the following trees: the oak, ash, hickory, plum, apple and beech. It is not safe to attempt the transplanting of any tree which is over thirty years old.

Coniferous trees require special care. These trees often turn brown after transplanting, and remain so for an entire year, with the appearance of being dead; and yet commence growing again the second year and flourish afterwards. This is a remarkable fact which should be borne in mind.

In digging up, the ditch should be made sufficiently deep to undermine the larger central roots. These, in the largest trees mentioned, should be undisturbed for a depth of three feet. The larger roots that extend across the ditch should be cut smoothly with a knife. Before the tree is raised from the ground, the earth on the outside of the mass should be pressed firm, boards placed vertically around it, and tied on with ropes.

Directions for Setting Out the Tree.

The hole in which the tree is to be placed should be three feet larger than the ball of earth it is to receive, and should be filled in at least one foot deep—better two—with vegetable earth, before the tree is placed therein. The tree should be set at the same depth at which it originally grew, and the same side should be exposed to the north. This last should be especially observed, as without it the constitution of the tree may be seriously impaired during its after growth. The ditch surrounding the tree, after it is placed in position, should be carefully filled with rich, light earth—not manure, nor even a large admixture thereof. A small trench should be dug around the tree in the solid earth, in which the water should be placed for watering. Care should be taken that the new earth, in which the mutilated roots are exposed, is not kept saturated with water; hence the watering near the butt, in the manner indicated.

Cultivation of the Poppy.

Editors Press:—In a recent issue of your journal I observed an article upon the probable success of the cultivation of opium in this State. Being tolerably familiar with the culture of the poppy, I would add a few remarks to those which you have already made. My observations and experience are based on a lengthened residence in the opium districts of Hindoostan, as well as a brief observation of poppy-raising in Germany. In the former locality the production of *opium* is what is aimed at; in the latter *the maturing of the seed*, from which oil, hardly at all inferior to the olive oil, is obtained. Your observations as to *early* gathering of the opium and subsequent utilizing of the seed are scarcely correct in detail. The opium in India is collected immediately after the leaves of the plant commence to fall off, or, at any rate, within a very few days thereafter. The bleeding of the capsule to gather the opium, it has been shown, militates severely against the ripening of the seeds contained therein; such seed rendering but little oil, and that of *an inferior quality*, and are moreover injured for the purpose of re-production. If the plants, after the gathering of the opium, can be *irrigated* to an extent equal to say one pint or one and one-fourth pints of water to each plant, then the seeds will mature and yield good oil in tolerable quantity, say within thirty per cent. of what would have been realized if no opium had been gathered from the plant. This has been satisfactorily demonstrated by experiment at Benares.

Unfortunately, for practical purposes, the season in which the opium crop in India is gathered is dry, and thus irrigation is impossible. The opium is there gathered in the early part of the year, when no rain can be expected till June. On the other hand, if the poppy be ripened in a wet season, the crop fails, *because it requires to be ripened in dry soil.* Thus the ripening of the seed after the opium is collected, may be considered as an after-crop, requiring an amount of moisture to compensate for the primary robbing of the plant.

Unbled capsules are found to exude but little moisture, whereas *bled ones* exude it abundantly. Now, as soon as the opium is gathered, the orifices close, as it were, and the lost water can be supplied at the roots to nourish the stem and capsule.

The consideration of these facts has often led me to believe that this branch of agriculture might, as you have suggested, be made profitable in this country. With irrigating facilities, two crops might be easily raised. The crop of opium in India averages thirty-five to forty pounds per acre—one crop per year only being raised. As one acre sustains from 270,000 to 340,000 poppy-heads or more, each giving, say one grain of opium, the whole will aggregate about forty pounds avoirdupois. This, at the present value of opium in California, would yield enormous profits, and the cultivation of the most productive species of poppy, for both of the purposes named, offers to the capitalist here rare opportunities.

In conclusion, I would remark that to obtain the best results, the entire process must be conducted with care, methodically and understandingly. The poppy, after the first year, yields nearly the whole manure requisite to prevent exhaustion of the soil. The bleeding of the capsule requires great care; it must be only scratched, not punctured through. For this reason a peculiar instrument is used, which, though applied never so rapidly or carelessly, can only penetrate the outer skin of the bulb. The preparing and packing of the opium is very simple, as is also the collection of the seeds in such manner as to leave the greater portion of the plant to decay on the ground and replenish the soil.

San Francisco, March 9, 1870. J. G.

Remarks.—It will be seen from the above that our suggestions with regard to the culture of opium in this State are fully sustained by one who has had ample observation and experience to form a practiced judgment of the matter. Our correspondent calls attention to the fact that the return of the fiber of the plant to the ground furnishes ample nourishment for the soil. The plant is of a very perishable nature, and is thoroughly decomposed and mingled with the soil within six weeks after the first rains, provided it is plowed under, which should be done.

Gathering the Seed.

The matter of gathering the seed, which we inadvertently omitted in our previous notice, is as follows: Take a long strip of common cotton cloth and spread it out with one of its edges close up to the roots of the plants from which the seed are to be gathered. Then take each head separately, bend it over the cloth, and shake or whip out the seed through the natural opening in the capsule. They will come out easily and be readily gathered up, and the chaff winnowed out. Don't cut the capsule or break off the little cupola upon its top, or you will thereby waste the seed.

How to Dig Up a Tree.—When it is desired to remove a large tree with the stump, first determine in what direction it will fall most readily; then dig and cut away the roots on that side. That done, place a large log as close as possible to the butt, on the same side; then dig and cut away the balance of the roots until the tree falls across the log placed for that purpose. When fallen in that manner, the weight of the top of the tree, the log acting as a fulcrum, will tear up or break off the small roots that would otherwise still bind and hold it to the ground. The stump is, moreover, partially or entirely raised from the hole, and you have it in a position affording the greatest possible facilities for removing it out of the way or cutting it up.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, March 10, 1870.

Flour, Extra, ⅌ bbl	$5 00	@	$5 50
Do. Superfine	4 50	@	4 75
Corn Meal, ⅌ 100 ℔s	2 00	@	2 25
Wheat, ⅌ 100 ℔s	1 30	@	1 65
Oats, ⅌ 100 ℔s	1 15	@	1 50
Barley, ⅌ 100 ℔s	1 15	@	1 25
Beans, ⅌ 100 ℔s	2 50	@	3 50
Potatoes, ⅌ 100 ℔s	1 25	@	1 50
Hay, ⅌ ton	11 00	@	17 00
Live Oak Wood, ⅌ cord	9 00	@	14 00
Beef, extra, dressed, ⅌ ℔	7	@	12½
Sheep, on foot	2 50	@	3
Hogs, on foot, ⅌ ℔	5	@	9
Hogs, dressed, ⅌ ℔	8	@	8½
GROCERIES, ETC.			
Sugar, crushed, ⅌ ℔	13½	@	14
Do. Hawaiian	8	@	11
Coffee, Costa Rica, ⅌ ℔	18½	@	19
Do. Rio	—	@	17½
Tea, Japan, ⅌ ℔	75	@	90
Do. Green	50	@	1 25
Hawaiian Rice, ⅌ ℔	8	@	9
China Rice, ⅌ ℔	5½	@	6
Coal Oil, ⅌ gallon	40	@	42½
Candles, ⅌ ℔	16	@	20
Overland Butter	20	@	30
Ranch Butter, ⅌ ℔	25	@	30
Isthmus Butter, ⅌ ℔	25	@	30
Cheese, California, ⅌ ℔	18	@	22
Eggs, ⅌ dozen	25	@	30
Lard, ⅌ ℔	13	@	14
Ham and Bacon, ⅌ ℔	14	@	15
Shoulders, ⅌ ℔	10	@	12
Retail Prices.			
Butter, California, fresh, ⅌ ℔	40	@	—
do. pickled, ⅌ ℔	35	@	—
do. Oregon, ⅌ ℔	25	@	—
Cheese, ⅌ ℔	20	@	25
Honey, ⅌ ℔	25	@	30
Eggs, ⅌ dozen	45	@	50
Lard, ⅌ ℔	20	@	25
Hams and Bacon, ⅌ ℔	22	@	25
Cranberries, ⅌ gallon	1 00	@	1 25
Potatoes, ⅌ ℔	2	@	5
Potatoes, Sweet, ⅌ ℔	—	@	2
Tomatoes, ⅌ ℔	—	@	—
Onions, ⅌ ℔	3	@	5
Apples, No. 1, ⅌ ℔	4	@	5
Pears, Table, ⅌ ℔	5	@	
Plums, dried, ⅌ ℔	10	@	12
Peaches, dried, ⅌ ℔	10	@	15
Oranges, ⅌ dozen	50	@	75
Lemons, ⅌ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ⅌ ℔	—	@	25
Soap, Pale and C. O	10	@	12
Soap, Castile, ⅌ ℔	18	@	20

Scientific Press.

W. B. EWER..........................Senior Editor.
A. T. DEWEY. W. B. EWER.
DEWEY & CO., Publishers.
GEO. H. STRONG. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:
One copy, per annum, in advance................$4 00
One copy, six months, in advance................ 2 50
Delivered by city carriers, per month.. 50

Rates of Advertising.
One square (ten lines agate), one week..........$ 1 00
One square, one month......................... 3 00
One column, one month......................... 40 00
One column, one year......................... 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements
Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

Thomas Poyzer is now visiting Los Angeles and neighboring counties on business for this office, receiving subscriptions, etc. He is an old and worthy agent for the Press.

San Francisco:
Saturday Morning, March 19, 1870.

Table of Contents.

Brombacher's Paper-Cutter—Ill....................177
The New Gold Fields—Illustrated..............177
New Process of Treating Copper Ores..........184
Mines of Colorado......178
California Gold Nuggets.178
Climate of California...178
Bull Run District.......184
Cranmer's Gun..... ...184
The New York Underground Railroad—Ill. 188
Ice-Making.............184
Notes of Recent Patents185
To Correspondents......184
Full List of Patents....185
S. F. Stock Market......181
S. F. Shareholders' Directory....................181
New York Metal Market.191
S. F. Metal Market..... 190
Farming and Gardening.—Points of a Good Horse—Ill.; Transplanting Large Trees—Ill.; Cultivation of Tropical Fruits; Cultivation of the Poppy; Horse-Breeding in Alameda; What I Know of Farming; S. F. Market Rates, etc.............182
Mechanical Progress.—Another Anti-incrustator; Progress in Boiler Engineering; Secret of the Nickel Plating; An Electro-Heating Apparatus.179
Scientific Progress—Calorific Effect of Gases; What is Bathybius; Geology of Alaska; Anti-development Theory, etc.179
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Montana; and Nevada...........164

Notices to Correspondents.

C. E. S., of Cordelia, Solano county, asks what is the best method to cure "stifle." He had a colt stifled, a week or two since, and it was only after much delay and trouble in consulting books and friends that he succeed in finding a person who would undertake its case—a man who happened to be in his employ at the time. This party succeeded to the utmost satisfaction of our correspondent, who will explain the process employed in a future number of the Press. In the meantime, however, he would like to hear from some other party, who may possibly be able to propose a better treatment than the one he has followed.

Chloride Bill.—As your note was received just as we were going to press, we shall be obliged to defer it till next week.

E. N. S.—Will appear next week.

San Francisco Water Supply.—Several bills have been introduced into the State Legislature for supplying this city with water. Before any such bill should be passed, the people should have the opportunity of seeing the plans proposed. It is absurd to give a company aid without having vouchers as to the feasibility of their projects and the probability of their being carried out for the advantage of the city. All such matters demand investigation and reports by competent parties before being acted on.

◆

The Santa Cruz Powder Mill Explosion.—The explosion at the California Powder Mills, near Santa Cruz, on the morning of March 11, appears to have been caused by sparks produced through friction on the part of the machinery. Of the three men injured, two are in a very critical condition, and the third has since died. The building was but slightly damaged.

◆

The new telescope at Point Lobos was placed in position about the first of the month, and has been found to more than fulfill all expectations in regard to it. By its aid a ship's signal can be made out in hazy or dense weather at almost as great a distance as could be done by the glass formerly in use on a clear day.

New Process of Treating Copper Ores.

Dr. T. Sterry Hunt has invented a new process for extracting copper from its ores, which would seem to be most valuable. It has several very important advantages over the common humid process in the economy of fuel used in the roasting, in the small amount of iron consumed in precipitation, the rapidity of the operation, and the purity of the copper obtained.

For this process the copper should be in the state of an oxide or oxide compound. If it is carbonate, it is well to calcine it to expel the carbonic acid, which otherwise would cause too much effervescence in the bath. If it is preëminently red copper ($Cu^2 O$) without much protoxide (CuO), it should also be in part calcined, and thereby partly converted to CuO, since alone it leaves a third of its copper undissolved. In the case of sulphuretted ores, these must be roasted; but it is not necessary—nor proper to carry this very far. Ores well burnt in kilns will yield up their copper without subsequent roasting, at least when not containing a very large amount of iron and sulphur. In thus roasting till the sulphur is oxidized, a mixture of the sulphate and the two oxides of copper is obtained, and it is well to add lime, so as to form insoluble sulphate of lime and oxide [of copper, else the bath will be rendered too impure by the excess of sulphates.

Having the copper in the proper state, the next step is to convert it into dichloride of copper ($Cu^2 Cl$) as far as possible. This is done by digesting with a bath of neutral protochloride of iron. Protochloride of iron reacting on the protoxide and the dinoxide of copper gives the two chlorides of copper, metallic copper and peroxide of iron, and this metallic copper is readily converted into dichloride by the protochloride ($Cu\ Cl+Cu=Cu^2\ Cl$). This dichloride is insoluble in water, but soluble in many chlorides. Therefore, a certain amount of salt is added to the protochloride of iron bath. Thus we get in this operation insoluble peroxide of iron and soluble chlorides of copper. The liquid is drawn off from the insoluble residue, and the copper precipitated by means of metallic iron.

In the ordinary process hitherto used, the consumption of iron was very large. This is owing in great measure to the absorption of the metallic iron into the solutions, and to the formation of insoluble persalts, which contaminate the cement copper. Thus, instead of the theoretical amount (some eighty pounds) required to precipitate 100 pounds of copper, two or three times as much is consumed, and the copper obtained is apt to hold from 20 to 40 per cent. of iron. This process, however, affords pure copper, and as the iron compounds precipitated by the copper oxides can be regenerated by sulphurous acid, there need be no loss of any reagent, except the equivalent of iron needed for precipitation and a little lime; and, as two-thirds of the copper is in the state of dichloride, only very little iron is needed for precipitation, say, 50 to 60 pounds of iron to produce 100 pounds of copper.

The process certainly appears to present many good advantages. We see, at present, no valid objections to the theory, and shall watch with interest the practical operations, from which we incline to expect much. Copper miners would do well to study up the subject.

◆

The Grand Musical Festival.—The financial result of the festival has been made known. The cash receipts for the five days were respectively $9,773, $13,611, $9,746.45, $9,775.60 and $2,494.65, making a total of $45,400.70. The expenses were $18,662 25, leaving a balance of $26,738 48. Madame Urso was presented with the net proceeds of the fourth day, amounting to $7,325.60—leaving a balance of $19,412.80 as the profit to the Mercantile Library.

Silver vs. Copper for Amalgamating Plates.

We last week alluded to the fact that silver-plated copper was coming into general use among quartz miners, in place of the plain copper plates heretofore used. The amalgam formed by the quicksilver on the silver surface seems to have a much greater affinity for gold than the copper amalgam. Since our last issue, Mr. Denniston, who prepares these plates in this city, has shown us a letter which he has lately received from the Superintendent of the Kanaka mine, Downieville, from which we are permitted to make the following extracts, with regard to the use and economy of these plates:

"The fifteen plates all arrived safely. I find that the plates which I washed first with a weak solution of sulphuric acid, without using cyanide of potassium, amalgamated the best. The first twenty-four hours laying in the sluices, the plates do not save as much amalgam, in comparison, as they do after again being treated and the amalgam thoroughly rubbed into all the little cavities. It will give you pleasure to learn that the first or the upper laying plates in the sluices, everyone of them, save in twenty-four hours from sixteen to eighteen pennyweights of hard amalgam, where copper plates would in the same place not have saved half of it.

I take every twenty hours, from the fifteen plates you sent me, from eight to nine ounces of hard-pressed amalgam, and this very regulalary every day. The rest of the plates—the large copper plates *above* yours and some other copper plates—give me only three or four ounces more, so that I clean up every day, from the *outside* plates of my batteries, from eleven to thirteen ounces of hard gold amalgam. This pays for my running expenses; so that the entire contents of the batteries will be surplus.

◆

State Geological Survey.

The Senate, by a vote of thirty to eight, has passed the bill continuing the State Geological Survey and appropriating $2,000 per month for two years for its support. We doubt not that the Assembly will concur. Not to keep up the survey would be to declare ourselves far behind the age and with no claim to a prominent place in the world. We do not wish to take the lowest rank in the United States with regard to civilization and science, and a decision to give up the survey would be regarded by the rest of the world as a mark of deserving this rank. In this connection we would acknowledge the receipt of Ross Browne's able letter to the Legislature on this matter.

◆

Lettres Californiennes.—H. Payot & Co. have recently published a pamphlet written by Pierre Canwet and Ch. Dnqnesnay and addressed to Emile de Girardin. Its object is to remove the opinion prevailing to a great extent in France, that California is "a country of adventurers—of bandits—a land peopled by the scum of nations." It draws a vivid picture of the past, the present, and the future, and is eloquent in its defense of this State. It is by such pamphlets as these that foreigners will have their attention attracted towards this country and get just ideas of what California really is.

◆

The Steam-Plow Bill.—The bill offering a premium for the invention of a successful steam-plow passed the Senate and now goes to the Assembly. This bill secures $5,000 *to the inventor* of such a plow. The Illinois Central Railroad has had a standing offer of $20,000 for such a plow for a number of years past. We hope the bill will pass the Assembly.

◆

Survey of Public Lands.—Mr. Sargent has introduced a bill into Congress, providing that the amounts of money advanced by settlers to expedite the survey of public lands shall be credited to them as part payment for lands within the same township.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending March 8th.

Desulphurizing Ores.—Eliza. A. Burns, Meadow Lake, Cal.

Grain and Straw-Carrying Attachment for Separators.—Byron Jackson and Benjamin F. Jackson, Woodland, Cal.

Wind-Wheel.—Charles Mehler, San Francisco.

Riding-Saddle.—Eugene Spedden, Astoria, Oregon.

Steam-Pump Device.—Martin Wilcox, Sacramento, Cal. Antedated December 30th, 1869.

Tool for Lacing Belts.—John Mitchell Stamp, Grass Valley, Cal., assignor to himself and Peter Johnston, same place.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Self-Adjusting Fence.—H. H. Margeson, S. F.—The object of this invention is to provide a fence which can be constructed at any required place, and which will accommodate itself to the conformation of the land where it is set up. This is effected by attaching the rails to the posts by means of a loose joint or connecting strap, so that any post may be elevated above or depressed below the level of the next without destroying the parallelism of the rails. In order to allow the pickets, which pass through the rails, a sufficient motion and to keep them always perpendicular, the lower part of each rail is mortised out, so as to make an angular slot, in which the pickets are free to move from one side to the other, as the rails are inclined. The connecting link or strap between the rails and posts are so made that a length of fence can be locked firmly in places, or it may be easily and quickly removed. The whole of this fence can be made in a shop or convenient factory, where it is easy to construct one by machinery; and it can then be transported to the ground and set up without trouble.

Egg-Beater.—F. Krandelt, S. F.—Laying aside technical language for the benefit of housekeepers, this invention consists of a vessel in which revolves a beater, which has two movements. To obtain these, a shaft runs through the center of the vessel, which shaft has two arms, one above the other, which hold the shaft of the beater. The cover of the vessel, which is removable, has a circular opening out in it, and the edge of this opening is provided with teeth, in which fit the teeth of a wheel fastened on the shaft of the beater. Now as the central shaft is revolved by means of a crank, the beater is carried around in the vessel, and at the same time revolves on its own shaft, this motion being caused by its wheel gearing on the toothed opening of the cover. This device will be welcomed by all housekeepers; and, as large as well as small amounts can be beaten up, confectioners and restaurant cooks will appreciate it. Bakers, too, will find it very useful for various other purposes, such as beating up the various compositions for cakes, etc.

Improved Foundation for Buildings.—A. F. Cooper, S. F.—This invention relates to an improved construction of the foundation of buildings, and especially of those which are built in countries subject to earthquakes, and consists in placing upon the solid and permanent foundation, upon which houses are usually built, a timber, on or embedded in which are springs of india-rubber or other suitable material, attached in such a manner that they will project above it. On these is placed another timber as a stringer, on which to build the house. By means of this arrangement the shock is deadened, and what motion is communicated to the building will be no more than a gentle rocking, which n do no injury to the structure.

Our Home Industries.

Ice-Making.

[CONTINUED FROM PAGE 168.]

The building and water works being thus prepared, a lot of strong twine is cut into 26-foot lengths, long enough to reach from the joists down to the floor. One end of the string is fastened to a small block (for a weight and for convenience in handling) and is then wound on the block, like a bobbin—No. 14 ounce tacks having been stuck into each side of the distributing boxes, at the distance of two feet apart. The workman holds fast the loose end of the string on the bobbin, and lets the block with the other end fall to the floor below, then winds the end of the string around one of the tacks in the side of the distributing sluice, and fastens it by driving the tack home; and proceeds thus, until all of the tacks have strings attached, reaching from the joists down to the floor, where they are held in place by the blocks until fastened by the ice.

How the Ice is Obtained.]

The object of these strings is to form a conductor for the water, which in trickling down the string soon forms a coating of ice, and in a short time each string is the center of a substantial pillar of ice, reaching from the floor to the joists, supporting itself and the building also, but, what is of most importance, presenting a large surface for freezing within a small space. When the proper quantity of water is allowed to flow down the sides of the ice-pillars, they increase in size faster at the bottom than at the top, and resemble huge icicles, with their biggest ends down and resting upon the floor, the points reaching the joists; and in this way closing up at the bottom first, and making the mass of ice nearly or quite solid. If not enough of water is allowed to run, so as to reach the bottom before being all frozen, the pillars of ice will grow larger at the top than at the bottom, leaving more or less open spaces in the ice. If very much more water is allowed on the ice than will freeze in flowing down the column, the freezing process is retarded somewhat, and if the drainage is not sufficient to freely carry off the surplus water, it is apt to collect in small pools. A little care is sufficient to guard against either of these mishaps.

The Labor Requisite.

The labor required in taking care of our present establishment is one man's time opening doors and ventilators (thirty minutes), opening plugs and regulating water in distributing-sluices (ten minutes); then on very cold nights, making the round of the house four times, (at 6, 12, 3 and 6 o'clock, for the purpose of breaking up the film of ice that collects on the water in the distributing-sluices (thirty minutes each round); closing doors and shutting off water in the morning (forty minutes); making in all 3½ hours' work for one man per day, during freezing weather. In mild weather, nothing to do.

Special Remarks.

I do not think it advisable to continue the process until the ice is in one solid mass; but when the columns have begun to unite through most of their length, and while there is some chance for cold air to circulate between them, it is better to stop off the water and allow the ice to get as cold as possible, before closing the house for summer; for it is a well-established principle, that while one side of the ice is in contact with water, the temperature of the ice cannot be lower than the mean between the water and the air while the ice is forming. So the water, when meeting the ice, being just over thirty-two degrees, if the air is down to zero, the mean temperature of the ice can only be sixteen degrees below zero. But if the ice is removed from the water, or the water from the ice, it soon cools down to an equilibrium with the air, and is consequently of so much more value for its keeping and refrigerating qualities. And another reason for stopping off the water before the mass is perfectly solid, is the greater facility with which it can be cut out and removed when required for use.

Tims Requisite, Etc.

The average time required for cutting out and loading ice into cars ready for transportation, is 1¼ hours time of one man per ton, or two car loads, of twenty tons, require three men working ten hours.

I have only to add, as one of the facts accomplished, that our buildings are now about two-thirds full of ice, with a fair prospect of being entirely filled by the middle of March.

Having stated what has already been accomplished, I will now claim an inventor's privilege of saying what I propose doing next year, and you can have an editor's privilege, and the public's, for that matter, of thinking what you choose about plans not yet put in execution. It is only, however, to put in a system of distributing pipes, for the more perfect distribution and regulation of the water during extreme cold weather (something as indicated in the patent), but with the addition of steam pipes, arranged for keeping the water pipes from freezing, and so avoid all night work. Lack of cash (the inventor's trouble) is the reason for not having done it this year.

T. McAuley.

Summit Valley, Feb. 10th, 1870.

Cranmer's Automatic Volley-Gun.

We made mention in our issue of January 15th, of an experiment at Black Point with this gun. We have received copies of the following testimonials as to the merits of the invention from high authorities. On account of feeble health Mr. Cranmer has been obliged to visit the country for a time. His address is Millerton, Fresno county, Cal.

Head Qts. Department of California.
San Francisco, January 24th, 1870.

To his Excellency, Governor Haight, Lieut. Governor Holden, and the members of the Legislature of California:

Gentlemen:—After careful examination of Mr. Cranmer's "Magazine Automatic Gun," I am of opinion that for defense of buildings, trains, or any place or point subject to sudden or unexpected attack, it will prove very effectual; especially in view of its performing all the labor of rifles as fast as could be done by a company of troops armed with breech-loaders, and this with considerable accuracy.

E. O. C. Ord,
Bvt. Maj. Gen. U. S. A.

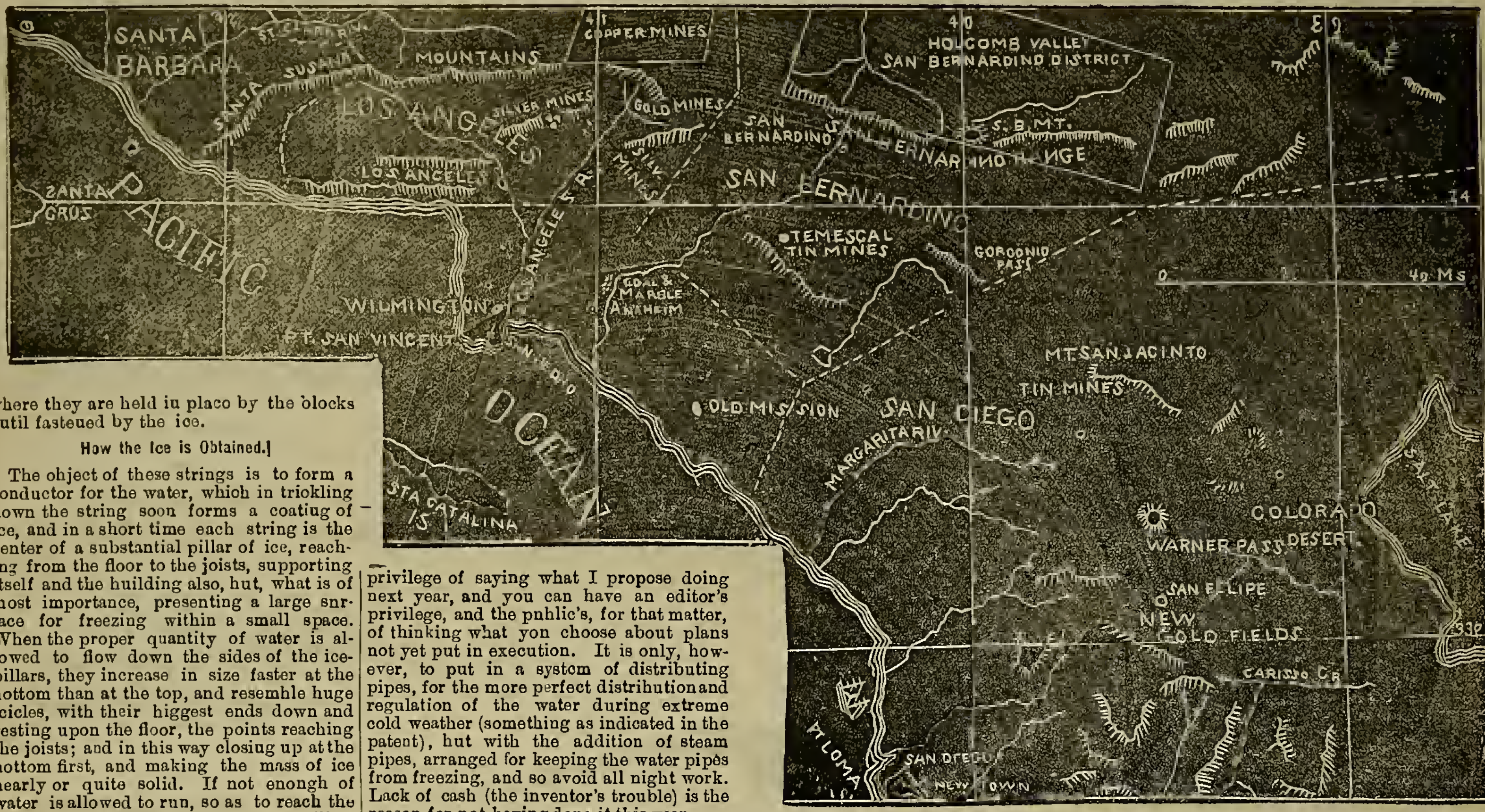
Head Qts. 2d Regiment U. S. Artillery.
Presidio of San Francisco, Feb. 24, 1870.

At the request of Mr. Cranmer I was present at Fort Point where he exhibited his automatic gun.

Without entering upon the mechanism or wherein it differs from guns of similar description, it is sufficient for the purpose of the inventor simply to state that the experiment showed the aim to be sufficiently accurate and effective for all practical purposes to which it would likely be applied. As a fixed battery, to defend the face of a work, a breach, in resisting storming parties, and on any occasion where a rapid fire is directed upon any attacking mass, Mr. Cranmer's ingenuity and perseverance is in every way deserving of encouragement and success.

Wm. H. French,
Bvt. Maj. Gen. U. S. A.

The Committee on Instruction in the Boston City Council has reported in favor of paying out of the City Treasury for all books needed in the public schools. The expense for the 33,000 pupils is estimated at about $57,000 annually.



The New Gold Fields.

We spoke last week of the new discoveries near San Diego, and gave their location. As many, however, seem to have no definite idea of the position of the mines, we give a rough sketch of the lower counties, showing their relative position with respect to other well known places. They lie near the summit of the ridge forming the watershed between the waters of the San Diego river and the Colorado Desert, nearly due south of San Felipe, and about sixty miles by the road and forty miles in an air-line from San Diego, in a northeasterly direction.

The most favorable reports are given as to the character of the country The hills are said to be covered with grass, the valleys are fertile, and there is considerable timber. The Cuynmac Pineries are but a few miles distant. The climate is very fine, but we never heard of any climate on this coast which wasn't. The country rock is a talcose slate, bounded on the west by granite and on the east running into the desert.

The mines were discovered on the 22d of February by Messrs. J. T. Gowen, H. C. Bickers, and J. B. Willis, and the vein on which a location of 4,400 feet was made was named George Washington, on account of the day. This ledge runs nearly east and west. Another, the Martha Washington, about 1,500 feet from the former and running parallel with it, is said to have been discovered, and several other ledges are reported. At a depth of six feet in the George Washington ledge silver ore is reported to be found, and a similarity to the outcroppings of the Comstock lode is seen by many. From this lode about one-half ton of rock was sent to San Francisco, and spoken of by us last week.

The discovery of the mines, and the exhibition of specimens of quartz, coated in the crevices with gold, caused a tremendous excitement. San Diego was nearly depopulated, and from other places people flocked in crowds. But, after the first reports, nothing really definite is heard. The placer diggings, as far as discovered, appear to be poor, and the prospects in general do not seem as flattering as at first thought. A district has been organized, named the Julian, and the hills are covered with prospecting parties. The report has been made that a party of Chinamen found a very fine lode, which was immediately jumped by the whites, the Chinese driven off, and three of them killed.

The last reports from San Diego say that some gold is received daily at that place, and it is reported that new rich placers have been struck. There is a lull in the excitement, however, and many await reports from friends who have gone to the mines. Another rich lot of quartz is reported taken out, richer than that exhibited. Five hundred pounds will yield from four to five thousand dollars; this is generally believed there.

As is usual in such cases, there is a great deal of discomfort experienced by the prospectors, and many who have rushed to the place are sadly in want of decent accommodations.

The map we give shows the lower counties of California from near Santa Barbara to Lower California. The region is developed to only a very small extent, and we know really neither its agricultural capacities nor its mineral resources. Most of the land is devoted to stock-raising and to the culture of grapes and of semi-tropical fruits, as oranges, lemons, figs, etc., and the silk-culture is being extensively carried on. The plain on which Los Angeles is situated is particularly celebrated for its beauty and fertility as also for its equable climate, and its vineyards and fruit orchards are quite famous. The drouth thus far this winter has been rather severe, but has not materially injured the crops. The shipments of oranges have been unusually large. More and more is being done in this country, the mines are being developed, and the prospects for the future are exceedingly bright. Our sketch shows also the more important mining regions as far as known.

Serious Accident.—Jerome Spaulding, of the Pacific Saw and File Factory, had his thigh bone fractured, on the 14th inst., by the falling of some large circular saws. Mr. S. is a brother of the well-known inventor of Spaulding's Patent Tooth Circular Saws.

California Diamonds.—We are obliged to defer still another week an interesting paper by "C. D. V." on the localities of diamonds in this State.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.
Thomas Poyzer—California.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orabood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beere.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hudson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf **414 Front street, San Francisco.**

STEAM

FIRE-PROOF

SAFES

SANBORN'S PATENT.

Perfectly Dry in Use.

ACTUALLY FIRE-PROOF.

GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

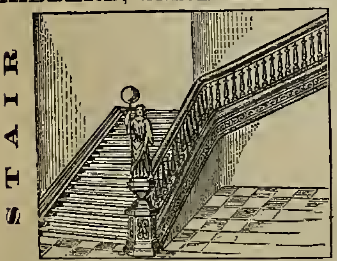
☞ Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by

ROSS, DEMPSTER & CO.,
105, 107 and 109 California street,
San Francisco.

5v20-3m

HIBBERD, SANBORN & CO.,

STAIR BUILDERS.



South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

California Steam Navigation

COMPANY,

Steamer CAPITAL..................CAPT. E. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE................. —— ——
" CORNELIA..................CAPT. W. BROMLEY
" JULIA.......................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

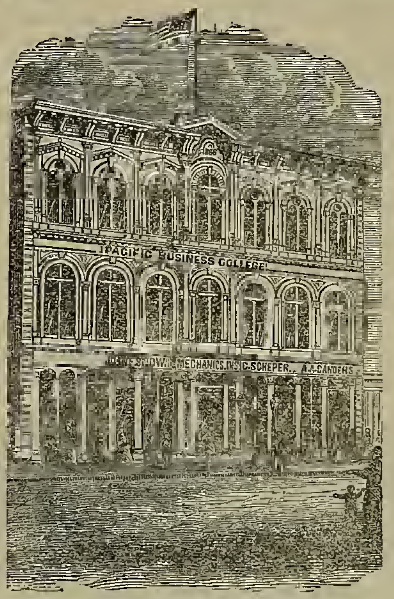
B. M. HARTSHORNE,
President

13v12

PACIFIC BUSINESS COLLEGE,

Mechanics' Institute, 27 Post Street,

Bet. Montgomery and Kearny, San Francisco.


PACIFIC BUSINESS COLLEGE
MECHANICS' INS... C. SCHEPER... A. A. CANDENS

THE PIONEER AND ONLY BUSINESS COLLEGE

On the Pacific Coast where BOOK-KEEPING is taught as practiced in the Counting-room.

PENMANSHIP.

In this useful and very important branch we challenge competition.

PROF. SEREGNI

Has obtained First Premiums at all the Fairs on this coast where his Penmanship was exhibited, and was awarded the MEDAL at the Seventh Industrial Exhibition of the Mechanics' Institute in 1869 over all competitors. His success as a Teacher is unequalled.

TELEGRAPHING.

The only place in the city where Telegraphing is taught by an experienced Operator.

We cordially invite the public to call and examine the merits of the College. Our Institute is patronized by the youth of fifteen and the man of fifty, where they receive instruction in Single and Double Entry Book-Keeping, Commercial Arithmetic, Commission Jobbing, Business and Ornamental Penmanship, Commercial Correspondence, Actual Business, Merchandising, Banking, Importing Railroading, Steamboating, Mining, Real Estate, Brokerage and Exchange, Mechanical and Architectural Drawing, Telegraphy, Orthography, French, Spanish, Italian, German and English Grammar. No Class System. Each student receives individual instruction. No Vacations.

Sessions Day and Evening.

12v20-12t VINSONHALER, JULIAN & CO.

JOHN WRIGHT & CO.,

DEALERS IN PICKS AND PICK HANDLES.

Sole Agents for Washoe Tool Company.

Nos. 13 and 15 Fremont Street, at Nelson & Doble's, San Francisco.

LIST OF PRICES OF PICKS:

No. 1	Round Eye Surface,	4 lbs	$15	No. 15	Drifting	4 lbs	15
" 2	" "	4½ "	15	" 17	"	4½ "	18
" 3	" "	5 "	15	" 18	"	5 "	18
" 4	" "	5½ "	18	" 19	"	5½ "	20
" 5	" "	6 "	20	" 20	"	5 "	22
" 5	" "	5½ "	22	" 21	Poll	4 "	18
" 7	" "	7 "	24	" 22	"	4½ "	18
" 8	Flat Eye Surface	4 "	16	" 23	"	5 "	20
" 9	" "	4½ "	16	" 24	"	5½ "	20
" 10	" "	5 "	15	" 25	"	5 "	22
" 11	" "	5½ "	18	" 25	"	5½ "	24
" 12	" "	5 "	20	" 27	"	7 "	30
" 13	" "	5½ "	22	" 28	Coal	2 "	15
" 14	" "	7 "	24	" 29	"	2½ "	15
" 15	Drifting	3½ "	16	" 30	"	3 "	16
No. 31	Coal	3½ lbs	15				

Also, PICK EYES, ready for the steel, for the Blacksmiths, which will be sold cheap.

I wish to call especial attention to

MY NEW ADZE EYE PICK,

Which was made under my own supervision while in New York.

For Beauty, Strength and Durability they are unequaled.

JOHN WRIGHT.

WE HAVE A LARGE STOCK OF

Extra Number One White Hickory Drifting Pick Handles,

WHICH WE OFFER CHEAP.

CALL AND EXAMINE FOR YOURSELVES.

8v20-q1am3w

Oil Cake Meal.

THE BEST FEED KNOWN

For Live Stock.

We desire to call attention to OIL CAKE MEAL, which we are now manufacturing. No description of feed so greatly promotes the health of animals as Oil Cake Meal, and we urgently request all engaged in the dairy business, raising and fattening stock, or wool-growing, to give it a trial, feeling confident that they will find it of very great value. By those who have used it thoroughly, ONE pound is pronounced to be equal to two pounds of Corn Meal; and in the U. S. Government Report of the Department of Agriculture for 1865 it stands in the following relation to other feeds as to the percentage of flesh produced from a hundred pounds of feed, viz: Indian Corn Meal, 11 pr ct.; Barley Meal, 13 pr ct.; Oat Meal, 18 pr ct.; Oil Cake Meal, 22 2-100 pr ct. For life-sustaining properties for all stock exposed to sudden changes of weather, or over-driving it has no equal.

FOR MILCH COWS it is particularly valuable, increasing the quantity of milk and improving its quality to a far greater extent than any other feed known. A suitable quantity for them at the commencement is one quart in the morning and one quart at night, either alone or mixed with any other food; generally mixed with the mash of bran, slops, roots, or cut feed of any kind. It will improve it to soak it for six or eight hours, the effect being to increase its bulk two or three times. The quantity can be increased gradually, according to the effect produced—ordinarily not exceeding three or four quarts per day.

FOR BEEF CATTLE it has fattening properties which cannot be found in any other feed—the beef always being more tender and juicy and of much finer quality than when fattened on any other feed; and no feed known will so quickly prepare animals for market as Oil Cake Meal.

FOR HORSES, a small quantity given daily promotes their health, and is especially valuable for them when chilled or injured from over-driving. It is one of the best remedies known for Horses subject to the Heaves or Rheumatism, and greatly increases the cleanliness, evenness and glossiness of the hair.

FOR SHEEP, there is no article of feed known that produces such fine mutton, or so promotes the growth of wool. A small quantity given to chilled Cattle or Sheep will keep them alive and greatly increase their warmth and vitality.

At present price ($28 per ton) it is the cheapest feed in market. It is now selling in New York at $42 per ton, gold; at $50 per ton in England, where it has been proven for a long time to be in every respect the most profitable feed known for stock of all kinds—one ton being fully equal to three tons of bran.

The increasing demand for this Meal from those on this coast by whom it has been thoroughly tested has induced us to increase our facilities for its manufacture, and we are now fully prepared to furnish it in quantities as may be desired. For sale by the Grain and Feed Dealers, and at the Manufactory, King street, near Third. All orders will receive prompt attention. Address—

Pacific Oil and Lead Works,

Nos. 3 and 5 Front street, San Francisco.

7v20-1am3m

H. S. CROCKER & CO.,

Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM

PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

☞ The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. A full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

Notice to Miners,

Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG.

3v18 ly Stove Store, No. 1 Clay Street, below Davis

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street ....San Francisc

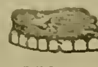
(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

DR. KNOWLES, Dentist,

HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JAMES M. TAYLOR.
Attorney and Counsellor at Law,
Court Block, 630 Clay Street
SAN FRANCISCO.

J. VAN O. HORNER,
DENTIST,



COR. J AND THIRD STREETS, SACRAMENTO.

☞ All work warranted. 7v20-3m

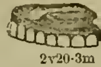
JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.

GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.

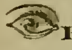
DR. BEERS, Dentist,



Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

DR. R. R. ROBERTS,
The Great Magnetizer,

Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all CURABLE Chronic Diseases by ANIMAL MAGNETISM and the SWEDISH MOVEMENT CURE. 2v20-1y



DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
520 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

REFERENCES.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

DR. MABON,
ORTHOPÆDIST,
(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the

MOST EFFICACIOUS INSTRUMENT

Yet invented for the cure of

RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment.

Office, No. 128 Kearny Street, near Sutter,
SAN FRANCISCO. 11v20-3m

Dr. J. H. PAINE, Dentist,

Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.

Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

Farmers and Mechanics
BANK OF SAVINGS,
No. 223 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
R. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.

N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v11tf

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.

Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 CLAY STREET, bet. Kearny and Montgomery, San Francisco. 11v20-3m

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.

BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers,
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

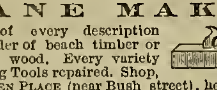
W. C. CAMPBELL,
PATTERN AND MODEL MAKER,
No. 20 Fremont street, over Phœnix Iron Works, San Francisco.

Particular attention given to MODELS for the Patent Office Brands and Pattern Letters Cut. 4v18mtf

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.

GOLD PENS REPAIRED. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,



No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

☞ Meerschaum Pipes Boiled and Repaired, Amber Mouth-pieces Fitted. 11v20-3m

H. G. STILLEY,
PLANE MAKER.

PLANES of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 BELDEN PLACE (near Bush street), below Kearny, San Francisco. 11v20-3m

W. C. & JOHN DENN. M. BURKE.

AMERICAN MILLS,
Nos. 30 and 32 California Street.

Job work of all kinds in the Drug and Spice Line promptly attended to.

SECOND DEPARTMENT.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v20-6m

EVENING DRAWING SCHOOL
BY
N. P. LANGLAND,

(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 536 MARKET STREET, over Occidental Market. ☞ School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3v20-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

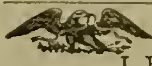
SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.

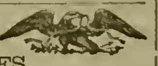
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

OSCAR LEWIS. J. H. CULVER.

LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.

Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m





J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,
26 611 and 613 Front street.

M. M. COOK. H. N. COOK.

M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.

☞ Belt Leather for sale. 26v19-3m

Metallurgy and Ores.

S. W. HOWLAND. J. W. THURMAN.

S. W. HOWLAND & CO.,
Crushers and Samplers
OF
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

☞ All work done at the shortest notice. All orders promptly attended to.

REFERENCES—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co, Assayers. 7v20qy

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street, San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES. Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.

H. H. LAWRENCE..............................Manager.
J. A. MARS..............................Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

O. W. STRONG. W. L. STRONG.

G. W. STRONG & CO,
Metallurgical Works,
No. 10 Stevenson Street, near First.

Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

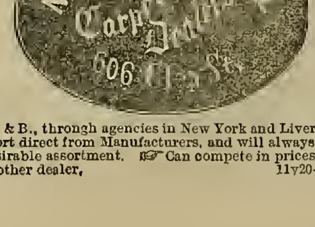
SILVER AND LEAD ORES
Of every description purchased or worked at
The Oreana Smelting and Refining Works.
JOSEPH MOSHEIMER,
Oreana, Humboldt County, Nevada.
Office in San Francisco, 328 Montgomery street. 6v20

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

FROM **$65** The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED

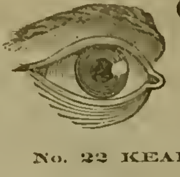
WEED

Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 829 Kearny St. S. F., Agt. TO **$500**



M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞ Can compete in prices with any other dealer. 11v20-3m

DR. ABORN,



Oculist, Aurist,
AND
CATARRH, THROAT
AND
Lung Physician.

No. 22 KEARNY STREET,
SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox, Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.

San Francisco (Cal.), Jan, 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street, San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.

San Jose (Cal,), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

TO WHOM IT MAY CONCERN.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.

WILLIAM BEARDSLEE,
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.

VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869 7v20-3m

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up IN TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List. to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

Our Home Physician.

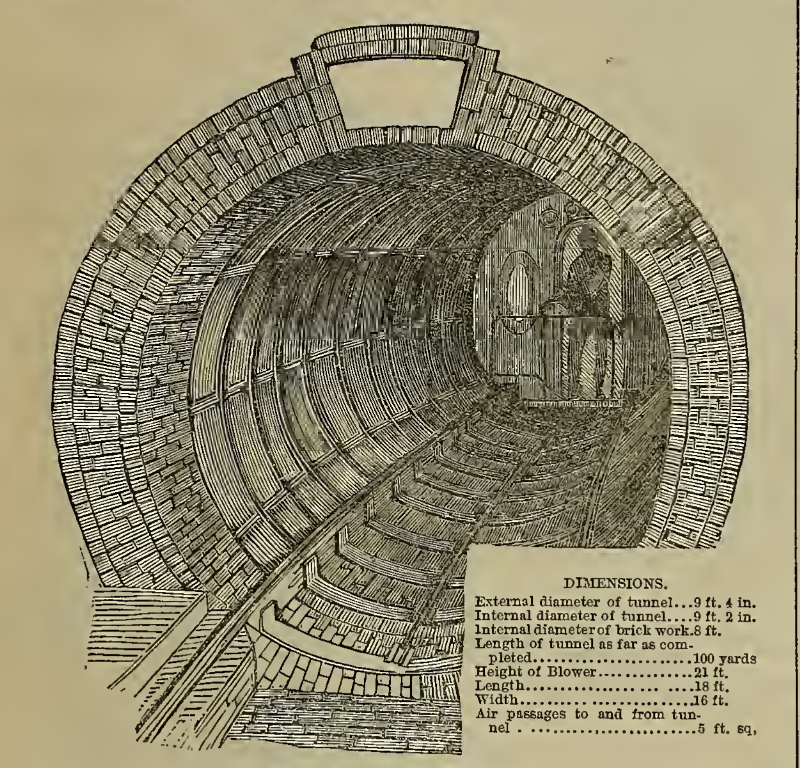
AGENTS WANTED—OUR HOME PHYSICIAN, by Geo. M. Beard, A. M., M. D., of New York. Copyrighted 1869. The only complete Family Medical Book written since 1860. Plain, practical and reliable. Its superior merits are indorsed by leading medical journals and physicians at the East and on the Pacific coast. Send for circular representing its merits. WESTERN PUBLISHING AGENCY, 411 Kearny street, San Francisco.

The New York Underground Railroad.

The construction of the Pneumatic Railway under Broadway, New York, has excited considerable comment and curiosity, stimulated in great measure by the secret manner in which, until lately, the operations have been carried on. The public press have, however, been permitted to visit the scene of operations, and the papers of New York contain descriptions of the work. Our illustrations are taken from *Leslie's Illustrated Newspaper*.

The Origin of the Tunnel.

In 1868 the Beach Pneumatic Tunnel Company was chartered with authority to lay down tubes, not to exceed fifty-four inches interior diameter, for the conveyance of letters, parcels and merchandise. The company decided that the cost of laying down two tubes of the above size, placed side by side, would exceed but little that of constructing a single tube; moreover, that the best method of construction would be to bore under the streets, below the water pipes and sewers, and to build a masonry arch to inclose both tubes. This outer tunnel has been constructed in part, and we suppose it to be the object of the company to get permission to carry passengers as well as packages. The president of the company, and its engineer, is Mr. A. E. Beach, one of the proprietors of the *Scientific American*. Mr. Joseph Dixon is superintendent of construction, and secretary of the company.



DIMENSIONS.

External diameter of tunnel	9 ft. 4 in.
Internal diameter of tunnel	9 ft. 2 in.
Internal diameter of brick work	8 ft.
Length of tunnel as far as completed	100 yards
Height of Blower	21 ft.
Length	18 ft.
Width	16 ft.
Air passages to and from tunnel	5 ft. sq,

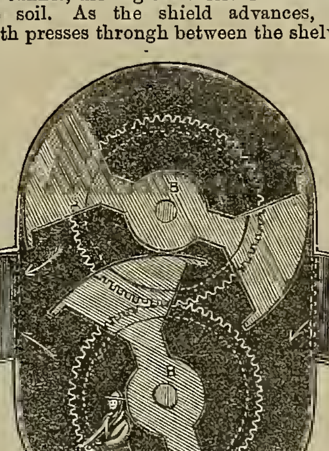
ENTRANCE TO THE TUNNEL.

The Tunnel and Station.

The tunnel is of cylindrical form and is made of cast iron plates, bolted together through internal flanges provided at their peripheries. The external diameter is nine feet four inches; the internal, nine feet two inches. The internal diameter of the brick portion is eight feet. At present, the work is being carried on through sand, and the means by which this is accomplished without the possibility of caving in, is of the highest interest. Along the bottom is laid a railway track on which runs a spacious car, handsomely furnished and well lighted. The reception room is at the corner of Broadway and Warren streets, is one hundred and twenty feet long, and occupies the entire space under the Warren street sidewalk, being lighted from the pavement. The tunnel bed here is 21½ feet below the surface of Broadway. The tunnel starts from the east end of the reception room, extends on a curve to the center of Broadway and thence in a straight line down to a point a little beyond Murray street, where the shield now rests.

The Shield or Tunneling Machine

Was designed by Mr. Beach. It consists of a large cylinder of wrought iron, open at both ends, with shelves arranged within the front end to receive the earth and prevent it from falling too rapidly into the shield; at the rear of the latter, placed around its periphery, is a series of powerful hydraulic rams, eighteen in number, all connected with a single water-pump. From the rear of the shield, and passing entirely around it, extends a hood of sheet steel, two feet wide and three-sixteenths of an inch thick. The brick tunnel is erected within this hood, which at all times covers the end of the masonry, and prevents the earth from falling upon the workmen. After a section of the tunnel sixteen inches long has been erected within the hood, the pump is operated, which causes the rams to slide out from the shield, and push with great force against the front edge of the tunnel, driving the shield forward into the soil. As the shield advances, the earth presses through between the shelves, and falls down upon the bottom of the shield, whence it is removed in barrows and cars. As soon as the shield has been advanced sixteen inches, its movement is stopped, and a new section of the masonry tunnel is erected within the hood. The shield is then again pushed forward, and so on. By means of this machine tunnels of all kinds and sizes may be quickly constructed under the streets, without disturbing the travel of vehicles over the surface. The shield may be readily moved around a curve by turning the stop-cocks of the water pipes of the rams, thus changing the pressure to one side as desired. To determine the position of the shield a compass survey is made and verified by driving a jointed rod of iron up to the pavement.



THE BLOWING MACHINE.

The Blowing Machine.

One of our engravings gives a view of the interior monster blowing-engine used by the Pneumatic Transit Company for propelling the cars or parcels. Its shell (A) is 21½ feet high, 18 feet long, and 16 feet broad. It contains two pair of wings or blades (B), which roll together in such a manner as to exhaust and compress an immense quantity of air at every revolution. The machine is made on Root's patent, and is by far the largest of its kind. It has capacity for delivering about one thousand cubic feet of air per minute. By means of this machine a current of air is driven through the Broadway tunnel, and when a car is placed therein, it is blown along precisely as a sailboat is carried before the wind. The rear end of the car forms the sail against which the air impinges. The stationary engine used is of one hundred-horse power.

The Cars, Etc.

The cars are of circular form with seats for eighteen persons. It is intended hereafter to have them 100 feet long. The tunnel near the station is enlarged so that the air can pass the cars and the speed is diminished by means of brakes. The current escapes into the street at the end station by means of a side pipe. To bring the car back, the valve is shifted, the current reversed, and the air in the tunnel exhausted. The work is to extend, according to reports, from the Battery to the Harlem river; but at the upper part of the island, where it will be carried through rock, instead of sand, open cutting will be resorted to instead of tunneling. If the tunnel is used for the transmission of packages, and not of passengers, it will be filled up with four internal tubes.

We are inclined to favor the idea of such a tunnel, and believe it will be practicable. The advantages are manifold. It relieves the streets of a considerable degree of traffic. It is free from the nuisance of smoke, dust, gas, etc. We do not know how much opposition may be brought to bear by other companies, but shall watch with interest the development of affairs.

◆

STATE LANDS.—The bill which passed the Senate March 11th, amending the act providing for the management and sale of the lands belonging to the State, approved March 28, 1868, was stated by Mr. Pendegast to be intended to accomplish three objects only. First. Under the present law if parties making application for State lands, for speculative purposes or otherwise, make no payment thereon for fifty days, they lose their rights, but a suit is necessary to declare that the lands are clear again and open to location by any other applicant. This bill makes such defaulting claims null and void without any suit. Second. It prevents the issuance of any patent for lands by States officers until the United State authorities have certified that they are clear and assent to its issuance. This is called listing land over to the State. Third. It prevents any person from obtaining more than 320 acres of school lands. These changes are as recommended in the report of the Surveyor-General, and with this explanation the bill passed.

TREATMENT OF REBELLIOUS SILVER ORES, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful Institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block San Francisco. 24w

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. HOWLAND.

LAYRES' ELEMENTS OF COMPOSITION.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

OPTICAL, Surveying and Mathematical Instruments repaired at C. Muller's, 205 Montgomery street. *

New Mining Notices.

Eagle Quicksilver Mining Company.—Location of Works: Eagle Mining District, Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of March, 1870, an assessment of twenty dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 26 Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the sixteenth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.

Office, Room 26 Hayward's Building, 419 California street, San Francisco. mar19

Green Monster Copper, Gold and Silver Mining Company, Inyo Mining District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of March, 1870, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold or silver coin, to the Secretary, at his office, No. 16 Montgomery Block, San Francisco.

Any stock upon which said assessment shall remain unpaid on Saturday, the sixteenth day of April, 1870, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on Monday, the second day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

I. N. THORNE, Secretary.

Office, No. 16 Montgomery Block, San Francisco. m12

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

NOTICE.—There are delinquent on the following described stock, on account of assessment (No. 1) levied on the eighth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares,	Amount.
I I Herr	unissued	2000	$50 00
R P Johnson	unissued	2000	50 00
H C Kihbe	unissued	2000	bal. 30 00
Thos G Taylor	unissued	2000	50 00

And in accordance with law and an order of the Board of Trustees, made on the eighth day of February, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room No. 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the fifth day of April, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.

Office, Room 5 No. 302 Montgomery street, San Francisco, California. mar19

Mining Notices--Continued.

Alleghany Consolidated Gold Mining Company. Location of Works: Sierra County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the thirtieth day of December, 1869, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
W H Tompkins	34	1000	$500 00
A L Whitney	32	185	92 50
John J Rorhe	4	15	7 50
Chas Adams, Trustee	12	1000	500 00
I N Thorne	13	125	62 50

And in accordance with law and an order of the Board of Trustees, made on the thirtieth day of December, 1869, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room 37 New Merchants' Exchange, on the twenty-eighth day of February, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.

Office, No. 37 New Merchants' Exchange, third floor, California street, San Francisco. feb5

POSTPONEMENT.—The above sale is hereby postponed until Monday, the twenty-first day of March, 1870, at the same hour and place. By order of the Board of Trustees.

mar5 J. M. BUFFINGTON, Secretary.

Glenwood Mill and Mining Company.—Location of Works: Greenwood, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the seventh day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of March, 1870. to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.

Office, 418 California street, San Francisco. feb52

POSTPONEMENT.—The day for deeming stock delinquent on the above assessment is hereby postponed until the sixth day of April, 1870, and the sale thereof until Wednesday, the twenty-seventh day or April, 1870. By order of the Board of Trustees.

mar12 O. D. SQUIRE, Secretary.

Cordillera Gold and Silver Mining Company, Morelos Mining District, State of Chihuahua, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company No. 321 Washington street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.

Office, 321 Washington street, San Francisco, Cal.

Cordillera Gold and Silver Mining Co.—

Notice.—The Annual Meeting of the Cordillera Gold and Silver Mining Company, Chihuahua, Mexico, for the election of officers, will take place on Monday evening, March 21st, at three o'clock P. M., at the office of the Company, 321 Washington street, San Francisco.

mar12-2w HENRY R. REED, Secretary.

Hartwell Mining Company.—Location of

Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of February, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Treasurer, at the office of the Company in San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Saturday, the twenty-first day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-first day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

fy26 A. J. HOYT, Secretary.

North San Francisco Homestead and

Railroad Association:—Location of Property: City and County of San Francisco, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Association, held on the ninth day of February, 1870, an assessment of seven dollars and fifty cents was levied upon the capital stock of said Association, payable immediately, in United States gold coin, to the Secretary, at his office, No. 415 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the ninth day of March, 1870, shall be declared forfeited, and duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the thirtieth day of March, 1870, to pay the delinquent assessment thereon, together with cost of advertising and expenses of sale. By order of the Board of Trustees.

EDWARD C. LOVELL, Secretary.

Office, 415 Montgomery street, San Francisco. feb12

Postponement.—The publication of the delinquent list of the North San Francisco Homestead and Railroad Association is hereby postponed until the twenty-third day of March, 1870, and the sale thereof until the fourteenth day of April, 1870. By order of the Board of Trustees.

mar12 EDWARD C. LOVELL, Secretary.

Pocahontas Gold Mining Company.—Lo-

cation of Works: Mud Springs, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of March, 1870, an assessment of four dollars per share was levied upon the capital stock of said Company, payable immediately, in U. S. gold and silver coin, to the Secretary, at the office of the Company, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the second day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 28th day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. A. JENNINGS, Secretary.

Office, 419 California street, San Francisco, California.

U. S. Grant Mining Company.—Location

of Works: Carlisle, Nevada County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the nineteenth day of January, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Jno Gillig	4	218	$109 00
J E Squire	35	10	5 00
J E Squire	36	10	5 00
J E Squire	42	10	5 00
J E Squire	43	10	5 00
J E Squire	44	20	10 00
Jno Vail	34	20	10 00
F Pauson	52	35	17 50
N H Wilson	53	8	4 00
Samuel Goehen	54	8	4 00
W H Kinder	55	95	47 50
C C Brogan	57	50	25 00
W D Aplin	not issued	200	100 00
D E Martin	not issued	300	150 00
W L Tiedale	not issued	160	80 00
J Bigge	not issued	4	2 00
McFarland	not issued	16	8 00
Sarah Snyder	not issued	32	16 00
N M Baxter	not issued	20	10 00

And in accordance with law and an order of the Board of Trustees, made on the nineteenth day of January, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by J. C. Merrill & Co, at 204 California street, on Saturday, the twelfth day of March, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

ENOS TAYLOR, Secretary.

Office, 226 Clay street, San Francisco. fy26

Postponement.—The above sale is hereby postponed until Saturday, the twenty-sixth day of March, 1870, at the same hour and place. By order of the Board of Trustees.

mar12-2w ENOS TAYLOR, Secretary.

Yosemite Mining Company, Humboldt

County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventh day of March, 1870, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to James T. Maclean, Superintendent, at the mine.

Any stock upon which said assessment shall remain unpaid on the seventh day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the twenty-third day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary pro tem.

Office, 220 Clay street, San Francisco. mar12

THE CALIFORNIA
Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:

JAMES T. DEAN	President.
JAMES MILBURN	Secretary.
RODGERS, MEYER & CO.	Treasurers.

Company's office, 121 Post Street, San Francisco.

12v20-3m

New Advertisements.

MORRIS & WHITE,
Practical Assayers and Metallurgists.

No. 30 and 36 Fremont Street,

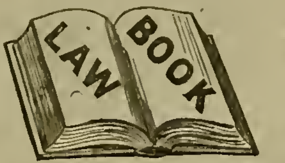
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.

☞Gold and Silver Ores and Sulphurets bought.

12v20-qy

Agents Wanted for



Chamberlin's New

FOR THE PEOPLE—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWINO & CO., 542 California street, San Francisco. 12v20-12t

FAVORITE VALLEJO ROUTE.

Shortest and most direct Route between SAN FRANCISCO, SACRAMENTO, MARYSVILLE, CALISTOGA, and all points North and East. Fifty-two Miles saved in distance, and Three Hours in time, between San Francisco and Sacramento, and Eighty Miles less than any other line between Marysville and Sacramento.

Arrival and Departure of Trains.

Leave San Francisco (New World), 8 a. m., 3.30 p. m.; Sunday, 9 a. m. Arrive in San Francisco, 11.45 a. m., 7 p. m.; Sunday, 5.15 p. m.

Leave Sacramento, 7.15 a. m., 2.45 p. m.; do., Marysville Accommodation, 11 a. m., 6.15 p. m.; Sunday, 1.30 p. m. Arrive in Sacramento, 12.15 p. m., 7.50 p. m.; do., Marysville Accom., 8.15 a. m., 4 p. m.; Sunday, 1 p. m.

Leave Marysville, 6 a. m., 1 p. m.; Sunday, 10.30 a. m. Arrive in Marysville, 2 p. m., 9 p. m.; Sunday, 3.45 p. m.

Leave Calistoga, 7 45 a. m., 2 p m.; Sunday, 1.30 p. m. Arrive in Calistoga, 12.50 p. m., 7.15 p. m.; Sunday, 1 p. m. D. C. HASKIN, General Manager.

R. S. MATTISON, Superintendent.

Vallejo, March, 1870. 12v25-1y

To Sufferers from Rheumatism.

NOTICE OF REMOVAL.

MR. J. W. MAC,

Master of All Rheumatic Complaints, Weak and Painful Loins or Joints, Neuralgia and Tender Feet,

Is compelled, from his great success for the past five months in this city, to remove to more central and extensive premises,

128 KEARNY STREET,

Where he can be applied to daily for his wonderful (and may be termed magic) PLASTERS. No useless drugging. A discovery made by himself in New Zealand, and first personally tested by himself, having been a great sufferer. The innumerable testimonials awarded him for his marvelous cures since his arrival in this city, and his former services in New Zealand, Tasmania, and Sydney, New South Wales, are open for the strictest inquiry, and may be seen at the office of the "Daily Call," or at his rooms, Nos. 34, 35 and 36,

No. 128 Kearny Street, bet. Sutter and Post

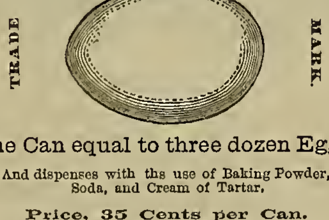
☞Office Hours, from 10 a. m. to 4 p. m., and from 7 to 9 p. m. 12v20-1m

OMETHING NEW

— FOR —

MINERS AND FAMILIES.

EAKIN'S
EGG SUBSTITUTE.



One Can equal to three dozen Eggs,

And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.

Price, 35 Cents per Can.

MANUFACTURED BY ADAMS & CO.,

423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

Scientific Press.—Dewey & Co. are the publishers of this sterling paper. It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican.*

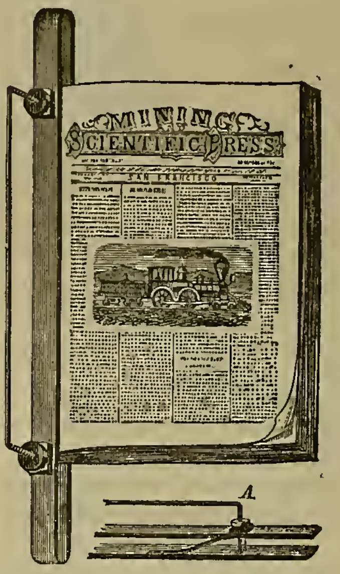
PATENTS FOR SALE.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

HOTCHKISS' CLOTHES DRYER.

This invention is for house use. It can be fastened to the wall with two screws, and removed without taking them out. When not in use the arms can be folded closely against the wall. Each arm has an iron brace to support it. This is really a "good thing in a family." County or State rights for this will be sold very low. Full particulars given on application.

BURGESS' PATENT PAPER FILE.



This is a recent patent, and one of no ordinary merit. It is light and complete, yet costs but little. In all file-holders before presented to the public, the papers are very liable to tear, or else the method of inserting them requires too much time and trouble. This device is easily adjusted, is not liable to tear the paper, nor let it loose. This patent is also used in combination with covers for forming music folios. Musicians who have seen it, speak in the highest terms of its value. No person can fully appreciate the Paper File or Music Folio without seeing one.

THE RANDALL RAKE.

Here is an article that we take pleasure in recommending. This patent has been for some time on this coast, but for want of means has been allowed to remain comparatively quiet. It will require from seven thousand to ten thousand dollars to handle this invention successfully on the Pacific Coast, and we would advise any one with this amount of capital to look into the merits of this patent before embarking in other business. We cannot see why it will not eventually supersede all other horse rakes. It does its work completely and is easily operated. It is so constructed that the teeth play on an iron rod independently of each other, and therefore accommodate themselves to any surface. The inclination of the teeth to the surface prevents them from raking up sand and dust with the hay, and causes them to glide easily over the ground. The driver has a spring seat to sit upon, and a simple action of the foot is all that is necessary to drop the hay. A complete model can be seen at our office, or references can be had to parties who have them in use on their farms.

OTHER PATENTS.

We have a number of small patents, for which the right of the United States or any State can be bought very reasonable.

WIESTER & CO.,

11v20 314 Bush Street, San Francisco.

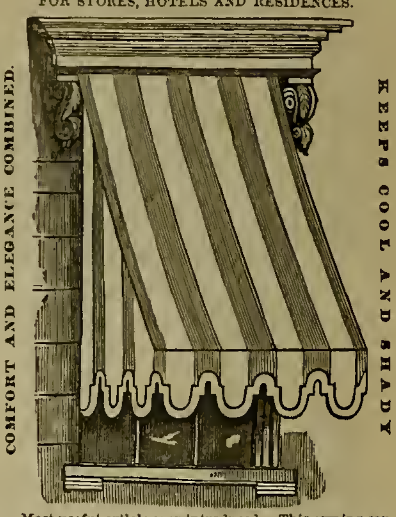
FOR SALE.

The Right of a very valuable invention secured by Letters Patent. An article of real merit, that will sell in nearly every family. Here is an opportunity for a young man to do well with a few dollars. Call and examine it. WIESTER & CO.,

10v20 314 Bush street, San Francisco.

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.



Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., 120 Leidesdorff street, bet. California and Sacramento. T. G. ANDERSON, Agent. 11v20-3m

USE
DR. S. GIRARD SMITH'S
ARAMIRACULAS

— FOR —

RHEUMATISM, GOUT AND NEURALGIA.

CURES GUARANTEED.

Has cured Thousands. Has never been known to fail. One bottle will relieve you.

OFFICE, No. 621 KEARNY STREET.

Dr. S. Girard Smith, 621 *Kearny street.*—Dear Sir: It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,

Everard's Auction Rooms, 527 Kearny street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

Agents Wanted in every City and Town.—Terms Liberal.

A. M. HOFFMAN, M. D.,

11v20-3m New Orleans.

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1865, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology, and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus, accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v16-1y16p

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, March 17, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 lbs.; Bar, 1@1½c ℔ lb; Sheet, polished, 3c ℔ lb; common, 1½@1¾c ℔ lb; Plate, 1½c ℔ lb; Pipe, 1½c ℔ lb; Galvanized, 2½c ℔ lb.

Scotch and Eng. Pig Iron, ℔ ton...	$— —	@$32 50
White Pig, ℔ ton	28 00	@ 30 00
Refined Bar, bad assortment, ℔ lb..	— 03	@ — —
Refined Bar, good assortment, ℔ lb.	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½

Copper.—Duty: Sheathing, 3½c ℔ lb; Pig and Bar, 2½c ℔ lb.

Sheathing, ℔ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22

Tin Plates.—Duty: 25 ℔ cent. ad valorem.

Plates, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℔ lb	— —	@ — 42
Steel.—English Cast Steel, ℔ lb	— —	@ — 15
Quicksilver.—℔ lb	— 55	@ — 60
Lead.—Pig, ℔ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℔ lb	— 10½	@ — 11
Borax	— —	@ — 45

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.

2v17-3m **T. G. DURNING & CO**

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of House-smith Work; Bridge, Prison,

FORGING AND MACHINE WORK,

FIRE AND BURGLAR-PROOF SAFES,

BANK VAULTS,

Improved Monitor Safes,

Constructed of Welded Steel and Iron, fastened with conical steel bolts.

Safes Let by the Month.

Manufacturer of the

Duplex and Excelsior Combination Bank Locks.

Agent for the ISHAM KEY REGISTER BANK LOCK.

1v17-tf

R. SAVAGE. R. E. DORAN.

SAVAGE & CO.,
Empire Iron Foundry,

No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices. 9v20-3m

---

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED......APRIL 30, 1868.
CAPITAL......$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	Wm. Alvord,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON......President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD......Secretary.

24v17-qy

UNION IRON WORKS,
Sacramento.
WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets.

14v1 Sacramento City

SACRAMENTO BOILER WORKS,

I Street, between Front and Second,

SACRAMENTO.

All kinds of Marine and Stationary Boilers, Wrought Iron Tanks, Girders, Bridges, Gasometers, and all kinds of Sheet Iron Work, etc. All work warranted. Millmen and Grain Threshers are cautioned to look to the safety of their boilers. Repairing promptly attended to at the lowest possible terms. Refers to Huntington, Hopkins & Co. and H. Adams, Esq.

J. V. HALL, Practical Boiler Maker,
6v20-3mnuf Proprietor, Sacramento.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. ☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL.

9v13-1y

CITY IRON WORKS COMPANY,
CLERC & CO.,
IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery.

15v16q No. 28 Fremont street, San Francisco.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,

13 and 15 Fremont street, near Market, San Francisco.

10v14qr

CALIFORNIA TOOL WORKS,
Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARRIS. J. BURKE.

NEW FILES OF EVERY DESCRIPTION

ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended 9v19-qy

---

MACHINERY
—AT—
GREATLY REDUCED RATES.
Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

---

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

PARIS
Scouring and Blanket Cleaning
ESTABLISHMENT.

Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling.* Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

---

TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. O. ALLEN & CO., Augusta, Maine. 5v20-3m

---

Ayer's
Hair Vigor,
For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a

HAIR DRESSING,

nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.

Prepared by Dr. J. C. Ayer & Co.,

Practical and Analytical Chemists,

LOWELL, MASS.

PRICE $1.00.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, Wholesale Agents. 26v18-1y

---

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.

DIVIDED INTO 1,200,000 SHARES OF

TEN DOLLARS EACH,

FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President	SAMUEL MERRITT.
Vice-President	MICHAEL REESE.
Treasurer	J. SELIGMAN & CO.
Secretary and General Agent	W. K. VAN ALEN.

Board of Trustees—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm. H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, SEVEN MILES IN LENGTH BY FOUR THOUSAND FEET IN WIDTH, EMBRACING FIVE THOUSAND AND TWENTY ACRES.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of ALL mines discovered by the Tunnel.

4th—A royalty forever of TWO DOLLARS on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of his great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast.

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
Secretary and General Agent,
625 Montgomery street
3v20-3m Opp. Montgomery Block.

New York Metal Market.

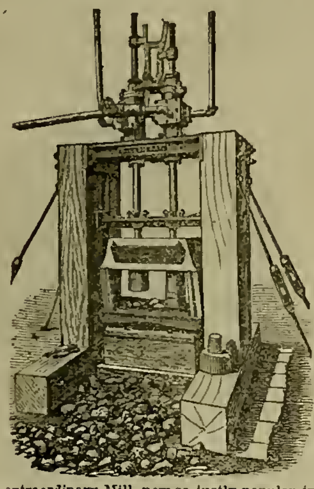
[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, March 5, 1870.

IRON.			
Pig, Scotch, No. 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No. 2................	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common............................	87 50	@	92 50
Refined............................	95 00	@	— —
Rods..............................	100 00	@	155 00
Horse-shoe........................	115 00	@	— —
Hoop..............................	125 00	@	180 00
Scroll............................	110 00	@	145 00
Nail-rods, per lb..................	— 8¼	@	— 9¼
Spring............................	— 9¼	@	— —
Tire..............................	— 9¾	@	— —
STEEL.			
Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast...................	— 23	@	— —
Sheet, second quality.............	— 20	@	— —
Sheet, third quality..............	— 18	@	— —
Saw-plates, circular..............	— 27	@	— —
Double-shear, warranted...........	— 23	@	— —
Single-shear......................	— 19	@	— —
Montague & Co. (cast bars)........	— 18	@	— —
Machinery, round..................	— 16	@	— —
German, best......................	— 16	@	— —
German, goat......................	— 13½	@	— —
German, eagle.....................	— 12	@	— —
Blister, warranted................	— 16	@	— —
Blister, common...................	— 15	@	— —
Jessop & Sons', common............	— 17	@	— —
Double-refined....................	— 26½	@	— —
Stone-ax shapes...................	— 26½	@	— —

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

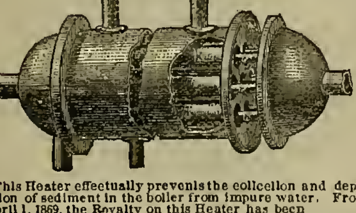
A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

CROSS' COMBINED
Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal

Crandall's Patent Spring Bed.

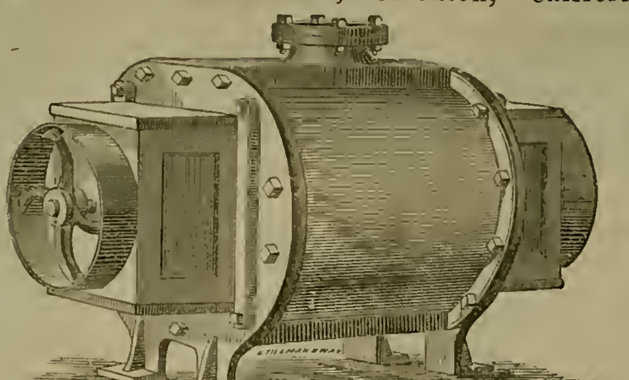
Manufactory, corner Front and M streets, Sacramento. COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER

MANUFACTURED BY KEEP & BARGION,

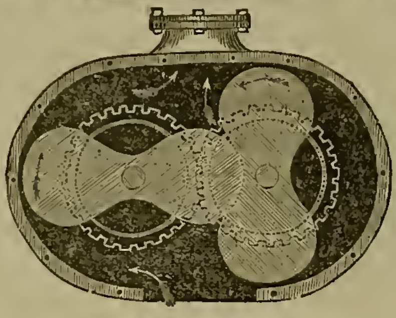
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** ☞ LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

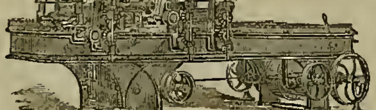
Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**

WOODWORTH PLANERS.



LANERS AND MATCHERS,

With patent expansion feed gears and other improvements, made in the most finished and substantial manner; also every description of

J. A. FAY & CO'S IMPROVED

Wood Working Machinery.

Embracing various styles and sizes of the following Labor-saving Machines:

Morticing (Sash and Door),	Re-sawing,	Rod and Dowell,	Machines.
Sash and Moulding,	Planing and Matching,	Hand and Foot Mitering,	
Blind Slat Tenoning,	Blind Stile Boring,	Railway Sawing,	
Boring (Horizontal and Upright),	Blind Wiring,	Improved Tenoning,	
Shaping,	Blind Slat Planing,	Variety Moulding (Gear's Patent),	

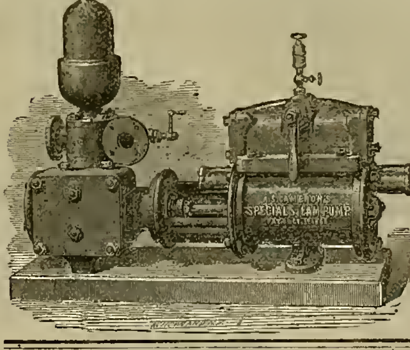
An assortment of the best always on hand.

SCROLL SAWS, DIMENSION PLANERS, GROOVER SAWS, FAY'S PATENT BAND SAWS, WOOD TURNING LATHES OF ALL KINDS.

ENGINE LATHES and Machinists' Tools generally, with also a large assortment of small machines used in Planing Mills, Machine Shops, etc. Also, Planer Knives, Saw Gauges, Matcher Sets, Sash and Matcher Heads, Saw Tables and Arbors, etc. Being the selling agents for most first-class Eastern Machinery Builders, we sell THE BEST, and at manufacturers' prices. Invoices of the above Machinery are now being received by every vessel. ☞ Send for Illustrated Catalogue.

BERRY & PLACE,
112 and 114 California Street, San Francisco.

☞ Agents for Blake's Patent Steam Pump, Davis & Furber's Woolen Machinery, Gear's Upright Shapers Fay's Band Saws, Washington Iron Works Portable Engines, Saw Mills, etc., etc. e7v20



CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

MARINE

ENGINES.

SURFACE

CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

FRANCO-ITALIAN MANUFACTORY.

NEW CALIFORNIA

Chocolate and Coffee Steam Mills.

DESCALZO, LASTRETO & CO.,
526 WASHINGTON STREET.

MANUFACTURERS OF

Hygienic Chocolate of Every Variety,

Ne Plus Ultra Ground Coffee,

And sole manufacturers in California of the world renowned Coffee,

"CAFE DES GOURMETS,"
CORCELET PROCESS. 9v20-q

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, **229** Fremont street,
1v1 San Francisco.

"The Manufacturer and Builder."

A PRACTICAL JOURNAL

— OF —

INDUSTRIAL PROGRESS.

PUBLISHED MONTHLY.

NOW IN ITS SECOND YEAR.

Every Manufacturer and Builder should have it. Every Operative and Mechanic should have it. Every Architect and Mason should have it. Every Painter and Plumber should have it. Every Carpenter and Blacksmith should have it. Every Counting-room and Library should have it. Price within the reach of all.

Subscription only $1.50 per year.

32 Large Quarto Pages for 15 cents.
348 Large Quarto Pages for $1.50.
Filled with valuable reading matter.

It costs less than Three Cents per Week!

A single hint in this paper may be worth hundreds of dollars, or prove a fortune to many.

"The Manufacturer and Builder"

Is splendidly illustrated with engravings of everything new relating to manufacturing and building.

Get Your Clubs Together.

PREMIUMS.

We are induced to offer the following Cash Premiums to those who will work to get up those clubs. $5, $10, $15, $20, made in as many minutes! Read! Read! Read!

On every club of 4 names, at $1.50 each, $ 1 cash.
On every club of 10 names, at $1.50 each, $ 3 cash.
On every club of 15 names, at $1.50 each, $ 6 cash.
On every club of 20 names, at $1.00 each, $10 cash.

Including twenty and for every additional name obtained above that number, fifty cents each.

Where from ten to five hundred men congregate daily, there is no difficulty in raising these clubs. If the money be forwarded to us with a list of names, the amount of premium may be deducted from the same.

Push the good work, and make glad the hearts of your fellow-workmen.

CLUBS IN VILLAGES AND TOWNS may be procured by any enterprising man or woman. Send for specimen copy, circulars, instructions, etc., free. Take them and go among your friends and neighbors. In a half day you will often accomplish the task, and five, ten, or fifteen dollars will be earned, together with the satisfaction of knowing that you have benefited your fellowmen. Adress your orders plainly,

WESTERN & COMPANY, Publishers,
P. O. Box, 5969, 37 Park Row, New York.
☞ For sale by all newsdealers. 9v20-4w

SAN ANTONIO
PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of

STONE WARE,

Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also

Chemical Ware, of Sorts Made to Order.

We manufacture to order

Terra Cotta Equal to the Best French.

Samples on hand.

FIRE BRICK.

A No. 1 article made to order, warranted superior to any imported.

Flower Pots and Ornamental Vases

Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

☞ Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.
8v20-tf

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

New Incorporations.

The following have been recorded in the Secretary of State's office, Sacramento:

Maunt ck S. M. Co.—White Pine District, Nev. Feb. 18. Capital stock, $1,600,000. Trustees: G. Hearst, Washington Ayer, Justus Struver, E. J. Ryan and B. O. Hodges.

State Publishing Co.—Feb. 19. Capital stock, $32,000, in 64 shares. Trustees; A. A. Bennett, John Bigler and Henry George.

Spring Hill M. Co.—Nevada county. Feb. 19. Capital stock, $240,000; 2,400 shares. Trustees: Benjamin Nathan, Wm. Haskins, Wm. Henry, F. S. Richards and J. O. Bennett.

Birchville G. & S. M. Co.—Feb. 19. Capital stock, $100,000; 100 shares. Trustees: George B. Newell, N. Cadawalder, Wm. T. Thomas, E. W. Neil, A. F. Lewis and Henry Everett.

Santa Anita Irrigation Co.—Los Angeles. Feb. 24. Capital stock, $52,000. Trustees: J. R. Martin, J. R. Stone, J. B. Pierce, J. M. Caller and F. Bockman.

San Diego and Los Angeles R. R. Co.—March 1. Capital stock, $3,000,000, Directors: J. Forster, O. J. Coutts, J. W. Gale, James Nash, David Friznhald, A. Pauly, A. B. Norton, L. Chase, E. W. Nurse, C. W. Lewis and D. Choate.

Pioneer Shipbuilding Co,—San Francisco. March 2. Capital stock, $500,000; 1,000 shares, $500 each. Trustees: Thomas Johnston, L. C. Watts and Ira P. Rankin.

Garcia and Point Arenas R. R. Co.—Mendocino county. March 3. Capital stock, $50,000; 500 shares, $100 each. Directors: Horace M. Whitmore, Russell Stevens, Wm. Cline, Fred. Franks and M. A. Wheaton.

Goat Island R. R. Co.—March 4. Capital stock, $100,000. Directors: S. F. Butterworth, L. L. Robinson, Jas. B. Haggin, Henry F. Williams and C. J. Brenham.

Benicia ann Red Bluff R. R. Co.—March 7. Capital stock, $4,500,000. Directors: Charles F. Reed, John Boggs, A. H. Rose, W. Blanding and A. Redington.

The following have filed certificates of incorporation with the County Clerk, San Francisco:

Sun Printing and Publishing Co.—Feb. 21. Capital stock, $100,000; 20,000 shares, $5 each. Trustees: John M. Dormer, Wm. Bell, Wm. McCabe, J. K. Phillips and E. A. Stevens.

California Silk Co.—March 3. Capital stock, $50,000; 600 shares. Trustees: Jas. T. Dean, 1. S. Curtis, Thos. H. Purvis, James S. Johnson and James Milburn.

Co-operative Union of Vaca Station—March 10. Capital stock, $30,000. Directors, W. B. Davis, J. R. Rogers, W. C. Farmer, C. A. Allison, J. M. Connell, G. M. Oates, H. D. Connell, J. B. Metford, J. Allison, F. Williams and L. B. Hawkins.

Yellow Jacket M. Co.—March 11.—Capital stock, $1,500,000; 15,000 shares, $100 each, Trustees: W. J. Williams, J. D. Fry and P. H. Hudson.

Meetings, Elections, Etc.

Blue Mountain Tunnel & L. M. Co.—March 2. Trustees: T. N. Wand (President), R. R. Provines (Vice President), R. George (Secretary), Z. Montgomery and V. M. Foncault.

Sutro Tunnel Co.—March 7. Trustees: S. Merritt (President), M. Reese (Vice President), A. Seligman (Treasurer), H. Baroilhet, J. B. Felton, J. Aron and W. H. Sharp. Secretary and General Agent, W. K. Van Alen.

Daney G. &. S. M. Co.—Trustees: M. J. McDonald, Louis Vesaria, O. H. Bogart, George F. Bragg and H. F. Cutter.

Golden Chariot M. Co.—Trustees: J. D. Fry, C. E. McLane, David Fay, M. S. Latham, M. J. McDonald, G. W. Beaver and W. Ashburner.

Hall & Vandyke Cons. Coal Co.—March 9. Trustees: M. J. McDonald (President), George Hearst, M. S. Hall. Thomas Bell and J. W. Gashwiler.

Virginia M. Co.—March 14. Trustees: M. J. McDonald, Wm. H, Sharp, J. M. Byrne, J. M. McDonald and A. L. Whitney.

Hale & Norcross M. Co,—March 14. Trustees: Jas. Flood (President), Jas. G. Fair (Vice President), M. J. O'Brien, Cornelius O'Connor, John W. Mackay, John Harrold, Wm. C. Hoff and Jos. Trench. Joel F. Lightner was chosen Secretary.

Valuable Ranch For Sale

NEAR HEALDSBURG.—In the fine valley of Russian River, three and one-half miles south of Healdsburg, on the west side of the river, is now offered for sale a splendid farm of 260 acres of land (minus eight by twelve rods occupied by a good school house), 100 of which is of the richest of Russian River bottom, eighty acres of which is now in small grain, not surpassed by any in the State, five acres in bearing orchard of the choicest selections, fifteen acres plowed for corn, and the remaining 160 acres is rich, yet rolling timbered land, five acres vineyard of choice selection. The Dwelling has ten rooms, not yet finished, and supplied by a good spring of excellent water, and cost above $12,000. The barns and outhouses are in excellent condition. The title is "Fitch Grant," which is undisputed. The entire farm is inclosed, about half with a picket and half with a rail fence, both in good condition. The farming utensils which are offered with or in the sale of the farm, are as follows: Five plows, two harrows, two cultivators, one Buckeye reaper; also twenty head of hogs. There are 200 redwood trees within about five miles of the premises, and wood enough to supply all the demands of the place. It is well known by all parties who have resided for any length of time on this coast, that the climate of Russian River Valley is lovely, healthy and not surpassed by that of any other place in the United States.

The reason for selling is, that the owner is getting too old to cultivate a farm, and wishes to close up his business and live more retired. The place is a rare bargain at the price asked for it.

For further particulars, apply to McLean & Hardy, Reel Estate Agents, No. 338 Montgomery street, southeast corner of California street, San Francisco. 11v20

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $6. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

PIANOS

From the following celebrated Makers:

CHICKERING & SONS,
MARSCHALL & MITTAUER,
J. W. VOSE,

— ALSO —

Mason & Hamlin's Cabinet Organs,

— AND THE —

METROPOLITAN ORGANS.

KOHLER, CHASE & CO., Wholesale and Retail Agents
corner Sansome and Clay streets, San Francisco. 11v20

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,

SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,

SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696.854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.
9v20-qy16p

Important to Californians.

The Ramie Plant.

This valuable fibre plant, peculiarly favorable for cultivation on the Pacific Coast, is not a new discovery, but the recently-invented methods of manufacturing its fibres into a large variety of beautiful and durable goods cheaply, is what has recently given it great popularity and significance. [Illustrated in the *Scientific Press*, January 1, 1870.]

Advantages of Cultivating Ramie.

The plant has no enemies; mildew is said not to affect it. The crop pays manifold better than cotton or any other farming production now cultivated. It is a superior fibre in every respect. It works equally well with silk and with worsted chain. It takes fast colors, and it always has a silky lustre; it surpasses all other fibres in wear.

Whoever goes into the cultivation of Ramie now, will find great extra profit in the sale of roots and cuttings in the next rain season. There is an assured market for Ramie. We are authorized by wealthy English dealers in fibres to buy all the Ramie fibre that can be procured in California for years to come.

Roots of the Ramie for sale at $26 per hundred; 20 per cent. off to the trade. Address,

HENRY HUGHES & J. S. SILVER,
1v20-1m 302 Battery street, San Francisco.

OCCIDENTAL

Insurance Company,

OF SAN FRANCISCO.

Cash Capital, ... $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 20v17

A gentleman who knows says emphatically that the Scientific Press will not commend anything unless known to be good; and that money will not buy its endorsement of an unworthy object. That is high praise, but he did say it.—*The Pastor, Mayfield, March 15*,

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of

Melting Pots, Portable Furnaces,

CRUCIBLES, and other fire-standing Goods,

Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

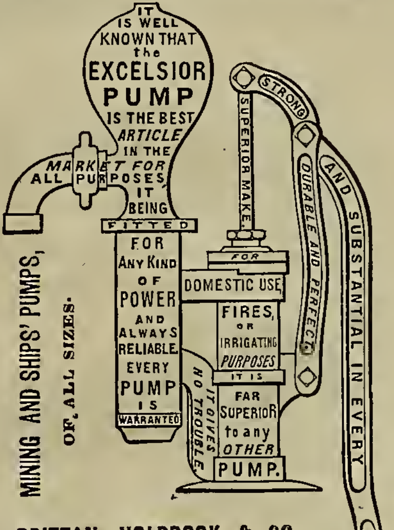
Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.

GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco



IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES
IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE, FIRES, OR IRRIGATING PURPOSES
IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE
SUPERIOR MAKE.
STRONG DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,

GENERAL AGENTS,

111 and 113 California Street,

SAN FRANCISCO.

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	6 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	16 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number,

SPAULDING & BARTO,

BOOK AND JOB PRINTERS,

Scientific Press Office,

NO. 414 CLAY STREET,

CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,

AND

PRINTING OF ALL KINDS FOR BUSINESS MEN

BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,

Neatly, Correctly and Promptly Printed.

W. T. GARRATT & CO.

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbit Metal

CASTINGS,

Church and Steamboat Bells,

TAVERN AND HAND BELLS, GONGS,

FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes, Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —

HARDWARE,

BAR AND SHEET IRON,

Steel, Coal, Smiths' and Miners' Tools,

Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and

RAILWAY SUPPLIES.

— ALSO AGENTS FOR —

ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY.

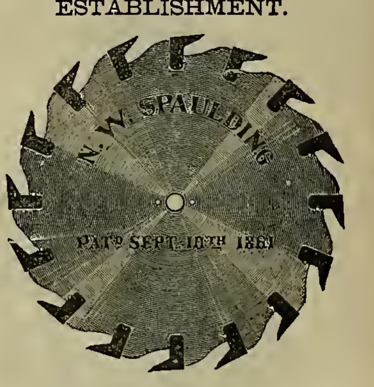
54 K Street, Sacramento.

7v20-ng

N. W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.



Nos. 17 and 19 Fremont St., near Market.

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect,

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, Made of Fullen Rawhide, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers,

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

— AND —

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

— ALSO —

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

Carmen Island Salt Works

MANUFACTURE AND OFFER FOR SALE

TABLE, DAIRY, COARSE-FINE,

CARMEN ISLAND ROCK,

AND LIVERPOOL COARSE AND FINE

SALT.

Dealers and Packers supplied in quantities to suit, at the lowest market prices.

MILL, 249 STEWART STREET.

HOLLADAY & BRENHAM, Agents,
11v20-3m 326 Front Street, San Francisco.

ENGRAVING ON WOOD

DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, March 26, 1870.

VOLUME XX.
Number 13.

Our Water Supply.

There are several bills now before the State Legislature, providing for the introduction of water into this city, or perhaps we might rather say, for the payment of "much monies" for its introduction. For none of these bills, as far as we can learn, affords any guarantees that we shall really get a sufficient supply of a good article. We are told merely that, on furnishing the money asked for, we shall be provided with a certain amount of a liquid of whose quality we know nothing, while for the completion of the contract on the part of others, we have only our general faith in mankind to rely upon.

Before the money of the people is voted away, the tax-payers ought to have good evidence that it will be put to the best use. We have a right to demand information as to the nearest place whence we can obtain an abundance of pure water for years to come. We ought to be shown first, whether this peninsula will continue to afford such, as it becomes more thoroughly tilled, in quantities which will suffice for her increasing population. If there is danger of impurity caused by the increased amount of land brought under cultivation, or if the supply will in time be too small for the farmers and for the city, then we ought to know where we can get what we require.

The proper way to act, it seems to us, is to have a commission appointed, say by the Mayor, to examine the matter and to report before decisive action is taken. Let the supply question of the peninsula be settled finally. When it is known that we are in earnest, we shall soon get a fair knowledge of our water resources, and can determine, to the satisfaction of the people, what is best to be done. Let engineers of high standing, who have a reputation at stake, be appointed on the commission, and we shall then be able to go to work with our eyes open. But for heaven's sake let us have no blind and hasty legislation.

◆

Aurora and Storm.—Tuesday night, between 11 and 12 o'clock, the sky was illuminated by a most brilliant red light, which caused several persons to start out in search of the burning building. Wednesday morning about four o'clock we were visited by a brisk storm and such thunder and lightning as has seldom if ever been experienced within the memory of old residents. The gas lamps throughout the city were extinguished, otherwise, no damage done.

◆

"The General Law of Circulation, or Cyclical Monuments in Nature," was the subject of Prof. Le Conte's lecture at Oakland last week. In illustration of the point that the universe is a succession of cycles or periods, examples were drawn from history, geology and the sciences, in a most happy manner.

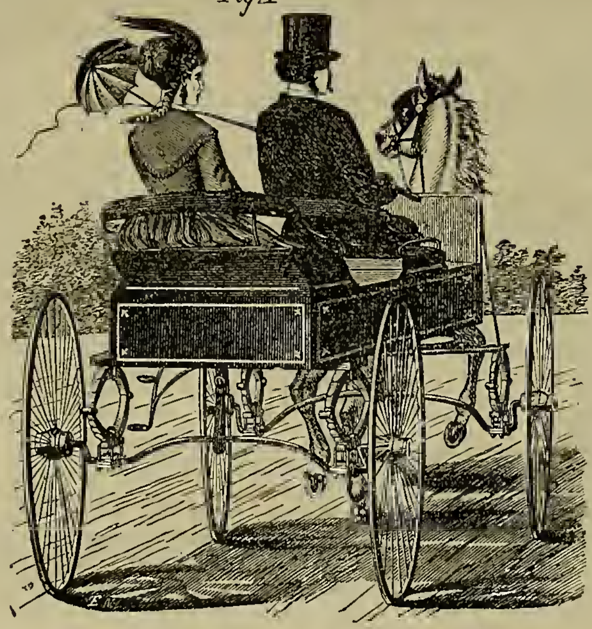
◆

Sargent's bill for the sale of placer mines has passed the House of Representatives.

Jackson's Patent Oscillating Wagon.

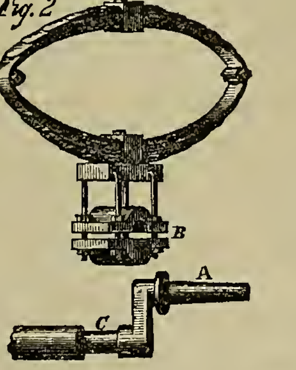
In the present age of the world we are continually introducing measures for smoothing the pathway of life. New methods of creating comfort and pleasure are being continually invented. Our houses are more luxurious, our garments finer, our food better than ever before. Especial advances have been made in the convenience of traveling, and a ride of several thousand miles across the continent is to many a real pleasure trip. So, too, we are improving our roads and streets, using superior pavements, and in other ways rendering lighter the labors of the dumb creation while we increase our own comfort.

Fig. 1



SAMUEL JACKSON'S PATENT OSCILLATING WAGON.

Fig. 2



And, in this connection, we are reminded how, while adding to our personal convenience, we are led to give more heed to the claims of humanity, and to see more clearly how it advances our private interests to look more closely to the welfare of the animals which toil for us. Indeed, it is a wonderful provision of Providence which has so constituted affairs that our selfish desires and our nobler impulses both tend in the same direction, or, in other words, that what is really for one's private advantage is also for the benefit of somebody or something else; the reality of which truth is every day becoming better exemplified.

We give this week an illustration of an invention which promises increased ease and comfort for both man and horse. It is an ingenious improvement, which permits of application to all kinds of wagons, trucks and other vehicles, and is especially important for those without springs. It consists in securing the axle to the body of the vehicle by movable attachments placed below the axis of the wheels. Crank axles or straight axles, with bars or arms, or any other contrivance by which the object can be obtained, may be used.

In Fig. 1 is shown a carriage with the improvement (with crank axles) attached. In Fig. 2 is shown the method by which this attachment is made. Here the springs are at right angles to the axles; but the position of the springs may be varied without affecting the principle in any way. The ordinary journal upon which the wheel runs is denoted by A. B is the box attached to the lower part of the spring in the manner shown in the engraving, or in any other manner specially applicable to the particular vehicle upon which it is desired to put the improvement. C is the journal which works in B.

The motive power being applied *above* B, when it is first brought into requisition in starting the vehicle, the load is swung forward of the axis of the wheels, giving a lighter draft and easier motion than is obtained in the common way, while the oscillation of the wheels will ease every part of the vehicle, and relieve the horses of the jerks and strains so common to all fixed axles. This oscillation has been tested by weights, over an obstruction, on a model with wheels eleven and twelve inches in diameter. The crank of the axles was 1½ inches, the obstruction 1¼ inches high, and of sufficient length to chuck the front wheels. To draw the model over the obstruction, there was required a draft of eight pounds with fixed axles, and of six pounds with oscillating axles, giving a positive gain of two pounds, or twenty-five per cent., with these last. The greater the obstruction the greater is the oscillation, and the greater the gain, other things being equal. On smooth, level ground, the oscillation is smaller, and on uneven, heavy or sandy roads, the gain is greater, where it is most needed.

A wheelbarrow with this improvement, with a wheel 19 inches in diameter, the crank 4¾ inches, when passing over an obstruction 2¾ inches high, required a draft of 19¼ pounds. With a fixed axle, 33¼ pounds were required, showing a gain of considerable more than a third where this device was used. Had the wagon, in the case given above, had the same proportion between crank and wheel, it would have had a proportionate gain.

The improvement thus offers the advantages of less power required, and hence a possibility of greater speed if necessary, of greater ease, and of less violent shocks, and, therefore, of greater durability of the vehicle. The inventor has at his place a full-sized wagon with the improvement, which may be inspected and tested. For further particulars address Samuel Jackson, No. 149 High street, Newark, Essex county, N. J.

◆

We made mention in our summary, at the time, of the settlement by compromise of the dispute about title between the Pogonip & Othello and the West Point mining companies at White Pine. The litigation lasted a year, but finally the parties came to terms, the West Point Company gaining largely by the settlement. This was brought about in a large measure by Mr. Robert Barton, Superintendent of the latter company, and to his perseverance, energy and ability, his company are heavily indebted.

◆

Quails for Nevada.—Mr. R. N. Riotte, according to the Reese River *Reveille*, has had a number of California quails taken into that neighborhood to be turned loose for propagation. The idea is an excellent one. There is every reason to believe that bird will flourish there, if the hunters will let it alone for a few years. We trust there may be others in various sections of the wide State of Nevada who may be induced, by this example, to manifest a similar degree of public spirit.

◆

The Sutro tunnel was in 846 feet at last accounts, and progressing favorably. Mr. Sutro is at Washington, where the bill before Congress unfavorable to him has been squelched.

◆

Mr. Oates' bill compelling two shafts to be built in deep quartz mines, seems on the point of being strangled.

Communications.

California Diamonds.

[Written for the Scientific Press.]

Diamonds are said to be found in many parts of the United States. A theory is entertained in some quarters that, wherever gold is found, diamonds may be looked for. Partisans of this theory maintain that diamonds abound in California, but have thus far been neglected by miners through ignorance of their value. When first dug up, the diamond is covered with an opaque crust, which conceals its brilliency and its crystalline form. Such pebbles might lie in every field without being detected. There are a few authenticated instances of diamonds occuring in this State, in the ancient auriferous gravel deposits, but as yet, only very few of any size or value have been found. The following are the localities where they have been discovered:

Butte County.—At *Cherokee Flat*, in the sluice-boxes, after washing large quantities of auriferous gravel, several have been discovered. One diamond found was valued in the rough at $50.

Nevada County.—At *French Corral*, in the sluice-boxes, at various times, a few have been taken.

Placer County.—At *Forest Hill*, a few small ones have been found in the same way.

Amador County.—Near *Fiddletown*, a few have been found in the auriferous gravel a few years ago. At *Volcano*, in a formation described by Prof. Whitney as "ashes and pumice cemented and stratified by water."

Klamath County.—In lower Trinity, near its junction with the Klamath, with the finely-divided platinum. Discovered by Professor Wöhler, of Göttingen. (See page 162).

Undoubtedly there are numerous other localities where their occurrence has as yet escaped notice. According to some remarks made by Professor Whitney, some time ago, there are from fifteen to twenty different localities at which diamonds have been found in the course of washing for gold. The largest diamond yet found in the State weighs 7¼ grains.

Formation of Diamonds.

In this connection, the following, from *Cosmos*, will be of interest to readers of the Press:

Researches on this subject have lately been made by Messrs. Goeppert and D. Brewster. The black diamond of Bahia is, according to Mr. Goeppert, a mixture of amorphous carbon and diamond. M. Liebig's experiments on its combustion also agree with this statement. It often happens that the diamond incloses other crystals; iron pyrites, particularly, have been noticed in it by Mr. Hartwig. Sir David Brewster calls attention to the microscopic cavities existing in this as well as in other gems, as in the topaz and emerald. These cavities are found to be often very numerous in certain dark diamonds; they thus dispersing the rays of the light, are therefore of no value in jewelry. Mr. Goeppert remarks that the diamond must have originally possessed a certain plasticity; we notice, in fact, in a diamond belonging to the Emperor of Brazil, the impression yet of a sand grain. The black as well as the crystallized white ones bear also the signs of analogous impressions produced by foreign bodies. Some investigators believe to have recognized the cellular tissue of plants in the ashes resulting from the combustion of this gem. Mr. Goeppert, however, has not yet detected with certainty any traces of organization, either in the diamond or in its amorphous form, the plumbago. As to the question so often discussed, whether the diamond be formed by platonic or neptunic action, the latter naturalist is of the opinion that the first hypothesis is scarcely admissable, the experiments of Depietz having shown that the diamond is changed into a kind of coke whenever exposed to the intense heat of a galvanic battery. The second hypothesis, attributing its formation to neptunic action, is sustained by the authorities of Newton, Brewster and Liebig, being also that which is best in accordance with all that is known about the gneiss, itacolumnite, and the metamorphic rock in which it is found. The character of these rocks, however, do not allow us to attribute to them a plutonic origin.

C. D. V.

Alumina-Soap—Its Use, and Way of Preparing it.

[Written for the Scientific Press.]

Editors Press:—The alumina-soap is quite insoluble in water; and for a long time the chemists have been of the opinion that it is equally insoluble in fat oils, until it was found out, a few years ago, that it will readily dissolve in these if properly treated and all the points observed which I will explain hereafter.

The alumina-soap does not change the color nor the transparency of the oil in which it is dissolved. This solution can be mixed with tallow and other kinds of fat, also with beeswax, resins, etc.; and these combinations distinguish themselves by their toughness, elasticity, and also by being impermeable by water. Resins, by these means deprived of their brittleness and acquiring a certain degree of toughness, will be found useful for a good many purposes, and so will the other mixtures above mentioned.

Modus Operandi.

Dissolve good soap in four times its weight of hot water, and dilute it with ten to twelve parts more water. Then prepare a solution of alum in twelve parts of water, and add the latter solution to the first one by degrees, and constantly stirring as long as precipitation continues. After the alumina-soap is properly precipitated, strain it through muslin, and wash it with water several times on the filter. Then dry it in warm air. It has to be used for dissolving before it is freed of the last particles of moisture; and according as more or less oil for the solution is used, we can obtain substances of greater or less consistency. One part of alumina-soap with two parts of oil, in a glass vessel, which is put into a sand bath, heated for some time at 70° to 90°, Réaumur, and often stirred until perfectly dissolved, will form a jelly after cooling.

Rules to be Observed.

1. Use good and, if possible, fresh soap. 2. The water for dissolving should be distilled or rain water. 3. Clear the soap solution by filtering or settling. 4. The solution of alum should be clear. 5. Separate the alumina-soap from the fluid immediately after precipitation. 6. Wash it with distilled water. 7. Do not dry the alumina-soap on hot plates, but freely suspend it in a sieve. 8. Do not keep it long before you dissolve it in the oil intended for the purpose. This seems to be the principal reason that the older chemists did not succeed in dissolving it, because most likely they kept it too long, until it lost this property. 9. Use pure and clear oils. 10. Do not heat the solution over 90°, Réaumur, or else it will assume a darker color.

If all the above points are observed, the solution so obtained will be clear and transparent.

E. Pique.

Interesting Scientific Discovery.—Scientific research has lately revealed the fact that tubers, such as the pear, lemon, gooseberry, etc., maintain regular fluid currents, something similar to the sap currents of trees. In the potato, the current is found to be passing from the center to the circumference; while in the pear, lemon and gooseberry, the current is from the outside to the center. Examinations have also been made upon flowers and leaves—as rhubarb, peonies, dock, water cress, grasses, oak leaves, etc. These examinations are still in progress, and the investigator remarks that his experiments "are enough to set one thinking, but that it would be premature to reason upon them at present."

An excellent material for uniting water pipes is said to be prepared by combining four parts of good Portland cement and one part of unslacked lime, mixed together in small portions in a stout mortar, adding enough water to permit it to be reduced to a soft paste. Pipes thus united have been in use more than six years without any leak.

Sketches of El Dorado County.

[Written for the Scientific Press.]

Editors Press:—About the first of February the 10-stamp mill of Shephard & Co. was put in operation near their quartz lead on Oregon Hill. In a former letter, I alluded to this claim, which is said to be a good one, but none know its value but Shephard & Co. I should have particularized more fully concerning this discovery, but it was said that there were vultures hovering over, ready to pounce upon it at the first opportunity, and a favorable word dropped would have been likely to have hastened their descent.

Legal Troubles.

But that descent was made on the second, in the shape of an injunction, issued by Judge McKinstry, of your city, restraining Shephard & Co. from further extracting quartz from the mine, and claiming damages in the sum of $50,000.* This county is remarkably unfortunate in one particular; there is seldom a claim discovered worth working, but from one to twenty adverse claims or titles are set up, either to black-mail or to get possession by *strong* witnesses. Such clouds piled on to new discoveries, or old prospect holes, deter capitalists from coming here to invest in or work mines. Governor Blaisdel visited here some time ago, with the intention of investing several thousand dollars in prospecting for quartz, but he found so many pretentious titles to all outcropping quartz veins, that he left to invest his means where there would be less chance of jayhawking him.

That persons should abandon a claim and leave the country, for three, five, or seven consecutive years, and return, only when some industrious person, more worthy than themselves, may have discovered paying quartz or gravel in the vicinity of where they had prospected, and claim the discovery, is ridiculous in the extreme.

Unless this injunction is dissolved, or a receiver appointed during the pendency of this trial, some thirty men, most of them with families, will be thrown out of employment. It is hoped their injunction bond is better than white paper.

Dickerhof & Goen Mill.

The 10-stamp mill of Dickerhof & Goen, built by Mr. Jess, was put in operation the last of January, and is crushing some thirty-five tons of gravel every twenty-four hours, which pays from one to five dollars per ton. The power is an eight-foot hurdy-gurdy wheel, with a nine-inch face. The buckets are raised above the face of the wheel, and resemble the Spaulding circular mill saw. The water surface of the buckets is only three inches square. The pressure is 220 feet, conducted through a seven-inch pipe, and driven against the wheel through a seven-eighth inch nozzle, the wheel standing in an open frame, and as soon as the water has spent its force, it leaves the wheel, and, therefore, no dead weight of water is carried on by the wheel. This improvement was put in practical operation by Mr. Jess, the builder. The water required for propelling the ten stamps, of 450 pounds each, is twelve miners' inches—*i. e.*, the water that passes through a throat six inches long, and two inches deep, with a five-inch pressure, costing the proprietors $7.20 for twenty-four hours. Shephard & Co's quartz mill, with 600-pound stamps, and water for the batteries, requires eighteen inches.

Water and Steam.

Let me here make a calculation between this motive power and that of steam.

STEAM.	
Two engineers at $4	$8.00
Three cords of wood at $5	15.00
Incidental expenses in mining, say	50
Interest on difference in first cost (say $3,000) and wear and tear of machinery (say 2 per cent. per month)	2.50
Total	$26.00
WATER.	
Say 16 inches, leaving 2 inches for battery, at 60 cents	$9.60
Difference in favor of water per 24 hours	$16.40

With such cheap power, quartz and gravel which cannot be worked at all by steam would pay owners handsome dividends worked by this power. Hangtown ridge, which is some 400 feet high and seven or eight miles in length, will, in time, find its way pulverized to powder by this cheap power, winding its way along the bottom of Hangtown creek to the American river, thence into the Sacramento, to lodge, perhaps, on the "Hog's Back."

Revival of Mining.

The quartz interest has revived since the discovery made on Oregon Hill, and every day may be seen Jew and Gentile, with pick and pan, starting for some location in search of the rock filled with *oro;* returning at night tired and discomforted, many declaring they will never try it again; but after a night's rest, like the gamester who has lost, is ready to try his luck again. Some rich quartz veins have been discovered; Van B. Hooker, on Cedar ravine, among others, but how extensive, time alone must determine. The want of a full supply of water alone prevents this from being one of the most productive mining towns in the State. I am told by the water agents on the South Fork canal that 10,000 inches of water could be disposed of as easily as the 1,000 now furnished by that corporation. R. R. and J. Craig's hydraulic globe nozzle (the patent for which I think was procured through your agency) has been introduced here lately, and J. H. Nash appointed agent. Some twenty or more have been sold, besides several yet to arrive to fill orders. None who have used them will part with them. Wonderful success is claimed for them.

I intended to have given a few items concerning hydraulic mining at Newtown, Spanish and Reservoir Hills, and other places I have visited lately, but must defer it for the present. [We hope our correspondent will give us some full accounts of these operations, the methods used, etc.—Eds.]

E. N. S.

Placerville, March 8th, 1870.

Wet Crushing.

[Written for the Scientific Press.]

Editors Press:—In connection with the plan of settling and pumping back the water used in crushing ore, in order to avoid loss, recently patented, and long since practiced by myself and others, I would call attention to an article by William Skey, in the *Chemical News* (Am. Repr., June, 1868), in which is pointed out the effect of saline matters in causing the precipitation of clay held in suspension by water.

As ores generally contain some clay, which, by thickening the water, obstructs settling, it might be advantageous to use, in crushing, a solution of salt or lime (when the latter is not obnoxious to the subsequent treatment of the ore).

That Article.

I have just seen your issue of the 5th inst., containing the letter of "J. G." The editorial remarks, on another page, present my own views so fully that it is unnecessary to add to them further than to assure all your correspondents that I have no personal feeling or conflicting interest whatever in the matter, but am moved solely by regard for the legitimate interests of the science of which I am an humble, but earnest, student and practitioner. * * *

The only point worthy of notice in "J. G's" letter, is the intimation that the operations of the Triunfo Co. are not profitable. If this be so, the fault is not in the process used, as is proved by the fact that the same kinds of ore, in some cases from the same mines, were worked with profit in the Picacho mill, at a cost of $18 per ton. As "J. G." states that the Sheba ore presents similar difficulties, this fact will, perhaps, serve to indicate the range within which it could be worked with profit, allowing for difference in price of labor, etc. * * * What I intend by saying that all ores can be worked, is, to refute the statement so often heard, that "the ore would pay, but it is so rebellious that they can't get the silver out."

As to preventing the formation of antimoniate of silver, there is some authority for saying that it can be done in a measure. It appears that the antimonious ores of the Reese River district are worked to 80 per cent. Can "J. G." tell us in what proportion this salt is formed in a properly conducted roasting, and is he sure that, if formed, it is quite irreducible in subsequent amalgamation? * * *

C. H. A.

February 25, 1870.

---

* Since the above was written, G. E. Williams, Esq., attorney for defendants, telegraphed from San Francisco for Shepard & Co. to resume operations. This news was joy to the many men employed.

Mechanical Progress.

The Wheeler Steel-Iron Process.

We condense the following from the *United States Railroad Register*, of Feb. 19th: "There have been apparently insurmountable difficulties in the way of successfully and cheaply combining iron and steel in such masses and proportions as the various railroad and mechanical interests require. We have within a few days examined a process discovered by Mr. E. Wheeler, of Philadelphia, which seems to fill all the conditions for working the two metals into successful combinations. Mr. Wheeler has for some time been engaged in experiments. Starting with the theory that there is no difficulty in uniting the two, providing that the steel be brought to a "welding heat" simultaneously with the iron, and that the steel while being so heated, cannot suffer injury or "burning" if kept from the direct action of the flame and oxygen (as when melted in a crucible), he reduces it to practice by the simple device of completely encasing the steel with iron during the entire process of heating and reduction. The steel is thus effectually protected from the decarbonizing effects of excessive heat, and can be safely heated to a perfect welding state in the usual iron furnaces, without flux of any kind, and in this condition may be rolled down and manipulated as readily, and at the same speed as iron, in ordinary rolls.

We have seen the highest grade of cast tool steel, thus enclosed, and filled with iron, subjected to the intense heat of a heating furnace, and then rollled down into bars at the rate of five hundred feet per minute, and the steel, though perfectly welded to the iron, presented the same bright, clean fracture when broken, as in the original state, and would harden as readily in a water bath. Mr. Wheeler showed us a car axle rolled by his process, at one heat, consisting of a core of iron surrounded by a tube of steel and both in turn by a shell of iron, the whole being as solid and perfect as a homogeneous mass of iron. This plan gives a steel journal, while the iron core and shell secures strength and prevents fracture or breakage of the steel.

The practical uses to which this method can be applied are innumerable. By it any grade of steel may be used and be united to iron in any shape or proportion. Mr. W. is making combination in merchant bar forms, for set screws with steel center, horse-shoe bars with steel face, carriage tire with steel corners, etc., etc., and we learn that several prominent rail manufacturers are about to apply this process to the making of steel-headed rails, for which it appears peculiarly adapted."

New Instrument for Draughtsmen.—At a recent meeting of the Polytechnic Association of the American Institute was exhibited an instrument which is thus described by the *Artisan:* "The instrument is designed to facilitate the cross-hatching required in making sectional views. Two parallel bars, intended to be placed in proper position upon the paper, are provided, one with a finger-lever and spring-pawl, the other with a ratchet on its upper surface, and with a hinged horizontal arm adjustable at any angle to its bar; by working the lever on one bar the pawl connected therewith is caused to act upon the ratchet of the other, and thereby advance the same, together with its angular arm or rule, to the distance required to form the spaces between the oblique lines of the cross-hatching, such distance being, of course, proportioned to the extent to which the finger-lever and its pawl is depressed."

Powerful Turbines.—The machinery of the Mastodon Mill, Cohoes, New York, consisting in part of 1,486 looms, is all driven by three turbines which possess an aggregate capacity of 1,100 horse-power. The *American Odd Fellow* says: "The perpendicular shaft of each turbine is connected with the main shaft by beveled gear, and the united power exerted, if so applied, would reverse the motion of the great Burden water wheel at Troy, and drive the machinery of a good sized manufactory besides. The shaft is supported by three granite abutments, and forms the axis of six ponderous driving pulleys, twelve feet each in diameter. The immense belts which radiate to all parts of the building are in keeping with the massive pulleys and gearing. These are each two feet wide, and the longest one reaching to the fifth story measures nearly two hundred feet."

Road Steamer for Two Persons.

The Engineer illustrates a small "steam velocipede" of recent invention, which it thus describes: "The boiler contains three-quarters square foot of grate surface. The coal bunkers are on each side. The driver's seat is long enough to contain two persons. The driving wheels are four feet in diameter, and have steel tires one-quarter inch thick; on to the boss of each driving wheel is fixed a grooved driving pulley fourteen inches in diameter. The main axle is cranked to clear the tank, and each driving wheel runs loose on it. The main bearing springs are fitted with rubber washers; there is also a brake on each wheel worked by a foot lever. The cylinders, two and a half-inch diameter by four-inch stroke, are fixed to the top of each bunker; there is no reversing gear, but a single eccentric working forward and cutting off at five-eighths. On each end of the shaft is fixed a friction cone carrying a grooved pulley six-inch diameter, and from this pulley motion is communicated to the driving wheel by a half-inch gut cord. The single leading wheel is carried in a fork fitted with a volute spring and rubber washer, and governed by levers. The boiler is fed by a No. 1 brass injector placed through the foot-plate. As regards speed, it could be guaranteed to run 100 miles per day of ten hours over any high road in England."

A Gun-powder Hammer.—A modification of the gun-powder pile-driver, which was described in the Press some time since, has been invented by Mr. Justice of Philadelphia, in the form of a forging hammer. It may be briefly described as follows: The hammer is released by the workman, and falls, driving its plunger into a cylinder, upon the top of a movable anvil, wherein a charge of percussion powder is placed. This explodes, and causes the anvil to descend with force upon a stationary anvil, while the hammer is at the same time thrown upwards, where it is retained by mechanism until again released by the operator.

The Woodward Gas Carbonizer.—This contrivance for increasing the illuminating effect of ordinary street gas, by adding carbon to it near the point of consumption, resembles externally an ordinary gas meter. Benzole is filled in at the bottom, and is taken up by cotton wicking, which passes over a drum in order to expose a large surface to the gas. This enters at one side, and, mingling with the vapor of the benzole, is carried with it to the burner. Dr. Chandler, of Columbia College, New York, says that 7,000 feet of gas with one gallon of benzole, are equal to 11,000 feet without it.

The Advantages of Band-Saws.—The points claimed are: That "the dust is all carried downward, leaving the top surface clean, enabling the operator to follow the line with precision. There are no slides nor reciprocating parts, and consequently there is no jar or vibration. The manufacturer is not, as in reciprocating machines, limited to a minimum weight of those parts of his machine which he would otherwise make the strongest. The motion is rotary, the bearings those of plain shafts, and the speed much slower than that of the spindles in other wood-cutting machines."

Popper's Claim Denied.—The anti-incrustator, or "mud-collector," credited to Herr Popper, and noticed in our last, is claimed by William Whittle, in a letter to *Engineering* for February 18th: He asserts that he patented it two and a half years ago; that Popper mistook the *mud*, in the cut illustrating it, for *pebbles*,—which possess no advantage whatever; and that he will receive legal notice against the use of it in any manner.

Forged Wood Screws.—This is a new English invention, illustrated by *Engineering* for Feb. 4th. The forging is done by machinery, as cheaply as the cutting of ordinary screws by machinery; and the result is a much stronger article, inasmuch as the fiber of the iron is not destroyed as in the case of cut screws,

Scientific Progress.

The Pentagonal Symmetry of Metalliferous Veins.

The New York *Engineering* for March 1st contains an article by Julien Thoulet, M. E., upon the applications to mining which have been recently made of M. Beaumont's theory of the pentagonal symmetry of the earth. This theory, although its author is a scientist of acknowledged merit, is generally considered a fanciful one. M. Beaumont has again and again found it necessary to modify his figures and multiply his lines, in order to include the facts. We will, however, briefly state it. First suggested by the observation that the mountain ranges of Europe compose a series of definable groups, it holds that similar groups over the whole surface of the earth, form together a regular geometrical figure; and that this figure is that formed by twenty equilateral spherical triangles, which occupy the entire surface of the sphere, and are grouped in fives about twelve distinct points. The meridian lines of these triangles divide each of them into six scalene triangles, making in all 120, which may be so grouped as to form twelve equal spherical pentagons. Hence the term "pentagonal symmetry."

The fissures and elevations produced by the contraction in cooling, of the earth's surface, exhibit this symmetry, according to the theory, throughout; showing an analogy to the symmetrical division of the basaltic rocks which take in cooling the form of regular prisms. If now a map be constructed in which the surface of the earth-sphere is projected upon a tangent plane, the lines bounding the spherical triangles, that is, the great circles which these elevations and fissures follow,—since these circles describe the shortest distances between given points,—become straight lines, and may be easily studied. M. Thoulet says:

"If upon a map of this kind the lines of the pentagonal network are drawn, it is astonishing to see the order which, from apparent confusion, the features of the terrestrial surface assume. The orographic directions arrange themselves just as in the hydrographic system, a direct consequence of the mountain elevations constituting the basins. The fissures of the terrestrial crust coinciding with right-lines, the same should be evident of metalliferous veins, which are only the filling up of these fissures. Water courses are the consequence of elevations; they produced the alluvial deposits, hence these deposits are also strongly constrained to depend upon the pentagonal symmetry. * *

M. de Chancourtois has applied the pentagonal network to the coördination of the sources of petroleum and bituminous deposits; M. Rivat to the lead mines of Vialas and Villefort, France; M. Maissenat to the mineral deposits of lead in the carboniferous limestone of Flintshire, and to the metalliferous deposits of Cornwall and Devonshire, England. Everywhere experience is found to agree with the theory.

The problem proceeds from the known to the unknown, and is as follows: given a series of points where a mineral is exploited in a country, to find the direction of the richest veins, in what direction new mines can be found, and the points where these mines ought to be most profitable. We arrive at a solution by means of what has been called the *useful angle;* this angle once known, the engineer can direct his galleries boldly, for he is certain that in every other direction his researches can have only negative results."

New Anæsthetics.—Dr. Rabuteau (*Gazette Hebdomadaire*) describes three new anæsthetics with which he has made numerous experiments, viz: Bromoform, bromal, and iodal. Bromoform resembles chloroform, but appears to possess some advantages over it in producing complete anæsthesia without causing profound sleep. Bromal differs from chloral in the substitution of bromine for chlorine. Its action on animals is similar to that of chloral. Iodal is also a powerful anæsthetic, but in moderate quantities it causes convulsions and death, producing congestion of the brain and spinal cord.

"The Sour Lake" in Texas.

The *Journal of Applied Chemistry* for March has a communication from "R," who, while engaged in a geological survey of Texas, visited the Sour Lake in the south-eastern part of that State. We quote from the description: "The lake occupies an area of about five acres, but at one time it must have been spread over a larger space. It is of an irregularly elliptical form, surrounded by low, neatly rounded mounds. The water is quite sour, and to most persons has a disagreeable, fetid odor and taste, from the presence of petroleum or mineral oil, which rises from different parts of the lake in the form of small globules, and floats upon the surface of the water. * * Bubbles of carburetted hydrogen constantly escape from every part of the surface of the lake. * * The geological structure of the region consists of alternating beds of light brown and ash colored clay and marl, soft calcareous, and silicious sandstones, and bituminous slabs, with included beds of lignites and iron pyrites. These belong to the miocene tertiary period, which forms a broad belt from fifty to eighty miles wide, and margins the gulf coast for some hundred miles. It is the southern equivalent of the miocene of the *mauvaises terres* of Nebraska, so celebrated for extinct animals, which have been found in such profusion. * * The acidulous waters are derived from decomposition of underlying aluminous and pyritiferous shales, by which sulphuric acid is set free, and becomes mingled with the water which percolates the strata. The astringent taste of some of the springs is due to alum. The source of the petroleum may be found in the decomposition of lignite beds and bituminous shales, which are largely developed over the miocene region of Texas."

Filtering Miasm.—The remarks made by Prof. Tyndall in a recent lecture in reference to the disease so often inhaled in the form of organic matter floating in the air, and to the filtering of the said air by means of a respirator of cotton wool, thus rendering it powerless for evil, have brought out a communication from Horace Waller, F. R. G. S. He writes *Nature* that he has often, while traveling in Africa, slept in the midst of miasm in canoes moored upon those deadly rivers, without ill consequences, simply because the mosquito curtain, which he used, served the same purpose as a filter, that the cotton wool respirator served. The folding and unfolding the curtain soon makes it fuzzy, and it then becomes an exceeding fine strainer—especially when covered with dew—through which all the air breathed by the individual underneath must pass.

Metallic Spectra.—M. Robert Thalén has communicated to the Royal Society of Upsala, a memoir on the characteristic metallic lines of the spectrum, especially with reference to their wave-lengths. As ordinary spectroscopes do not give entirely accordant readings, varying as they do with temperature and other incidental circumstances, it is necessary in all cases to make the solar spectrum the basis of reference. Augström's "normal solar spectrum" was, accordingly, the normal starting-point of the author's researches; and, with this as his guide, he has succeeded in constructing a chart, which gives, in millimeters, the wave-lengths of metallic lines within about 0·0000001 of their true value. Forty-five metals have been thus investigated, and their spectra mapped. Of these, the following give lines coinciding with those in the solar spectrum: Sodium, calcium, magnesium, iron, manganese, chromium, nickel, cobalt, and titanium. The discovery of the last-named coincidence is due to M. Thalén himself.

Zinc Light.—By digesting metallic zinc in iodide of ethyl, we obtain a volatile liquid which takes fire spontaneously in the air, and is known under the name of "zinc ethyl." It can be distilled in an atmosphere of hydrogen, and if this gas be made to pass through the liquid it will carry off some of the zinc-ethyl, and when ignited will burn with a magnificent white flame. It is probable that ordinary illuminating gas would answer as well as hydrogen for this experiment. The light produced in this way can be employed to take photographs, but its actinic properties are not equal to the effects produced by burning magnesium.—*Scientific American.*

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Better.—*Miner*, March 12th: While the sale of the Buckeye mine to the Exchequer Co. was being made in London, no ore was obtained which assayed over $500 per ton. We hear of several assays of late which go over $1,500. The Exchequer Co. has this week sent out three tons assaying from $100 to $1,200 to be worked at Reno by the Stedefeldt. Several other lots await the result.

Items.—An offer has been made by Pennsylvania Co. to furnish the Silver creek mill with 200 tons of ore on liberal terms, and if samples to be assayed justify the starting up of the mill the offer will be accepted....Fine progress is being made in the Silver Glance and the M. C. Tunnel No. 3.....More water and hard rock have retarded the Globe.

The Mountain.—*Chronicle*, 12th: On the 1st of March the Mountain No. 1 tunnel was in 1,821 feet. During February twenty-six feet were run.

Quartz Mill Sold.—The Pioneer quartz mill, at Markleeville, has been sold to Edward Barnes, Supt. of the Billy Rogers mine in Hope Valley, and F. D. Cottle, of San Francisco.

AMADOR COUNTY.

Rich Strike.—*Ledger*, March 19th: We learn that a rich strike has been made in the Oneida mine. The vein is a little over three feet wide, and so rich is the rock that it is put in sacks in the shaft and then hoisted out and taken to the mill.

Aqueduct City.—Cor. of same: Walton & Co., in the mouth of "School House gulch," having a good claim, but have been trying to make water run up hill. In "Hawkeye," Loring & Co., have struck a side channel, which prospects well. The Brown Bros., above town, are making it pay as usual, but their claim is like Walton & Co's, nearly a dead level. The Ham boys have just commenced piping in "Blacksmith gulch." But the crack claim of this section now is Rendall's, one mile north of Aqueduct. This claim has been abandoned for three years, when Mr. Rendall started in with a hydraulic. It is now twenty feet deep by one hundred in width, and paying handsomely, with the prospect for lasting for two years to come.

CALAVERAS COUNTY.

Mining Items.—*Chronicle*, 19th. Work has been resumed on the old Incline gravel claim, on Chili gulch, near the Junction. In former years this was considered the most valuable claim of the district, but owing to expensive machinery, disagreement of shareholders and general mismanagement, work was suspended. The claim formerly owned by Charles Harken, but at present by Mr. Conly, is paying well, the gravel being worth three dollars to the car lode. Adjoining, on the north, is that of Pallaton, Squires & Co., who, after two years of expensive prospecting, have struck the lead, which prospects big. On the south is the ground owned by Mullen, Ryan & Co., who are opening a bed-rock tunnel; they are in seven hundred feet, with good indications. The other claims on Chili gulch are doing a paying business. Brackett & Co. keep their mill running. Shaw, so long as he runs his hydraulic, never has occasion to complain of hard times. On Sport Hill gulch there are several claims nearly ready to make their summer run.

EL DORADO COUNTY.

Missouri Flat.—Placerville *Democrat*, 19th: A gentleman informs us that miners in that locality are doing remarkably well.

LOS ANGELES COUNTY.

Soledad.—A Los Angeles telegram of 19th says: The Eureka mill continues to send in gold bullion by thousands. The last clean-up of 22 days gave $3,300.

MARIPOSA COUNTY.

Mt. Buckingham Mine.—*Gazette*, 18th: Some San Francisco parties have had several miners at work over a month getting out rock, and now await teams to haul the rock to the mill. We are informed that the vein looks fine. The parties are prospecting it with the intention of purchasing the property.

An exchange says the net earnings of the Fremont estate last month were $16,050. There are now 90 stamps at work on the estate, and the managers are putting up 60 more at the Ophir mills to run by water. The gross yield per day is nearly $1,000, and the cost of reduction is reported at $1 per ton.

NEVADA COUNTY.

Eureka. — Grass Valley *Union*, 16th: We yesterday paid a visit to the Eureka mine. It was melting day and we arrived just in time to see three fine gold bricks turned out. These bricks weighed $26,861.12, and the gold came from twelve days' run of the mill, not counting sulphurets. For the last two months the sulphuret works of the Eureka have been treating the sulphurets of other mines, and the consequence is that there are between thirty and forty tons now on hand.

Specimen.—Yesterday Mr. A. M. Buckham brought to this place a specimen of gold worth $429, taken out of a ledge near the mouth of Wolf creek.

Bowery.—Same of 17th: Yesterday the machinery for the hoisting works went through town, from Gold Tunnel. About the last of April the Bowery will start up. The quartz from the ledge has averaged something over $80 per ton from the day it was first discovered.

Webster & Co.—18th: This company has taken out "fifty ounces of gold dust from a hole not quite large enough to swing a dog in," as our informant expressed it.

Golden Gate.—20th: The machinery of the mill at Rattlesnake, four miles east of Grass Valley, was put in motion, for the first time, on Friday. Everything worked well, and on Saturday the mill did some work on quartz. After Monday it will be kept running day and night on rock from Eddy & Co's. mine, called the Golden Gate. The rock is looking well, and the ledge, of the average thickness of two feet, will pay all the way from $20 to $60 per ton.

Omega.—*Transcript*, 16th: The mining prospect is more promising than for many years. The operations are more extensive, and it is estimated that there has already been as much gravel washed off as in any entire season before. The opinion is that there is now abundance of water to continue washing without interruption till August.

Montana Ledge.—17th: Some excellent rock is now being taken from this ledge, in Willow Valley, which will be crushed at the Oriental mill, idle for some time. The rock, it is estimated, will pay $25 per ton.

Kansas.—18th: It is determined to move the works further down the hill, (Selby) and sink a new shaft. The company feel certain that the gravel channel is to be found, and they mean to find it.

New Hoisting Works.—An engine, formerly used on the White Oak, has been set up on Stiles' quartz ledge, on Deer creek, for the purpose of prospecting.

Burrington Hill.—*Gazette*, 21st: One of the workmen in the claims of the Nevada Consolidated informed us that a partial clean-up was made on Friday, and for the time they had been running, the yield was the best yet. They have now got fairly into the lead, and have a bank of gravel between thirty and forty feet in hight.

PLACER COUNTY.

Rich Strike.—*Herald*, 19th: It is reported that very rich quartz has been struck at what is known as Fiddlers' Green, on the headwaters of Rock creek, a few miles from town. Our informant says that rock of immense richness is being taken out. We have been unable to gather further particulars.

Good Friday.—The Grass Valley *Union*, of 20th, says that on Thursday $1,000 was taken out.

St. Patrick.—The company have a wheel run by water, and are hoisting out quartz. An offer of $100 per ton for the rock now coming out has been made.

PLUMAS COUNTY.

Sawpit Flat.—Quincy *National*, 12th: The miners are busily engaged, and their dump-houses are being rapidly filled with pay-dirt. No washing has been done yet.

La Porte.—Gowell & Conly and Orr & Co. have been piping for several weeks. The present will be the best water season for years.

Indian Creek.—The Dick White claims are still panning out. Bob McGill has struck good pay in the bar opposite the White claims, and a number of other claims are being prospected.

Items.—The miners in Indian and Round Valleys are short of hands. Here is a chance for idle men....Ballou & Emmons are making preparations to work a set of river claims in the North Fork, at the mouth of Butte creek....The New York mill, near Greenville, recently purchased by T. F. Emmons, is crushing rock from the Tinker ledge, and is paying well.... Several men are at work in the Lebanon mine (Blood's) at Genesee Valley.

SAN BERNARDINO COUNTY.

A Los Angeles telegram, of 21st, says that rich tin ore is reported discovered near San Bernardino.

SAN DIEGO COUNTY.

The New Mines.—Los Angeles dates to 17th say: The rush from all points is now about seventy-five daily arriving, very few returning. The following ledges show good rock: The Washington, San Diego, Hoydon, Kate and Kelly. Gold can be seen in the quartz, from the croppings down. It is free from sulphurets or base metal, all in talcose slate. The ledges run southeast and northwest. They are, at the surface, from ten inches to two feet wide. The shafts show wider leads below ground. Owners, for the most part, are unable to work their claims extensively; they have not even sufficient tools. The *placeres* yield very fine gold, and some small nuggets have been taken out. It is not thought the mines will give steady, or more than paying wages, for extended work with rockers will be short.

SHASTA COUNTY.

Slate Creek.—*Courier*, 12th: W. H. Gooch brought down $300 worth of gold dust on Tuesday, and reports the miners doing well.

SIERRA COUNTY.

Mining.—*Messenger*, March 19th: The miners hereabout are putting in big licks now, as the late snows and rains have given them a power of water.

Items.—Workmen are taking out rich looking rock from Ned Leonard's claim for another run....The mining claims on the ridges are all idle, for want of water, which is frozen up....S. D. Hill has commenced hydraulicing on his claim on Badger Hill. ....The tunnel claim on Durgan Flat, now called the White Pine claim, owned by Hill, Allen and Larrieu, is said to be paying well. The tunnel is run under Piety Hill. ....The Monte Cristo company, of Port Wine, are running a new tunnel into their works.

TRINITY COUNTY.

Hayfork.—*Journal*, 19th: Thursday and Friday of last week the Duncan boys picked up $196 in their claim. Hilliard & Hill are said to have still better diggings.

Dutton's Creek.—Accounts continue to be encouraging. The Creek Co. are getting better prospects than ever.

Pony Creek.—New River cor. of same: John Keach, a short time ago, while sluicing in his claim, picked up a 17-ounce lump. Pony creek is 25 miles above here. The Skookum Chemuck boys have a good claim. They came here last fall, and were engaged from the first of October to the middle of February in getting water upon one of the high bars. From their first run—10 days—they cleaned up $138, where they could only set two lengths of flume, and did not uncover more than 10 feet square of bed-rock.

YUBA COUNTY.

Smartsville.—Crary, O'Brien & Co., in their hydraulic claims, cleaned up, after a run of thirty days, $70,000. These are new claims, this being the third run, and the yield has been about the same.

Arizona.

Big Bug.—Prescott *Miner*, March 5th: The mill of this company, of 10 stamps, has ground out an immense amount of gold in the past two months. The latest run paid better than any. The stamps were run 10 days, and the amount of gold saved was about eight pounds, worth $1.700. The mine is looking finely. The Supt. thinks there is sufficient ore in sight to keep the mill crushing for two years. We understand the owners intend to erect more stamps soon.

The owners of the Independence lode will sink 50 feet, and have the ore crushed at the Big Bug mill.

Walker District.—Col. Jackson and others are going to start the Eureka mill. Messrs. Hargrave and others returned Thursday. From them we learn that Taylor & Co., of Hassayampa, have considerable rich rock on hand. They found Uncle Billy Pointer's arastra, in Walker, crushing ore.

Placer Mining.—At Black cañon, Bradshaw district, 15 or 20 miners are making fair wages washing the gravel of the high bars adjacent to the bed of the stream. Higher up Black Cañon creek, in Pine Grove district, there are 20 men engaged in quartz and placer mining. At latest dates they had erected two arastras. On Upper Lynx creek but little will be done until the snow on the divide melts. Of course, parties are taking out ore, and placer mining with rockers. By the latter considerable gold has been extracted. Lower down the creek there is more water, and the miners are doing well. A great deal of coarse gold has recently been mined out of England gulch, but water is scarce now, and some of the miners have left for the Hassayampa, where men are making from $3 to $10 per day. Lower down at Walnut Grove, placer mining is carried on profitably.

Colorado.

Mining Items.—Central City *Register*, March 10th: The Unexpected lode has recently opened out again, and is producing ore which yields six ounces of gold per cord. They have also struck good ore in the Justice lode.....The average assay of all the ores from various mines worked by the Franklin company's mill in Gilson Gulch, is $135 per ton in silver. ....J. F. Topping has commenced operations on the Seaton lode, having got up a whim and begun to take out the water.... From Gregory Point down the gulch and along the line of North Clear creek, above Black Hawk, sixteen quartz mills are in active operation. Prof. Hill's works are in full blast, with a fair supply of ore on hand for reduction.

From same of 17th: Miley has struck it big in the Bates Tunnel. He is working three drills and taking out 1½ cords per day. The crevice is four feet wide, with 12 to 15 inches of rich copper ore....One panful of dirt was washed down to two pennyweights of gold, in Charley Walker's bar diggings, Black Hawk...Very rich ore has been struck in the Consolidated Gregory mine, where the Foote & Simmons crosses it....Powell and Applebury are taking out ore, which runs from six to eight ounces of gold bullion per cord....Jo. Goodspeed is fitting up the Rocky Mountain mill....Cy. Hurd has struck rich ore in the American Flag...A new mine in Lake Gulch, worked under lease by two Englishmen, is reported to be producing ore which yields forty ounces of gold bullion per ton ...Sam. Story, Mr. Smalley, John Gray and others, at work on the Gunnel lode, under lease, at depths varying from 80 to 150 feet, are all taking out good ore.

The Marshall.—Georgetown *Miner*, 10th: This tunnel has struck the casings of a new lode, within a distance of less than seven hundred feet. It is probably the casings of the Compass and Square. By recent surveys it has been ascertained that the rich silver veins known as the Panama, the Indigo and the Tom Thumb will be cut by this tunnel, within a distance less than two hundred feet above the Compass and Square, and that the great mammoth Argentine will be reached within two hundred and eighty feet. The tunnel will cut all the lodes before the expiration of the present year.

Idaho.

The New Mines.—*Statesman*, March 10th: Men on Snake river are making from $5 to $10 per day with rockers * * We have good mines within 15 miles of Boise City. The new ditch of Sterling & Co., on Willow creek, is running 800 inches of water, which will be soon used on the newly discovered placer mines. Barrett, Williams & Co. made a clean-up after a week's run, of 40 ounces.

Idaho City.—Cor. of same; The indications are good for the mining season. Miners will be in demand.

From the Payette.—Eagle Ranch correspondence of same: I hear of several mining companies in full blast near here. The following are among the more prominent: Warriner & Keefer, Wakefield and Allfore, Wells & Warwick. Martin, Moore and Chandler own rich and extensive diggings three miles from the north fork of the Payette, to the northward.

Snake River.—*Avalanche*, 12th: Messrs. Paine and Murray started for the Snake river diggings on Tuesday. Col. Kirkpetrick and party returned last night. They found only seven men rocking above Clark's ferry, who reported they were making eight dollars per day to the rocker. It was in a small eddy, which they would work out in eight days. That is the full extent of the diggings.

Items.—Smythe & Clark have sold one-half of their placer claims at the Wagontown diggings for $900. Chinamen were the purchasers....The Owyhee mill has shut down for two weeks....Work has been suspended on the Red Mountain mine for the present....Shuster & Co. will commence mining in Blue gulch next week.... The miners of Jacob's gulch are jubilant over their prospects for the coming season. ....Mr. Peck is still prosecuting work on the Potosi, which looks better every day. The lower tunnel is in 165 feet, 90 feet beyond the main shaft. A shaft is also down 75 feet below the level of the lower drift.

Loon Creek.—*World*, March 3d: There are now at the camp about 250 men, nearly all of whom are working and prospecting. In Stanley's basin nine men are wintering. Shallow diggings pay well there. On Robeson's bar, Salmon river, 20 miles below, are drift diggings which pay well. They are on a direct trail from Idaho City to Salmon City. These diggings paid $5,000 last fall.

Montana.

Philipsburg.—*New North-West*, March 4th: Merrill & Ullery have struck rich ore and commenced taking out for test. The want of proper roads has been the cause of the mill stopping thus long. A few days will enable the force now engaged to furnish plenty of ore.

"O. J." writes the *Gazette*, that the workmen in the old Camanche No. 2 have struck the ledge in their cut, and will soon be able to keep the mill supplied. Two tests in the mill have been made of rock from the Speckled Trout lode. The rock was selected by two parties as average ore, and worked separately. One went $53, the other over $70.

Cedar Creek.—T. R. Dana reports the discovery of two new gulches—California and Snow Shoe—and the organization of a district immediately above Barrett's, discovered by Dan. Brown and Nat. Heel. California gulch is said to prospect from two to five bits to the pan. The bars on Cedar are the absorbing excitement now. Several rights for conveying water to them have been recorded at Missoula. Very few persons are now going into the mines, and still less coming out. A number have their draining and sluices ready to run when the spring opens.

The Prospects.—Deer Lodge *Independent*, March 5th: Every week we become more and more assured of an unusually prosperous mining season. The snow on the mountains is deeper than for many years. At Butte City, not less than 1,000 men will be employed. Boker City will be a flourishing camp. Silver Bow will certainly be lively, as most of the water is obtained from Divide creek.

Items.—*Herald:* A. Murray is taking out silver rock from the Blue Wing. The ore will be smelted in the Deriar furnace. Mr. Stapleton is to start up the Tootle & Leach furnace. Other parties at Argenta are taking out large quantities of ore. It is now proven that the immense bars below Argenta, and all the gulches north of Rettlesnake, will pay excellent wages for sluicing, and by spring a ditch will be completed.

Bannack.—"S. F. D." writes that the bullion yield of Beaverhead county in 1869 was not less than $400,000. There are now more men drifting in the bars and in the shafts in the bed of the creek than last winter, and the weather has been so mild that thousands of dollars have been taken out with the rocker.

The *Gazette* says the base metal lodes of Philipsburg are showing such quantities of galena as to induce the erection of a couple of smelting furnaces. The Cole-Saunders Co. will get their furnace running in 60 days. With the present mill and two furnaces running we will, the coming season, ship more silver than any other camp in America, in proportion to the amount of machinery in use.

Adobe Town.—Virginia *Times*, 7th: Quite a number of companies are drifting and taking out pay. We believe that the miners have not lost a day the present winter. The same may be said of the miners at Junction, who are all piling up dirt for spring washing.

Items.—Several men have been mining in Remshorn gulch most of the winter. The miners are sanguine of good diggings the coming season....The Granite creek 10-stamp quartz mill started up yesterday. ....John Rook & Co. have sold 200 feet of mining ground in Alder gulch, below Junction, for $1,000....From Alder the yield will be large. Preparations are made for an early start.

Nevada.

WHITE PINE.

The severe weather has been unfavorable for mining. Surface work is almost stopped, and several of the mills and furnaces are idle for want of ore. The Mammoth has struck a fine body of ore on the 30-foot level. The *News* says that the five mines which the new English company proposes to buy are the Aurora South, Eberhardt, Evening Star Consolidated, California and Aurora Consolidated. The company intends contracting for workmen in England; wages to be agreed upon there, the contract to be in writing and a portion of the sum to be paid in advance to the families of such as prefer to leave them in the Old Country.

Items.—*Empire*, 16th: The Milton mine, southwest of Shermantown, was sold on the 13th to the Metropolitan Co. for $11,200. We understand that work will commence immediately. 17th: The Alsop Smelting Furnace is still in full blast. This furnace commenced the run on the 28th of February, and now the company have 100 tons of bullion piled up around the works. As the supply of coal and ore is abundant, and a constant supply coming in, it is hard to tell when they will let up. We doubt not that within the next six months all the refractory ores of the district will be worked at a cost even less than milling ores can be.

Ely District.—Cor. of *Empire:* The Pioche ledge is the biggest thing I have seen in the State, outside of the Comstock. It varies in width from eight to fourteen feet. Shafts have been sunk from 40 to 90 feet in depth at short intervals for a distance of 2,000 feet. To a depth of 40 feet the bulk of the ore is argentiferous galena, carrying a fair per cent. of gold. At this depth the character suddenly changes, the base metals giving place to free milling ore of extraordinary grade, ranging in value per ton from $150 to $1,000. The ledge is believed to be continuous for several miles. The company claims over 60,000 feet in the district, has an arsenal upon the ledge, and is said to be opposed to a heavy immigration to the district. It has, however, done more than all others towards developing its resources. The only mill in this section is that belonging to Ely & Raymond, in Meadow Valley, carrying five stamps. It is being run on ore from the Burke mine, and turns out an average of $850 per diem.

Prospectors are active, and new strikes are of almost daily occurrence.

Pat Burke recently disposed of a fourth interest in the Burke mine to John Ely for $16,000 in silver bars. Pat left Hamilton in August last with his blankets on his back.

The *News* has been shown assays from Ely ledges outside of the Pioche. Two were from the American Flag ledge, owned by W. A. Johnson, 2,000 feet southeast of the Pioche; the first shows $245.04 and the second $276.45 to the ton. An assay from the croppings of a ledge some distance north shows $76.96.

Sierra and Secret Valley District.—Cor. of *Empire:* McCann & Co. have a ledge one-half mile north of Bromide Hill, which is fully 40 feet wide, with ore uniform throughout, and assaying $125 per ton in silver, besides containing lead enough to make it good smelting ore. Wood is abundant, and water can be had within half a mile.

Silver Park.—*News:* Ferguson's mill will be ready to start next week, and Wilson's 10-stamp mill in about four weeks. The mines are looking well. The Silver Star is worked by a large force of men, and the ore is of high grade. The shaft of the Magnolia is down 35 feet, where a drift has been commenced along a vein of high grade ore six feet wide. The Nevada Queen is turning out large quantities of good ore. The Glen Dor has a six-foot vein of rich ore.

Rich Strike.—On March 7th a teamster named Bradshaw, in searching for cattle on a mountain a few miles southeast of Silver Park, stumbled upon a large ledge literally filled with horn silver—the lowest assay of the ore going $1,400. Late accounts say that Bradshaw and Conway have out several tons of ore, which will work into the thousands.

Kern District.—*News*: The Fitzhugh mine has a shaft down 40 feet, with a large ledge of high-grade ore. The Silver Peak and Mountain Brow each have a 6-foot ledge. The Mother Ledge, six miles east, varies in width of croppings from 12 to 25 feet, and assays run from $60 to $230—the average being above $100. There is a good road from Kern to Toano, 100 miles.

New Mexico.

Ute Creek.—*Press and Telegraph*, March 2d: The Montezuma mill is completed, and all the stamps in running order, though the supply of quartz only employs 15. The Aztec mill is paying largely; the quartz is excellent, and so abundant that the day shift only is worked in the mine, they being able to keep the 15 stamps fully supplied. Wiggins & Co. are opening a new lode—discovered last summer—about 100 yards from the Aztec shaft. They have a large body of quartz, and have had about one cord of it worked in the Aztec mill, and the yield was over $400.

A Singular Phenomenon is *reported* as having occurred in the harbor of St. Johns, N. B., on the 18th ult. A loud rumbling noise was heard, and immediately after a portion of the bottom of the harbor, on the Carleton side, sank bodily, so that where before there was beach at low tide, there is now twenty feet of water. Several wharves were destroyed and some lumber set adrift by the occurrence.

San Francisco Mining Stock Market.

MINING SHARE MARKET.

Business continues quite active at the Board, the aggregate sales being fully as large as during the previous week, prices of most descriptions showing an advance, and, upon the whole, the speculative disposition so recently inaugurated exhibits no abatement. Work continues to be vigorously prosecuted by the various claims upon the Comstock lode, and, in the majority of cases, with more hopeful results than for a long time past. The lowest working depths certainly give better promise of a continuation of the ore bodies, and it is to be hoped that the energies of so many interested parties will be most amply rewarded.

Gould & Curry—has been the most important stock upon the market, about the same amount changing hands in the open market as during the previous week, but at greatly enhanced rates, as will be seen by reference to the recorded sales. During the week ending March 21st, 540 tons of ore were extracted; previous week, 518½ tons. Last Chance stope has produced over the average quantity of better ore, and the United States section is affording an increased amount, the faces looking as promising to-day as they did a week ago. It will require some days yet to place the Potosi chimney in proper shape so as to enable them to extract the ore in a cheaper way. They have been steadily at work extracting ore from the El Dorado section, and have raised upon the deposit some twenty feet since the last report, the ore continuing as good as previously reported, with fair prospects that the quantity will soon be increased. They are carrying the stope forward some 56 feet in width, and at right angles with the deposit. The northwest drift, on the seventh station, is 270 feet north of the shaft, and during the week under review they passed through some flinty quartz, expecting a favorable development before long. The north drift carries clay and porphyry. A special meeting of the stockholders will be held on the 25th of April, at the office of the company, for the purpose of taking into consideration the proposition of increasing the capital stock from $2,400,000, divided into 4,800 shares, of $500 each, to $3,600,000, divided into 24,000 shares, of $150 each.

Hale & Norcross—sold to a considerable extent, at very uniform rates. For the week ending March 19th the upper mine yielded 348 tons of ore, and the lower 856½, making a total of 1,204½ tons; previous week, 1,073½ tons. Remaining on the dumps, 8,703½ tons, of which 2,485 tons is low grade. On the 22d inst. the shaft was timbered to a distance of 60 feet below the sixth level. They continue in the ore of the vein, although they expect to cut the west wall on the west side of the shaft. The north half of the shaft is said to be in very choice ore, and the south half is now interrupted by blocks of porphyry. The south breast on the sill floor of the sixth level is now 70 feet south of the shaft, the ore showing a width of six feet, and in good quality. The bullion returns for the month of February aggregate $145,203.

Chollar-Potosi—has been in larger request than during the previous week, showing a slight improvement in price. During the week ending March 18th 1,150 tons of ore were extracted, showing an average assay value of $46 58 per ton; during the previous week 1,234 tons were mined. At the first station of the new shaft 58 feet have been added during the week, making the total distance from the shaft 365 feet, and at present the material is favorable for rapid drifting. No falling off of ore is noticeable in the old ore producing localities. From the daily ore slip of the 21st inst. we learn that 211 tons of ore were forwarded, for reduction, to four different mills. ——Kentuck has been less active than last week, and sold at a recession. Nothing favorable has been discovered.

Overman—has been in good request, and has been well maintained. For the week closing the 20th inst., 1,018 tons of ore were extracted. The drift running south on the 226 level, is reported to have developed some good ore, being the same body that exists 200 feet farther south from the present working locality, and 120 feet below the Lambert Tunnel level.

Crown Point—is in rather large request at an improved price from opening rates of the present week. For the week ending March 18th, 410 tons of ore were extracted, showing a 65 per cent. assay value of $10,126. The ore is taken from the 300 and 400 levels. They continue to prospect for the top bodies of ore.——Imperial rules very much higher than last week. They have been vigorously at work in the lower drifts, and soon expect to make important connections.——Sierra Nevada reports a yield of 390 tons of ore from the gravel deposits for the week ending March 21st.——Lady Bryan levied an assessment of $2 per share on the 17th inst.——Justice levied an assessment of $12 per share on the 21st.——Amador (Cal.) shows a bullion yield at $58,692 for the month of February.—*Commercial Herald*.

MINING STOCK QUOTATIONS, MARCH 24, 1870.

	Bid.	Asked.		Bid.	Asked.
WASHOE.					
Alpha Con.	$ 18	$ —	Gold Hill Q MO.	$ 25	$28
American	—	—	Hale & Norcross	134	135
Belcher	31½	32	Imperial	50	50½
Bullion	—	—	Justice	—	—
Crown Point	25½	26	Julia	—	—
Cole, Va.	—	—	Kentuck	85	—
Confidence	15	—	Lady Bryan	3½	3¾
Chollar-Potosi	28½	29	Occidental	15½	15¾
Con. Virginia	16	17	Ophir	19½	20
Daney	—	4	Overman	100	101
Empire	40	—	Savage	48¼	48¾
Exchequer	—	10	Sierra Nevada	8½	8½
Flowery	—	—	Seg. Belcher	8¼	8½
Gould & Curry	450	460	Yellow Jacket	44½	45
WHITE PINE.					
Aurora Con.	$ 2½	$ 3	Noonday	1⅛	1¼
Brodt	—	—	Orig. Hidden Tr.	16	—
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	—	Silver Wave	2¼	—
Mammoth	1⅜	1½	Virginia	—	2
CALIFORNIA.					
Amador	$365	$370	Eureka	$240	$250
IDAHO.					
Golden Char't.	$ 14½	$ 15	Silver Cord	$ 2	$—
Rising Star	—	—			

* * *

Apaches, small-pox and earthquakes are visiting Arizona.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alameda Coal, Feb. 16, 30c	March 30	April 22*
Alban, Storey co., March 21, 50	April 25	May 14*
Bullion, Feb. 8, $4	Pay immediately	
Cordillera, Mexico, Feb. 17, 25c	March 25	April 11*
Cherokee Flat, B. G., Feb. 17, $5	March 22	April 8
Daney, Lyon co., Feb. 9, $1	March 14	April 2
Dutch Flat G. & O., Feb. 11, 75c	March 18	April 8
Eagle Quicksilver, March 14, $20	April 16	May 2*
Green Monster, Inyo co., March 10, $1	April 16	May 2*
Glenwood, El Dorado, Feb. 4, 25c	April 6	April 27*
Hartwell, W. P., Feb. 19, 5c	March 25	April 21*
Hormiguera, L. Cal., March 11, $2.50	April 15	May 6
Imperial, Storey co., March 7, $10	April 11	May 3
Julia, Storey co., March 12, 60c	April 16	May 3
Kincaid Flat, March 4, $2.50	April 5	April 23*
Latawans, W. P., March 19, 15c	April 23	May 10*
Nevada L. & M., Feb. 8, 2½c	March 15	April 5*
N. S. F. Homestead, Feb. 9, $7.50	March 23	April 14*
Ophir, Storey co., March 7, $3	April 11	May 3
Pocahontas, El Dorado, March 2, $4	April 2	April 28*
Peytona, Va. Dist., March 18, $1	April 19	May 4
Sterling, Arizona, March 9, $5	April 18	May 17
San Jacinto Tin, March 4, 5c	April 4	May 4
Segregated Belcher, S. co., March 2, $2	April 6	April 29
Savage, Storey co., Feb. 7, $10	March 14	April 2
Silver Wave, W. P., Feb. 19, 20c	March 21	April 11
Tecumseh, Calaveras co., March 21, $5	April 21	May 5
U. S. Grant, Nev. co., Jan. 19, 50c	Feb. 21	March 26*
West Point, W. P., Feb. 22, 50c	March 26	April 18
Yellow Jacket, March 16, $7	April 18	May 19
Yosemite, March 7, $1	April 7	April 23*

MEETINGS TO BE HELD.

Hormiguera	Annual Meeting April 4
Oriental	Meeting April 4
Overman	Meeting April 11

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable Feb 7, 1870
Chollar-Potosi, div., $1	Payable March 10, 1870
Eureka, div., $7.50	Payable Feb. 7, 1870
Hale & Norcross, div., $6	Payable March 10, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

New Incorporations.

The following have filed certificates of incorporation with the County Clerk, San Francisco:

Fifth Baptist Church.—March 18th. Trustees: Robert Taylor, Josiah O. Trask, Philip D. Dode, Stanford Hilton, and James Heron.

California Dairy and Farming Co.—March 24th. Object: To establish and carry on the business of a diary; to carry on farming in all of its branches. Capital stock, $30,000; term of existence, fifty years. Trustees: Spencer Poole, Henry Dyer and John A. Moore.

The following have been recorded in the Secretary of State's office, Sacramento:

Schuykill M. Co.—March 16th. Capital, $50,000; divided into 2,500 shares. Place of business, Grass Valley. Trustees: Wm. Sleep, Wm. E. Reed, Henry Rowe, Wm. Keniss and C. Trimbly.

City Creek Turnpike Road Co.—March 22d. Object: To construct a road in San Bernardino county. Capital stock, $6,000. Directors: E. Daly, Jos. Thorn, W. La Praix, W. Caloy and Jas. W. Waters.

Southern Pacific Railroad Co.—March 23d. The company contemplates the construction of a railroad from San Francisco to San Diego, running through the counties of San Mateo, Santa Clara, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Los Angeles and San Diego, with such branch roads through Los Angeles, San Bernardino and San Diego as are advisable to connect with the Southern Pacific Railroad at a point near the Colorado river. Length of road, six hundred and twenty miles, including branches. Capital stock, twenty million, divided into 200,000 shares of $100 each. Directors: John Forster, W. J. O'Connor, Wm. H. Harp, A. F. Hinchman, J. B. Shaw, W. S. Rosecrans, L. O. Gunn, C. B. Polhemus, Ben. Dreyfres, Edward J. Pringle and Edward Martin.

Meetings, Elections, Etc.

San Marcial M. Co.—March 16th. Trustees: H. Brickwedel, J. Branham and G. F. Bragg.

San Francisco & Oakland Railroad Co.—March 21st: Directors: Alfred A. Cohen, F. D. Atherton, D. P. Barstow, D. O. Mills and W. C. Ralston.

Knox M. Co.—March 22d. Trustees: Jas. T. Boyd, R. F. Morrison, J. G. McCullough, T. A. O'Brien and S. P. Howes.

* * *

Over the action of the Legislature in passing the bill for the continuance of the geological survey we have rejoiced greatly, and all the more that it militates against the assertions made elsewhere, that it could not succeed on account of the "ignorance and stupidity of Californians," as one Eastern paper hath it. We only hope now that Prof. Whitney may be able to get without delay the money voted him, as he himself is already prepared for the work.

* * *

From Mexico come statements of new gold discoveries. According to reports from Chihuahua, rich diggings have been found in the district of Hidalgo. Rich placers have been discovered near Acapulco, and new petroleum wells have been sunk at Tihuatlan in the district of Tuxpain.

* * *

We have received several chromos from Mr. J. Hoover, publisher of chromos and lithographs in Philadelphia, which are exquisite productions of art. A picture of American and one of foreign fruits, and one or two domestic scenes, among others, are most charming.

* * *

In exploring the caves at Wellington, N. S. W., the remains of various extinct animals have been discovered.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Large vs. Small Threshing Machines.

Mr. William Pfeiffer, a subscriber in Santa Clara, who writes us with regard to large *vs.* small threshing machines, thinks we did not speak sufficiently strong in regard to the greater economy of the latter in our recent reference to the subject. Mr. P. very properly says that the small machine will greatly aid the introduction of diversified farming into this State. Where large machines, only, are employed, the farmer, if he cultivates only a moderately large tract of land, must put nearly or quite the whole in wheat, in order to secure a crop sufficiently large to make it an object to bring the thresher to his place; and even then he has to pay an extravagant price for the work, which is, moreover, done in a wasteful manner.

By the use of a small thresher, the farmer, who usually has a plenty of time, can do the work of threshing, himself, employing only his own animals and regular farm hands. Several neighboring farmers might club together and own a machine in common. By this arrangement the farmer need put in only just the amount of wheat which best suits his land and circumstances, devoting the balance of his crop to other purposes—as grass for stock, roots for swine, flax-seed and castor beans for the oil mills, and flax fiber sufficient to give in exchange at the Oakland mill for his grain sacks. He can raise his own pork, beef, chickens and fruit, make his own butter and cheese, raise beets or sorghum enough to buy or make his sugar and syrup,—plant a few mulberry trees or poppies to give employment to such of his children as cannot be employed in ordinary farm labor; in short, raise almost everything he needs in his family, and put the greater part of the money he receives for his wheat into the savings bank to accumulate for future needs. It is this kind of cultivation that will fill up our State with thrifty and industrious farmers.

Our correspondent asks: "Mr. Scoville, of Oakland, has given the hill farmer a good side-hill plow; who will give our small farmers a good threshing machine?"

In reply to this query, we would say that a small and differently planned harvester from those now used here, for gathering and threshing grain, is about to be introduced from one of the British Colonies, where it is said to have proved very serviceable. This machine has recently attracted the attention of one of our own citizens, who has already ordered a sample machine for the purpose of introducing them into California.

Small Fruit in the Rocky Mountains. It is thought that important acquisitions to our small fruits might be realized from cultivating and improving some of the wild berries which are found growing in the Rocky Mountains. There is said to be a raspberry (red) there that does not grow more than a foot high, and is covered with fruit so thickly that you can scarcely see cane or leaves. There are also white raspberries, red and white strawberries, that leave their hulls on the vine, and white, yellow, red and black currants, that are large and fine-looking, excelling in these respects the cherry currant, and bearing heavy crops on bushes from four to eight feet high. They have, however, so thick and acrid a skin in their wild state as to be almost useless. This objection might possibly be, in a great measure, overcome by careful cultivation.

English tea-drinkers are of opinion that tea carried to them by way of San Francisco and New York is less liable to loose its flavor than when shipped by way of Good Hope or the Horn.

Diseases of Horses—Ring-Bone.

The horse is one of the most powerful and ambitious, and at the same time the most delicate and sensitive, of domestic animals. Neither in structure nor nature is he calculated for rough-and-tumble usage. His ambition often leads him to over-exert himself, especially when his over-sensitive nature is unduly or roughly urged.

The humane and intelligent observer cannot fail to be pained at the number of defective horses which are daily met upon the street or road. Some are ailing in the fore limbs, others in the hind ones, or both. These ailments are seldom the result of age, defective blood or special hard work. They are more frequently the result of ignorance or carelessness than of deliberate cruelty—very frequently from thoughtless placing of the animals in situations where over-exertions are made to escape from apprehended danger of whip or club.

A rough man should never be trusted with the care of a horse—especially of a spirited one. The greatest caution cannot prevent accidents from sometimes occurring; but if proper care and intelligence is exercised, we should be less frequently pained with the sight of halting and otherwise defective horses upon our streets and in our fields. Having in previous numbers given some few simple directions for purchasing a horse, and described the appearance of a perfect horse, we propose, from time to time, to describe the principal diseases to which this noble animal is subject, and to add a few hints as to his proper treatment. We commence to-day with the

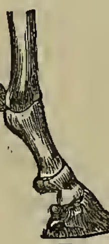


Fig. 1.

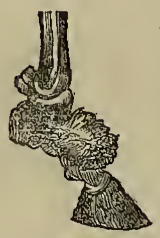


Fig. 2.

Ring-Bone.

This distressing disease is one of those which *may* become hereditary, yet the question of hereditary transmission is a very nice one, and seems to be more prominent in the second than in the first generation. An intelligent gentleman has given as his experience, that but one mare out of twenty-four that had ring-bone produced a colt that had ring-bone; but that the disease appeared in fully three-quarters of the next generation!

This disease is generally caused by heavy draught, especially in up-hill work. It is a disease of the bone proper, and not of the soft tissues, in which it is particularly distinguished from *spavin*, which latter is caused by a slipping, over the bone, of the cartilages or attachments of the muscles to the bone, and a consequent osseous union of the bones of the hock. Ring-bone is generally supposed to be produced by a slipping of the membraneous covering of the bone, whereby an infiltration and a diseased formation of bone is caused, with or without a stiffening of the fetlock and coffin bones and joints.

When once established, ring-bone consists of a bony enlargement, as shown in figure 2, which is contrasted with a healthy bone, as in figure 1. The commencement of the disease is a simple inflammation of the membraneous covering of the bone, which, if not suppressed, is soon communicated to the bone itself, with a final result more or less approaching to that herewith depicted. Sometimes only a very slight osseous formation is produced, the disease remaining stationary for years, without unfitting the animal for light labor.

After the bony enlargement has actually commmenced, there is no absolute cure; although counter-irritants, blisters, etc., may, to a greater or less extent, relieve the pain and lameness, and entirely prevent or greatly retard any further enlargement. The only time when any cure can be effected is, while the inflammation is confined to the membrane, and before the bony enlargement commences.

The first appearance of the disease is indicated by a hard swelling upon the top of the fetlock or pastern joint, accompanied by tenderness, pain, heat, etc. Cooling appliances, such as cold water, soap, camphor, etc., with a little laudanum, should be promptly applied, giving the animal perfect rest, with green food or roots in connection with hay—no grain. This may be followed by some convenient preparation of iodine, like an ointment of an iodide of lead and lard. Rub in the ointment well, and follow up the treatment for several weeks. If the case is an obstinate one, try blistering with cerate of cantharides, continuing, at intervals, the use of the iodine. Equal parts of turpentine and kerosene would, no doubt, form a most excellent wash—the crude coal oil would be better than that which has been refined. Rub it well into the hair around and above the hoof.

Figure No. 2 presents a case of extraordinary severity, in which the enlargement of the bone was so great that it grew from each side quite around, and pretty much entirely covering the healthy bone, which passed through the diseased formation as through a ring.

New Method of Grafting.

Mr. S. Hutchinson, of New Hampshire, is said to have invented a new method of grafting, for which he has received a patent. A well-known device is practiced in making layers, by bending down a limb, covering a portion of the same with earth, and allowing it to remain in that position until rootlets have formed sufficient to support the stem which is allowed to remain above ground. Again: when a branch is situated so high upon a bush or tree that it cannot be brought down to the earth, then the earth is carried up to the branch. Supposing we wish to make a branch of an apple tree produce roots from any particular part, we have only to surround it with soil, moss, or some similar substance, and keep it moist until roots are produced, just the same as though it was near enough the earth to bend it down and cover with soil.

In making layers of some kinds of trees, it is best to scarify or cut through the bark before inclosing with soil. Now Mr. Hutchinson proposes not to wait for the production of roots, but to insert them into the branch, and in doing this the branch is scarified, and if the grafts do not unite, new roots will be very likely to be emitted from the wounds. *Hearth and Home* suggests that the inventor should not confine his experiments to trees like the apple, pear, willow, and other kinds that emit roots very readily from layers, but give the public some examples of grafting upon the hickory, butternut and black-walnut. If it works well on these trees, then we will be ready to say that his new method of grafting is of some value.

Figs in Ohio.—It may not be generally known that figs are raised, in the open air, in the southern part of the State of Ohio. Gen. J. W., of Chillicothe, O., has thus raised them for a number of years, and has published a small pamphlet on the subject, urging the more general cultivation of the fig in that State, which he says is perfectly feasible.

Blooded Fowls.—By the Panama steamer which arrived at this port a few days since, Mr. M. P. Thompson received from New York a fine pair of Brahma Pootra fowls, weighing from eight to ten pounds; also a pair of Hoodan fowls.

Fertilizers vs. Machinery.

John H. Klippart, Secretary of the Ohio State Board of Agriculture, in his annual report for 1868, says that while the previous twelve or fifteen years have witnessed a greater revolution in the introduction of mechanical forces into practical agriculture in that State than the most fertile imagination could have conceived at the commencement of the present century, there has been no material improvement in the management of the soil, for even a greater length of time. The result has been that neither the product per acre nor the aggregate yield of the State has been increased during that period. No crop of wheat since 1850 has equalled the yield per acre of that year; on the contrary the decrease has been regular. So great has been this falling off that the production of wheat in that State, instead of furnishing an export of 10,000,000 bushels, as in former years, now falls short over 3,000,000 bushels of home consumption. The Secretary remarks that Ohio cannot retain her position in the family of the States if she fails to produce a sufficiency of breadstuffs for her own consumption; and suggests that, inasmuch as improvements in machinery seem to be unequal to keep up the average of yield, experiments in the direction of higher cultivation should be instituted to accomplish that end.

What is said of Ohio is, to a great extent, applicable to California, notwithstanding our great surplusage of new land. The time will soon come, if we do not improve our cultivation in the way of soil management, that we, too, shall fail to be a wheat-exporting State. Californians must learn the lesson that it is more remunerative to grow thirty-five to forty bushels to the acre than eighteen or twenty. We must cheapen the production of wheat by higher cultivation, and not depend too much upon a change from old to new districts, or upon improvements in machinery. to keep up our annual yield. No farmer will ever get rich simply by using machinery. Important as machinery is to the farmer, that is not the principal point to be considered in cheapening farm products.

Our great object at the present time should be to get or keep our land in the best condition to raise, not wheat altogether, but large and *varied* crops, and then study to find out how to convert them into wool, cheese, butter, pork, eggs, etc., at the least cost. Our farmers must wake up to the fact that our lands need nourishment—that after a few years' use they require to be fed just as much as our oxen or horses, to yield a fair return. The bad policy of a constant cropping of the soil, year after year, without returning any equivalent, is beginning to be alarmingly manifest in diminished yield and stinted, shriveled grain.

The inquiry sometimes comes up, "What shall we do? Barnyard manures are too scarce and too costly—in fact, can't be had, in any large quantity—moreover the hauling of such bulky manure and spreading it over fields is altogether too expensive at the present rate of wages in California.' True, but we have an abundance of concentrated mineral manures on this coast, which will be provided, in any desirable quantity, so soon as a demand appears for them. Already we have gypsum in abundance. Guano and gypsum, judicially employed, in connection with summer fallowing and turning under green crops, are both cheap and potent, and within the reach of all. We are anxious to hear of the man who has adopted this management with exhausted land, without receiving a handsome gain over the expense. Such a policy is far better than "selling out" and going farther from the market to find new lands. Farmers who pursue that course are like the devouring locusts, that eat up the substance of one locality and hasten on to destroy the next. Better stick to your present localities—plow a little deeper, till thoroughly and dress freely, and your profits will increase vastly, while your farms will rapidly improve in value.

Grafting the Vine.

Many grape vineyards in the State are of little value, by reason of the inferior varieties of fruit produced in them. To remedy this, either some new use must be found for such fruit, or the present vines must be replaced by others, or grafted with superior varieties.

To the expense of removing the old vines and planting new would be added the three or four years ere the new vine would produce in paying quantities. A strong old vineyard, grafted, will average about a ton of good grapes to the acre the first year and a full crop the second. Hence the successful grafting of vineyards must be profitable.

Mr. George G. Briggs, of Oakland—who planted the extensive pioneer and once famous Briggs' Orchard near Marysville, and who is now largely interested in the culture of grapes in this State, and has had ample experience in the culture of the vine—is my main authority for the information now offered. Mr. Briggs believes the grape to be a noble fruit—too good to be the vile servant of dissipation and loathsome ruin, and good enough to serve the better wants of man as refreshing and nutritious food. Designed by a benificent Providence to bless the earth, how often is it corrupted to feed the perverted passions that bewilder the imagination and burn to misery's core the mind and very life of man!

The Best Time to Graft.

Mr. Briggs finds it to be when the vine has fairly commenced to leave out in the spring. The stem bleeds but little at that time, and the granulation goes on rapidly. "The books" differ much as to the time and manner of grape grafting; but the experience of Mr. Briggs agrees with the *rationale* of true theory.

The Scions

Are cut in the fall or early winter, and kept fresh in a dark, cool place, but are not allowed to fill with water before grafting, as that would cause a stagnant inaction and prevent ready connection. When the scion *draws* on the sap of the plant, the circulation induced incites a rapid healing, and success is almost certain.

Mr. Briggs has tried the various ways advised—as split grafting, spile grafting, etc.—but has adopted

A Novel and Superior Way

Of his own. He has had a hook-shaped implement made to order, with a cross-handle, which can be used in one or in both hands. The sharp end of the hook is shaped like a triangular gouge. In using it, the man stands over the stump to be grafted, and cuts into the side of the stock from the bottom up, drawing the hook towards him with a right-and-left movement, which leaves the groove cut a little the widest at the top. The lower end of the scion, which is about a foot long, is then shaved on three sides to fit the groove, and dove-tailed into the stock with a firm, sliding pressure. This is certainly better than the awkward way of splitting the stock, and insures equally as strong and solid work. I have had many years' experience in grafting, and am favorably impressed with Mr. Briggs' method. The same will apply with equal advantage to many of the plants.

In grafting grape vines, Mr. Briggs uses five men to the best advantage. One removes the earth from about the stalk, the second saws the vine off six inches below the surface, two more do the grafting, while the fifth follows with the wax, which is kept melted in a pot by the heat of a lamp. He uses common grafting wax, and applies it with a brush. The earth is then drawn and firmly pressed about the graft, leaving about two buds above the surface. The five men will average about 1,000 grafts per day, or an acre of vineyard.

Best Varieties.

Immediately along the coast where the cool and damp sea breezes prevail, the White Malvoise is an excellent variety, as it is early and less subject to mildew than most other sorts.

The White Muscat of Alexandria is probably the best raisin grape known, and it is also of superior excellence as a table grape.

The Black Hamburg and Black Prince are superior black table grapes. The latter stands transportation well.

Among the rose-colored varieties, the Flame Colored Tokay stands ahead as a market grape.

For high mountain districts, the Concord, Isabella, Ionia, Diana, Delaware, etc., are worthy of trial. S. H. Herring.

Mode of Nourishing the Street Trees in Paris.—All the boulevards of Paris are planted with trees, many of which, however, were destroyed during the Revolution of 1848. New trees were therefore planted, and their growth fostered with an amount of skillful attention, which has produced astonishing results, when the natural disadvantages are taken into consideration. The trees are planted in loam, which has been previously mixed with sand, and transported to the city. This is contained in large receptacles, lined with brick, sunk below the surface of the foot-way and coated over with cement, so as to render them impervious. They form, in fact, gigantic flower-pots; and into them are conducted the roof-drains of each house-block, from which the earth derives its water supply. These basins, or flower-pots, are built of capacity sufficient to admit of considerable expansion on the part of the roots of the trees. An ornamental circular iron grating, set flush with the foot-way, is placed over these basins and around the trunks of the trees. This admits of air for the proper support of the roots. The roots of the trees are thus removed from the deleterious influences of escaping street gas and the poisonous emanations from sewers, causes which are well known to have destroyed the vegetation in the streets of many cities.—*Technologist.*

A New Discovery in Raising Corn.—An intelligent and reliable neighbor of ours, who has for many years been making experiments with corn, has discovered an importance and value in re-planted corn which is quite novel, and worthy of publication. We have always thought that re-planted corn was of very little consequence, but this gentleman says "it is of so much consequence, he re-plants whether it is needed or not—or rather, he plants two or three weeks after the crop is planted, a hill about every fifteenth row each way." He says: "If the weather becomes dry during the filling time, the silk and tassel both become dry and dead. In this condition, if it should become seasonable, the silk revives and renews its growth, but the tassel does not recover. Then, for want of pollen, the new silk is unable to fill the office for which it was designed. The pollen from the re-planted corn is then ready to supply the silk, and the filling is completed." He says nearly all the abortive ears, so common in all corn crops, is caused by want of pollen, and that he has known ears to double their size in the second filling.—*Exchange.*

The Forests of the Sea.—The sea has not only its mountains, its fountains, and streams, its forests with their peculiar plants, their splendor of color, their lovely flower gardens and extended prairies; it has its landscapes, that are more splendid and fairy-like than any that are to be seen on the earth. Let us take the sea fire-garden for example. It grows in such a beautiful form, and its color is so lovely, that those who have seen it growing out under the water say that it surpasses their powers of description.

The fire-gardens at the bottom of the sea stretch over the prairies of the ocean and climb up the mountain sides. They are covered over with the beautiful gold-colored coral moss, and their leaves wave to and fro with the currents. The largest forest in the world is in the Sea of Sargossa, between the Azores and Antilles, and is six times larger than Germany; so that Columbus needed fourteen days to sail over it.

Fruit trees planted on cleared timber land are said to come into bearing sooner than when planted on prairie land; but the latter will continue fruitful much longer. As a general rule, all fruit trees planted in a climate and soil which hastens maturity, have their periods of fruitfulness shortened proportionately.

Seed Coffee is being introduced into Los Angeles county from the Sandwich Islands.

The Chicken Question Again.

More attention is being given to breeding fine stock of all kinds, in this State, than ever before; and as the country becomes more densely settled, and a more thorough and economical cultivation is necessitated, the advantages and profits of the best breeds of stock over ordinary sorts will become apparent. It must be a real pleasure to every progressive agriculturist to note whatever enterprises favor the speedy introduction and dissemination of the superior kinds; as also the best methods of improving ordinary stock—a matter which is too often disregarded. Increased attention is apparently being given to

Poultry Raising.

This is usually regarded as a small business; but the average profits accruing therefrom certainly exceeds that of most others, according to the amount of capital invested. It furnishes many families the small sums so convenient to purchase the little necessaries and luxuries that amount to so much in comforts and gratifications. The farmer that engages in a large number of little enterprises and experiments pertaining to his calling, is not idle half the year at bar-rooms and jockey clubs; but finds time to appreciate the nobler enjoyments and comforts of home, and to cultivate the little refinements of intelligence and noble aspirations. Whoever despises little things enjoys not much.

The Brahma Pootra Fowls.

As I have been requested to correct my late hasty description of the Brahma Pootra fowls seen at Mr. Nichols' place near Brooklyn; in justice to the subject, I present the following, made up from a closer observation, and some extracts from standard authority:

The Light Brahma Pootra fowls are quite large, and of more beautiful proportions than most of the larger sorts. They are mostly white, finely penciled with black, the rump hackles slightly tinged with gold. Their gait is stately and graceful; they are quiet and peaceful in their disposition, no great scratchers, and but little inclined to wander. The tail is black, upright and fan-shaped, with short, glossy, green plume-feathers.

The wings appear white when folded; but the flight feathers are black. The head is surmounted by a tripple pea-comb; beak, white, strong, well curved; wattles, full; ear lobes, pure red, well rounded—falling below the wattles. Legs, yellow, covered with white feathers, often mottled with black. The neck-hackels are streaked with black down the center of each feather.

A very low fence will stop them, and when well fed are not guilty of depredations on the garden. They are heartier eaters than common fowls, and may be kept on coarser food. Being great layers, they require full keeping. They lay daily, while they do lay, and stop but a few days between broods, when not allowed to set.

Mr. Nichols, who keeps a finely arranged day-book of details, furnishes the following:

Trial of Light Brahmas.

1st triplet. Cock and two pullets, late spring chickens, imported. One commenced laying the 22d of December, the other the 25th of January last, and up to this time (March 11th) have laid 105 eggs. Seventy of these they have laid since February 1st.

2d trial. Six pullets of the same variety of previous importation, selected, and put in breeding yard January 1st, 1870; have averaged thirty-two eggs per week ever since.

I find it generally claimed in the written testimony of poultry fanciers, that the Brahma Pootras are the best layers of any known sort. It is also claimed that when fattened for the market they are equal to the best table fowl. They are also hardy and remarkably free from disease; and their peacable habits and fine appearance renders them a very desirable acquisition.

Remarks and Suggestions.

Thorough breeding and attention to their wants, and good feeding, have probably produced these results; and indifferent care would undoubtedly soon degenerate them into ordinary dunghills. It is quite as important to improve ordinary sorts, to breed from the best, to feed well, shelter and keep clean and healthy, as it is to get the best, and *more* should the after care of such be neglected.

It appears to be a fact that all highly-bred fowls have a finer nervous organization than common breeds. The young, especially, are of more delicate constitution, and require shelter and careful attention to insure success. Coarseness and inferiority in fowls, animals and every human being, is the result of hard fare, irregularity, negligence and abuse. Our best moral philosophers are recognizing the force of material effects. While it is worth much to obtain good breeds, it is also equally important to care for what you have.

Feeding.

Fine meal should never be fed to fowls unless first baked into bread. Coarse meal is best, the coarser the better, and just sufficient water to wet it. Such sorts of grain that have coarse hulls, like barley and oats, should be broken before fed, as the harsh hulls sometimes fatally injure the crops. For fattening, Indian corn is superior. For the production of eggs a variety of foot is necessary. In every case regular hours of feeding should be observed. Also certain kinds of food should be fed at certain hours; for instance, meal and meat in the morning, vegetables, fruits etc., and mixed sorts of seeds at noon, and corn and wheat at night. Young chicks should be fed several times each day. I cannot close these remarks without again warning the thoughtless against the use of *smut wheat*, a poisonous and filthy feed. Use only clean feed, and supply clean water.

S. H. Herring.

Butter in Oregon and California.—Two years ago Eastern butter was imported into Oregon, and money going out of the State to pay for the same. Attention was called to the fact by the Willamette *Farmer* and other papers in the State, and the farmers urged to turn their attention to the production of at least as much butter as was needed for home consumption. This year Oregon will probably produce all the butter she needs and some to spare. In fact she is already exporting that article to British Columbia—Mr. J. M. Harrison, of Marion county, having lately sent thither one ton at a single shipment. Why do not our California farmers imitate this example? It is a shame and reproach upon this State that she should be dependent on the East for a single pound of butter or cheese. Yet more than half the butter consumed in California is brought to our tables over 2,000 miles of railroad or 10,000 miles of water carriage.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, March 24, 1870.

Flour, Extra, ℔ bbl	$5 00	@$5 50
Do. Superfine	4 50	@ 4 75
Corn Meal, ℔ 100 lbs	2 00	@ 2 25
Wheat, ℔ 100 lbs	1 30	@ 1 62½
Oats, ℔ 100 lbs	1 15	@ 1 60
Barley, ℔ 100 lbs	1 05	@ 1 15
Beans, ℔ 100 lbs	2 50	@ 3 50
Potatoes, ℔ 100 lbs	1 75	@ 2 00
Hay, ℔ ton	11 00	@17 00
Live Oak Wood, ℔ cord	9 00	@14 00
Beef, extra, dressed, ℔ lb	7	@ 12½
Sheep, on foot	2 50	@ 3
Hogs, on foot, ℔ lb	5	@ 9
Hogs, dressed, ℔ lb	8	@ 8½
GROCERIES, ETC.		
Sugar, crushed, ℔ lb	13½	@ 14
Do. Hawaiian	8	@ 11
Coffee, Costa Rica, ℔ lb	18½	@ 19
Do. Rio	—	@ 17½
Tea, Japan, ℔ lb	75	@ 90
Do. Green	60	@ 1 25
Hawaiian Rice, ℔ lb	8	@ 9
China Rice, ℔ lb	5½	@ 6
Coal Oil, ℔ gallon	40	@ 42½
Candles, ℔ lb	16	@ 18
Overland Butter	20	@ 30
Ranch Butter, ℔ lb	25	@ 30
Isthmus Butter, ℔ lb	25	@ 30
Cheese, California, ℔ lb	18	@ 22
Eggs, ℔ dozen	25	@ 30
Lard, ℔ lb	13	@ 14
Ham and Bacon, ℔ lb	14	@ 15
Shoulders, ℔ lb	9	@ 10

Retail Prices.

Butter, California, fresh, ℔ lb	40	@ —
do. pickled, ℔ lb	35	@ —
do. Oregon, ℔ lb	25	@ —
Cheese, ℔ lb	20	@ 25
Honey, ℔ lb	25	@ 30
Eggs, ℔ dozen	45	@ 50
Lard, ℔ lb	20	@ 25
Hams and Bacon, ℔ lb	22	@ 25
Cranberries, ℔ gallon	1 00	@ 1 23
Potatoes, ℔ lb	2	@ 5
Potatoes, Sweet, ℔ lb	—	@ 2
Tomatoes, ℔ lb	—	@ —
Onions, ℔ lb	3	@ 5
Apples, No. 1, ℔ lb	4	@ 5
Pears, Table, ℔ lb	5	@
Plums, dried, ℔ lb	10	@ 12
Peaches, dried, ℔ lb	10	@ 15
Oranges, ℔ dozen	50	@ 75
Lemons, ℔ dozen	—	@ 1 00
Chickens, apiece	75	@ 1 00
Turkeys, ℔ lb	—	@ 25
Soap, Pale and C. O.	10	@ 12
Soap, Castile, ℔ lb	18	@ 20

Scientific Press.

W. B. EWER.............................Senior Editor.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance..................$4 00
One copy, six months, in advance.................. 2 50
Delivered by city carriers, per month.............. 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month.......................... 3 00
One column, one month.......................... 40 00
One column, one year........................... 400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

Thomas Potzer is now visiting Los Angeles and neighboring counties on business for this office, receiving subscriptions, etc. He is an old and worthy agent for the Press.

San Francisco:

Saturday Morning, March 26, 1870.

Table of Contents.

Jackson's Patent Oscillating Wagon—Ill...........193
Our Water Supply......200
El Dorado Co. Sketches.194
Wet Crushing.......... 194
California Diamonds....194
Alumina-Soap...........194
Railroads of San Francisco—Ill..................201
The New Gold Fields...193
Report of Patent Commissioner................204
Commissioner of Patent's Decision..............200
Notes of Recent Patents.201
Full List of Patents....201
S. F. Stock Market......197
S. F. Shareholders' Directory....................197
New York Metal Market.207
Reading for the Hour.—Spontaneous Combustion of the Human Body; The Cow Tree; Interesting to Coffee Drinkers; How the Pheasant Drums, etc..204
Farming and Gardening.—Large vs. Small Threshing Machines; Diseases of Horses—Ill.; New Method of Grafting; Fertilizers vs. Machinery; Grafting the Vine; The Chicken Question Again; S. F. Market Rates, etc..............198
Mechanical Progress — The Wheeler Steel-Iron Process; New Instrument for Draughtsmen; Road Steamer, etc...........195
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Montana, New Mexico, Nevada..196
Scientific Progress.—Pentagonal Symmetry of Metalliferous Veins: Sour Lake in Texas; Filtering Miasm, etc...........195
S. F. Metal Market..... 206
New Incorporations.....197

Death of an Inventor.—We are pained to announce the death of Mr. W. D. Robertson, well known as the inventor of a railroad track-laying machine, and more lately of a machine for ditching in the tules. Mr. R. was engaged with his machine on an island in Suisun bay, and having occasion to go to the neighboring main land in a small boat, while on his return with only a single companion, the boat was upset. With much exertion both parties reached the shore; but being unable, for lack of strength to reach aid or shelter, Mr. R. perished from exposure before aid reached them.

The latest as well as the previous invention of Mr. Robertson was one of much value. At the time of his death it had been on trial for several weeks, and had been pronounced a decided success. The machine is built on a scow that floats in a ditch cut by itself, and is provided with knives and scoops that cut and throw on each side of the ditch the earth that it takes out in its progress. It is worked by an engine of ten-horse power and requires three men to attend to it. The cut made by it is twelve feet wide by three and a half deep. It throws out about one and a half cubic yards a minute, and it is expected that when the men shall have become better acquainted with its working the amount will be increased to two yards a minute.

* * *

Patent Secured.—C. C. Stevenson, proprietor of the Douglas mill, Gold Hill. has been granted, through the Scientific Press agency, a patent for an improved amalgamating pan, which is constructed with plow-shaped mold boards, or flanges, for gradually raising the quicksilver and forming an easy and regular flow of the pulp to the center of the pan. This pan has been run for months, with highly satisfactory results. It will probably be illustrated in our columns soon.

* * *

The track of the new street railroad, designed to extend to the beach, has been laid on Larkin street, from Sutter to Market, and on Ninth street, from Market to Mission.

The New Gold Fields.

The San Diego gold excitement has subsided to a very considerable extent. The people who went there are re-learning the lesson, that labor is necessary to the acquisition of wealth. The weather has been cold, rain has poured down and the gold has not been lying on the surface in big enough lumps. Still there is considerable probability that there is money to be extracted from the mines by proper working.

Some 800 men are on the ground, and about thirty claims have been located, although the ledges are explored only to a slight degree. The George Washington is said to be opened to a depth of fifteen feet. The Hayden lode is reported to be rich and also the Good Hope. Besides these we hear of the Mammoth, Swain's, Warpath, Wasboe, High Peak, President and others. Silver "indications," whatever they may be, are reported. The placer diggings seem to be given up as too poor, even for Chinamen, it is said.

Julian City contains two log cabins and some twenty tents, and Coleman City, three miles west, about a dozen tents. A town site has been laid out near the Washington mine, and lots are for sale. Living is comparatively cheap, fair meals being obtainable for fifty cents. A new wagon road to San Diego is projected and quite a large amount subscribed therefor.

A correspondent of the San Diego *Union* writes as follows concerning the surrounding country:

Many very valuable ledges have undoubtedly been found, and I believe many more are yet to be discovered. This whole region is evidently rich in mineral deposits. It is a spur of the Sierra Nevada range, splitting off at Owen's Lake, one spur running southerly through the counties of Los Angeles, San Bernardino and San Diego to the peninsula of Lower California, and the other running southerly across Arizona into Mexico. Like the ranges above Owen's Lake, the slopes on the east are argentiferous, while those on the west are auriferous. It is in this western range that the recent gold discoveries have been made. Not more than sixty miles north of the Cuyamaca mountains, in San Bernardino county, are the gold deposits of Lytle Creek, which have been worked for the past six years, and from which several hundred thousand dollars have been extracted. Running northerly, these gravel deposits continue almost uninterruptedly, terminating in what is known as the San Feliciana district in Santa Barbara county. The only quartz ledges worked are those of the Soledad district, in Los Angeles county, midway between San Feliciana and Lytle Creek, which are paying well. San Feliciana is the point where gold was first discovered in California. At Lytle Creek there are now hydraulic works, which are said to pay from $1,000 to $1,500 per week.

But here in San Diego county, quartz is our reliance; and it is the opinion of quartz miners of many years' experience that nowhere in California has so much rich quartz been found distributed over so large a surface of country.

A ledge that has not yet attracted special notice is that known as the "Wetherby" lead, at San Pasqual. It has been imperfectly worked and has yielded an average of $33 to the ton. It was abandoned two years since, owing to the want of capital to pump the water out. This mine is on the western edge of the Cuyamaca district, and quartz lodes are traceable from this point to and beyond the Cuyamaca Mountains.

Intermediate between the Wetherby mine and the Cuyamaca district lie the Santa Maria placer mines, which have been worked at intervals during the past twelve years, yielding fair returns in the rainy seasons. The want of water during a great portion of the year prevents extensive operations.

* * *

We have to acknowledge the receipt of Reports of the U. S. Commissioners to the Paris Exposition on Mining and the Mechanical Preparation of Ores, and on Civil Engineering and Public Works, for which we return thanks to the able editor of the reports, Prof. W. P. Blake. We shall cull from these several interesting facts hereafter for our readers, but for which we have no space this week.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending March 15th.

Steam-Engine Slide-Valves.—Andrew J. Stevens, San Francisco. Antedated March 5, 1870.

Sluice-Box for Gold Mining.—John H. Whitney, Helena, Montana Territory. Antedated March 5, 1870.

Track-Laying Machine.—John R. Adams, San Francisco.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Grain and Straw-Carrier for Separators.—B. Jackson and B. F. Jackson, Woodland, Cal.—This is an improved device for carrying a supply of unthreshed straw from the stack to the separator. It is simple and economical, and can be easily attached to any separator. It consists of a spout of sufficient length, supporting a carrying belt moved by a pulley, which is connected directly with the machine. The spout extends from the feeding-tables to the stack, where it is supported by two legs, whose lower ends are driven into the stack, while the upper ends pass through staples in the sides of the spout, and are there fastened by set-screws or other device, so that the spout may be depressed as the stack is lowered. The shaft of the pulley which drives the carrying-belt, rests in open slots in the sides of a frame which is pivoted at the top and bottom, allowing the spout to be swung around as desired. This shaft is driven by a belt running over a pulley driven by the main belt, and thus the carrying-belt is driven in the most direct manner and without too much extra machinery. The spout is very easily removed when necessary. By this device the labors of the feeder are somewhat lessened, fewer men are required on the stack, and the amount of work done by the machine can be materially increased.

Improvement in Desulphurizing Ores. Elizabeth A. Burns, Meadow Lake, Nevada Co., Cal.—This invention has been described and illustrated in the Press of July 17, 1869. It consists in subjecting the ore to a burning process in a peculiarly constructed furnace and then treating it in a certain solution, which, it is claimed, leaves it in such a disintegrated state that the gold can easily be separated and can be amalgamated readily.

* * *

Commissioner of Patent's Decision.

COLE VS. LOUD.

We mentioned the decision in this case some time since, and as there appears to be much interest manifested in the matter at present, we beneath give the decision in full:

In the matter of the interference between the applications of Cornelius Cole and Alfred C. Loud for letters patent for improvements in propelling wheels:

In this case a quarrel between the applicants has borne the usual fruit of much irrelevant testimony. The material facts, however, are few, simple, and undisputed.

Although the parties were connected in business matters closely allied to the invention in controversy, it is not denied by either that the other is an independent inventor. The controversy is, therefore, narrowed down to a mere question of dates of invention; and even as to these there is a substantial agreement.

It is conceded by Loud that Cole made the invention, without assistance from him, about the middle of December, 1868. The only remaining question is, therefore, Did Loud make it at an earlier period?

The history of Loud's invention is briefly as follows: In August, 1868, having been interested in the subject of propelling wheels for steamers, he produced two small discs of pasteboards, about the size of a half dollar, through the center of which he thrust a match, as a shaft. This he exhibited to his wife, her sister and a male friend. In conversing about his plan, he put the discs on the shaft and brought them together at one point in the circumference of each, so as to form a V-shaped wheel, and he also, by means of slits, crossed them so as to form an X-shaped wheel. He was experimenting, or rather theorizing, about his plans, and used these discs by way of illustration. He finally settled upon the V-shaped wheel, and came to the Atlantic States to patent and introduce it. He filed a caveat and finally obtained a patent for the V-shaped wheel; but neither in his caveat nor in his patent did he so much as mention the X-shaped modification. While in Washington, he met Cole, who agreed to furnish capital for actual experiments. A small steam yacht, called the Julia, was purchased, which was furnished with the V-shaped wheels. When put in motion, however, the discs were found to be placed at too acute an angle, and the slip in the water was too great. A greater angle was needed, and the problem was to obtain this angle without unduly increasing the width of the wheels and paddle boxes. This question was considered by Loud and Cole and their assistants for an entire month without result, at the end of which time Loud returned by sea to California. On the day that he sailed, Cole made the invention of the X-shaped wheels, which gave him double the angle in the same width of wheel. Loud's story can best be told in his own words:

"After leaving New York, while on the steamer, I made many experiments with this wheel for the purpose of overcoming the difficulties we had encountered while in New York; and, reflecting back, I recollected that I had the old pasteboards put away with which I first made the invention, and which are the same ones heretofore exhibited.

In making this discovery in August, 1868, I put the slits in the pasteboard into each other, and put the axle through, as described in my specifications or oath of invention, January 2, 1869.

The recollection of the crossing of the pasteboard discs induced me to cut out the two rims and cross them in the same manner, and this occurred on the 24th of December, 1868, on board the steamer Montana, on this side, while on my way to San Francisco.

Upon arrival I made further experiments, and concluded that this application of the principle overcame many of the objections which had occurred while making the experiments before leaving New York." He is subsequently asked, "In all the time that you were experimenting with your wheels on the yacht Julia, did you ever suggest to any one the plan of improving said wheels by crossing the discs or rims, or by bending them so as to give them the form of discs or rims crossing each other?" and answers: "I have before testified that my first bending their rims was done on the steamer on my way to San Francisco, in December, 1868, and that this bending of rims called to mind the application I had made months before in my original pasteboard model by means of the slits cut therein at that time. Of course I could not have suggested it at the time of the experiments on the Julia."

He is then asked: "Then, during the time you were experimenting with the Julia, you had no recollection of ever having crossed the pasteboard discs, had you?" and replied: "My first intersecting application was not in my mind at that time."

Now, when did Loud make this invention of the X-shaped wheel? In California, in August, 1868, or on the Montana, in December, 1868? If at the former time, then priority is with him. If at the latter, it is with Cole.

Invention, within the meaning of the patent law, is the conception of some new and useful thing and the embodiment of that conception in a practical form. I think it cannot be doubted that the definition must include an intelligent conception. It must require that the inventor shall know that he has found something, and be aware, at least, that it is capable of use. If he thoughtlessly puts two bits of wood together and then throws them away, without having observed that their union was new and useful, he cannot be permitted afterwards, when another has done the same thing, with a purpose, to recur to that which he did without purpose, and dignify it by the name of invention.

I am clearly of the opinion that Loud made no invention of the X-shaped wheel in August, 1868. It is true that he crossed two discs of pasteboard; but he had no idea of the mechanical truth which that act involved. On the contrary, when it became desirable to make use of that truth it was not in his mind. The necessity of finding it compelled him to make search, and to arrive at a solution of his problem in the ordinary way in which inventions are made. When he had made the invention and had perceived that it supplied his want, it recalled the purposeless experiment of a few months before.

Except for the invention on the Montana, that experiment had been as thoroughly lost as if it had never had an existence. That it has been recalled cannot avail Mr. Loud, in view of the unsatisfactory character of the experiment itself, his utter forgetfulness of it when it was needed to solve the problem with which he grappled for a month in New York, and the fact that the invention on the Montana was not the effect, but the cause of its resurrection.

The decision of the Board of Examiners-in-chief is reversed.

Priority is awarded to Cole.

Sam' S. Fisher,
Commissioner.

February, 8, 1870.

* * *

On the 22d instant the Senate passed the Act for the endowment of the State University, which in effect, gives this institution an annual income of $50,000 until the income from its lands render this aid unnecessary.

Railroads of San Francisco.

Ten years ago our first railroad, on which locomotives were run for passenger traffic, was built in this city. This was the Market street road on which work was commenced in May, 1859, and finished in July, 1860. The first rail was laid June 7th, and the track was completed July 4th, 1860. It was a short road, only three miles in length, and on it first horse-power, and then dummy engines, were employed; and, with the exception of the rails, everything was of California manufacture, and it is worthy of mention as the pioneer road in the city and the third in the State. This road is still used, but horse power is again employed.

As early as 1851 the importance of railway communication between the city and San José was recognized, and a route was surveyed by W. J. Lewis. Here matters rested for a while until a second survey in 1855, when another pause occurred. In 1861, active operations under the same engineer were commenced, and about June, 1863, the whole distance of 50 miles was opened to passengers and freight. Messrs. McLaughlin & Houston did the work under contract for the road. In 1868-69 the road was extended to Gilroy, and, according to present indication, the line will soon be run still further south.

In 1861, the San Francisco and Oakland Railroad was started by Geo. Goss and R. L. Harris. It was rather difficult at first to persuade landholders along the line, which runs from Oakland Point to Clinton, a distance of four miles, of the value to them of such a road, of which fact, however, they have since become fully convinced. Recent events, moreover, have verified the prediction of the originators of the plan, that this road would form one end of the great Pacific Railroads.

About 1864, the San Francisco and Alameda Railroad was commenced. This road is fourteen miles long, was engineered by L. H. Short, and run principally by A. A. Cohen.

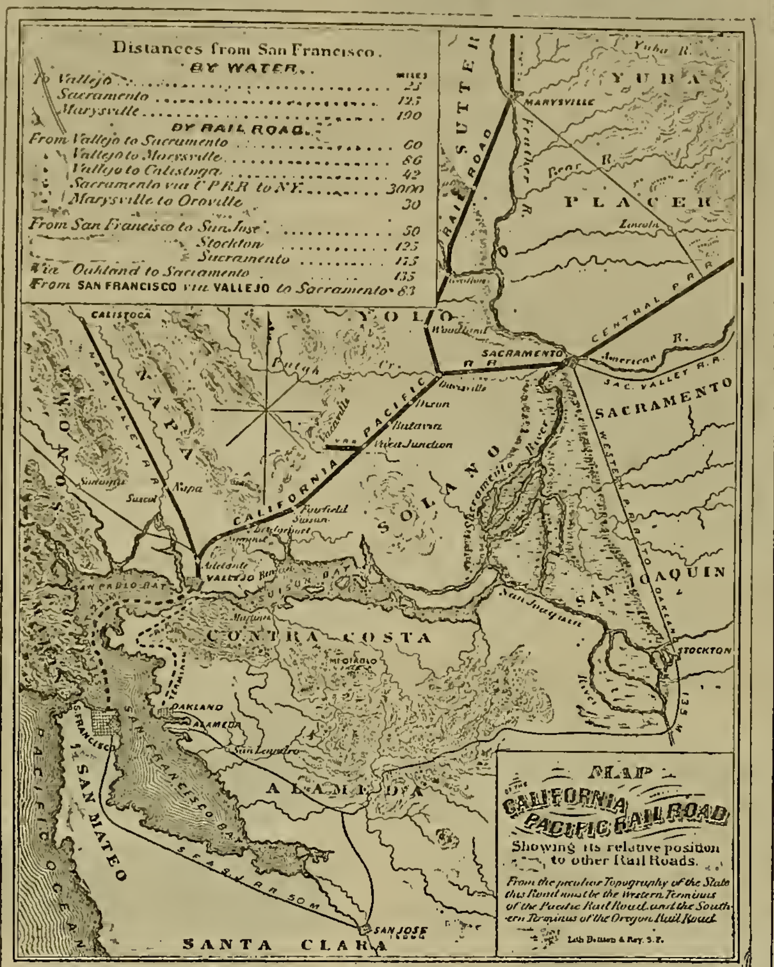
On the Western Pacific work was commenced on the first of February, 1865, under the charge of W. J. Lewes, and twenty miles were built, when, in 1866, operations were suspended, until it passed into the hands of the Central Pacific, which completed it in 1869.

On the San Francisco and Humboldt Bay Railroad, designed to connect by steam this city and the northern part of the State, ten miles were graded in 1868, between Petaluma and Santa Rosa. And last year the San Rafael and San Quentin road was built, and the first train has been run this week.

The remaining road, which connects this city with other parts of the State, is the California Pacific, from Vallejo to Sacramento and to Marysville, in regard to which fuller data have been obtained by us, and a map of which we present to our readers. From San Francisco to Vallejo, a distance of 23 miles, communication is established by means of the company's fast steamers. The railroad runs from Vallejo north to Adelante, which, being interpreted, meaneth "go ahead," thence northeasterly to Vaca Station, and then to Davisville, which is 45 miles from Vallejo. Here one branch runs nearly due east fourteen miles on a direct line to Sacramento, while another runs to Knight's Landing, here crosses the Sacramento river and continues on to Marysville, where it crosses the Feather river.

The road has opened up a rich agricultural country and has given birth to several towns, and increased the prosperity of the whole region. As one is carried up the bay from San Francisco, rapidly transferred to the cars at the flourishing town of Vallejo, where one catches a glimpse of the great elevator, and whirled by Adelante, Summit, Bridgeport, Fairfield, Vaca Junction, Davisville and other places, or runs up to growing Napa and pretty Calistoga, he sees abundant evidence of the benefits bestowed, and the increasing popularity enjoyed by this particular line.

A portion of the road from Knight's Landing to Marysville is built on embankments and piling over an overflowed plain of tule land, some fifteen or twenty miles long and eight miles wide, where the water stands two to twenty feet deep. Fears have been expressed that this part of the road was not strong enough. These have so far proved entirely groundless. The earth has not been washed at all by the water and no trouble has been experienced, except, perhaps, a slight cracking caused by the weight on top of the bed, which has been remedied by placing sand-bags and planking along the edge of the embankment. To make everything still more secure, willows have been planted and alfalfa sown, while every day the work is being rendered more solid and complete. It is proposed, moreover, to raise this embankment two feet higher. The one and an eighth mile of trestle work over the tules cost at the rate of $50,000 per mile, and the bridges at Knight's Landing and Marysville were built at an expense of $40,000 each. From Vallejo to Davisville, the road was built by a track-laying machine, and has at present the chair rail, which is, however, to be replaced by the fish or strap rail, used between Davisville and Marysville.


Distances from San Francisco.
BY WATER.
To Vallejo ... miles 23
Sacramento ... 125
Marysville ... 190
BY RAIL ROAD.
From Vallejo to Sacramento ... 60
Vallejo to Marysville ... 86
Vallejo to Calistoga ... 42
Sacramento via C P R R to N.Y. ... 3000
Marysville to Oroville ... 30
From San Francisco to San Jose ... 50
Stockton ... 125
Sacramento ... 175
Via Oakland to Sacramento ... 135
From SAN FRANCISCO via VALLEJO to Sacramento 83
MAP of the CALIFORNIA PACIFIC RAIL ROAD
Showing its relative position to other Rail Roads.
From the peculiar Topography of the State this Road must be the Western Terminus of the Pacific Rail Road, and the Southern Terminus of the Oregon Rail Road.
Lith Britton & Rey. S. F.
CALISTOGA
YOLO
SUTTER
YUBA
MARYSVILLE
PLACER
SACRAMENTO
SOLANO
NAPA
CALIFORNIA PACIFIC
CENTRAL PACIFIC R.R.
SAC. VALLEY R.R.
SAN JOAQUIN
STOCKTON
CONTRA COSTA
OAKLAND
ALAMEDA
SAN MATEO
SANTA CLARA
SAN JOSE
VALLEJO

Work was commenced at Vallejo in December, 1866, and the road was completed to the Sacramento river in November, 1868, and to Marysville in November, 1869. The engineers were R. L. Harris and D. B. Scott. The rolling stock comprises 13 passenger and freight locomotives (two of which, "Ryder" and "Rice," are the most beautiful engines), 3 smoking cars, 6 baggage, 3 express, and 20 box cars and 150 flats.

The history of this road is interesting as affording an example of California pluck and energy. Some ten years ago Mr. D. C. Haskin started to build a railway from Marysville to Davisville. He succeded in raising $100,000 from Yuba county, and built the embankment. He expended his own private resources in the work and struggled along manfully for years; but finally, by perseverance and energy, succeeded in interesting capitalists, and the road was completed with no other foreign aid than that just mentioned and $200,000 from Solano county. The management is determined to make it the best furnished and equipped road on the coast. It is the shortest route between this city and Sacramento or Marysville, being built on air-lines as nearly as possible, and its total length, inclusive of the route of the steamer, being 83 miles from here to Sacramento or 111 miles to Marysville, which is respectively 52 and 80 miles shorter than any other road to these places. For freight, the conveniences at Vallejo (and the grain elevator there deserves special mention) are unsurpassed. It has branches at Adelante to Calistoga (the Napa Valley Railroad 34 miles long, started in 1864 from Suscol to Napa, and completed in 1869; R. L. Harris, engineer) and at Vaca Station (to Vacaville, four miles), and this season it is proposed to build the Sonoma and the Red Bluff roads. Dr. D. W. C. Rice is President of the corporation. Mr. R. S. Mattison, the able Superintendent, and Mr. L. C. Fowler, General Ticket Agent, and others connected with the road are certainly doing their utmost to maintain and extend the credit they have deservedly acquired, and promise that the public will find this the safest, quickest and pleasantest road leading from this city to Sacramento and Marysville.

The *Bulletin* of the 23d inst. speaks as follows of this favorite route:

"Not only is travel constantly increasing, but the amount of freight passed over the road shows a notable gain within the past few weeks. On the 19th instant, 13 car loads of horned cattle were shipped by this route to San Francisco; 1,040 sheep, and one car load of cattle were sent here on the 21st, and on the 22d seven car loads of cattle. This live stock is generally from the west side of the Sacramento, in Colusa county. The freight-boat Vallejo now leaves the pier for Vallejo at four o'clock P. M., instead of five o'clock."

A WOOLEN mill at Napa is proposed, and $10,000 already subscribed therefor.

A Railroad Across New York Harbor.

The latest New York engineering project is the construction of a railroad-bridge across the harbor, to Staten Island, to be built upon a pile structure, some five miles long. The bridge will start from an extensive bulkhead, to be constructed about three-fourths of a mile from the Battery; this bulkhead to be connected with the city by double-ender ferry-boats. It is proposed to divide the bridge into three divisions—one for foot-passengers and vehicles, another for horse cars, and the third for steam cars. The scheme also contemplates the extension of the railroad across Staten Island and the connection of its southern extremity with Perth Amboy, on the main land of New Jersey, by means of another bridge. Both the bridges will have "draws" ample for the accommodation of shipping. The Camden & Amboy railroad, by adopting this route, would be able to reduce its time between New York and Philadelphia fully thirty-five minutes. It would also open up a wide area for dwellings, much more convenient and desirable than the same distance up the city, or across to Long Island. The estimated cost of the bridge is one million dollars. Some of the best engineers have pronounced the scheme perfectly feasible.

* * *

RIGHTS OF MARRIED WOMAN.—An Act under this title was approved by the Governor on the 9th instant, the main object of which is to protect the earnings of the wife and minor children, and not allow said earnings to be held liable for the debts of the husband. The bill provides that while the wife is living separate and apart from her husband, she shall have the sole control of her earnings and her separate property, that she may sue and be sued without being joined with her husband. She is also empowered to buy and convey real estate, in her own name. Before conveying, she is simply required to cause to be recorded in the office of the County Recorder, where the estate is located, the fact that she proposes to sell, a description of such property, the name of her husband, her own place of residence, and that she is a married woman living apart from her husband. Thirty days' notice of such intention is to be given in such a manner as the County Court may direct for a hearing of the matter, when, if it shall appear that the property really belongs to the woman, and that she is living apart, etc., then the Court will duly authorize the sale.

* * *

AN ENGINEER'S DEATH.—Andrew J. Lamaroux, chief engineer of the P. M. S. S. Co's steamer China, died at sea (of inflammation of the brain) on the 9th of March, on the way to this port from China. We have known Mr. L. personally as a gentleman of skill and proficiency in his profession, and a friend possessed of kind and noble traits. His death is sincerely lamented by all acquaintances, and especially his every-day associates and fellow officers. On the arrival of the China on Saturday morning last, his wife and youthful son were buoyant with the glad anticipation of meeting him, when the sad news of his death came in his stead. It is one of those sad cases which must occur so long as self-sacrificing men follow the sea. The body, embalmed, will be accompanied by the widow and son on the next steamer for New York. The sympathy of warm friends will go with them from the land in which they were comparative strangers.

* * *

NO-FENCE LAW.—The Senate has passed the Assembly bill, with amendments, extending the no-fence law over all that portion of San Joaquin county lying south of the Calaveras and west of the San Joaquin river, all of Stanislaus county, and all that portion of Merced county lying east of the San Joaquin. Also, certain settled portions of Santa Barbara, San Diego and Los Angeles.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

WM. H. MURRAY, California and Nevada.
S. H. HERRING—California.
THOMAS POYZER—California.
JOHN PENNYCOOK, JR.—Contra Costa, Solano and Napa.

Resident Agents.

CENTERVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—Thos. Starr.
CARSON CITY, Nev.—John G. Fox.
TREASURE CITY, Nev.—J. L. Robertson.
SHERMANTOWN, NEV.—P. O. Renfrew.
SILVER CITY, Idaho—J. Caples.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orahood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Barkalow & Brothers.
PHILADELPHIA, PA.—Fitler, Quigg & Co.
LONDON—George Street, 30 Cornhill, E. C.
HUDSON & MENET, 41 Park Row, New York.
A. C. KNOX, City Soliciting and Collecting Agent.

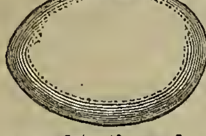
SOMETHING NEW

— FOR —

MINERS AND FAMILIES.

EAKIN'S

EGG SUBSTITUTE.



One Can equal to three dozen Eggs,

And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.

Price, 35 Cents per Can.

MANUFACTURED BY ADAMS & CO.,

423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

---

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf 414 Front street, San Francisco.

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. OLD GOODS of all kinds re-plated for hotels, restaurants, etc.

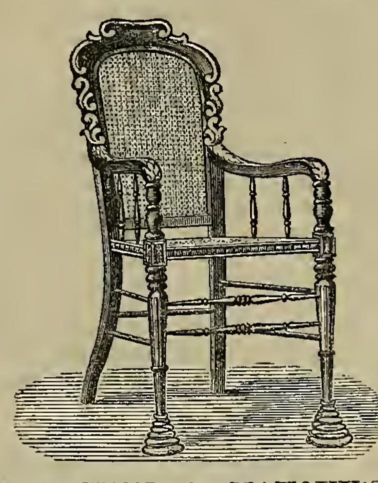
☞The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. A full assortment of Plated Goods and Cutlery for sale at low rates.

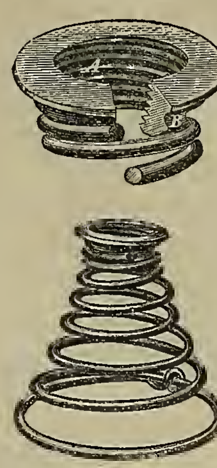
E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞All work done at the lowest prices. 1v20-3m

PATENT CHAIR SPRING.





PURINGTON & MAYOUX'S PATENT, NOV. 30, 1869.

This is the best Chair Spring yet invented, and will undoubtedly supersede all other devices of the kind, as it is SIMPLER, CHEAPER, AND MORE DURABLE. As a simple article of comfort and ease, it has no superior, and only needs to be tried to commend itself to universal and lasting favor. The Springs seen attached to the front legs of the chair in the engraving enables the person sitting in the seat, with very little effort, to give themselves

A Gentle and Easy Rocking Motion,

And also to rest themselves by change of position, by a very slight movement. It renders a common chair, at a trifling expense, equal or superior, in many respects, to a rocking chair.

The advantage of this Spring over all others consists in the manner of attaching it to the chair by the simple turning of a nut, which nut is also securely, easily and quickly adjusted to the Spring in a manner impossible for it to become inadvertently detached. The engravings show the parts both detached and as adjusted to the chair.

The nut is made of metal, and is provided with a screw thread, so that it can be screwed to the leg of an ordinary chair; and instead of weakening and splitting the leg, as in the case where a hole is bored and a screw inserted to hold and attach the nut, this method strengthens it The nut can also be very quickly and easily put on or removed.

The ease and convenience in applying the spring to the nut is readily seen. The top of the nut is provided with a collar or shoulder, and also an incline groove around the outer surface, so that the smaller end of the pan can be screwed to the nut; and its top coil being brought firmly against the shoulder, all oscillation from side to side is prevented. When the nuts are taken off, the chair is uninjured in its original form.

THIS IS A CALIFORNIA INVENTION,

And a superior article is now being manufactured. For particulars apply to

A. MAYOUX, Marysville,

Or inquire of PAUL N. ROTH, No. 809 Montgomery street, San Francisco. 9v20-1amq4

USE

DR. S. GIRARD SMITH'S

ARAMIRACULAS

— FOR —

RHEUMATISM, GOUT AND NEURALGIA.

CURES GUARANTEED.

Has cured Thousands. Has never been known to fail. One bottle will relieve you.

OFFICE, No. 621 KEARNY STREET.

Agents Wanted in every City and Town.—Terms Liberal.

DR. S. GIRARD SMITH, 621 *Kearny street.*—Dear Sir: It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

STEAM

FIRE-PROOF

SAFES

SANBORN'S PATENT.

Perfectly Dry in Use.

ACTUALLY FIRE-PROOF.

GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

☞Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by

ROSS, DEMPSTER & CO.,
105, 107 and 109 California street,
5v20-3m San Francisco.

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up IN TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

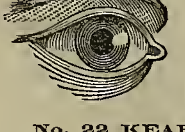
Notice to Miners,

Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
8v18 1y Stove Store, No. 1 Clay Street, below Davis.

DR. ABORN,



Oculist, Aurist,

AND

CATARRH, THROAT

AND

Lung Physician.

No. 22 KEARNY STREET,

SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox. Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.
San Francisco (Cal.), Jan, 10, 1870,

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street, San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.
San Jose (Cal,), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

TO WHOM IT MAY CONCERN.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.

WILLIAM BEARDSLEE.
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.

VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869 7v20-3m

FRANCO-ITALIAN MANUFACTORY.

NEW CALIFORNIA

Chocolate and Coffee Steam Mills.

DESCALZO, LASTRETO & CO.,

526 WASHINGTON STREET.

MANUFACTURERS OF

Hygienic Chocolate of Every Variety,

Ne Plus Ultra Ground Coffee,

And sole manufacturers in California of the world renowned Coffee,

"CAFE DES GOURMETS,"

CORCELET PROCESS. 9v20-q

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,

423 Washington street............San Francisco (Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing, Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe. Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,

HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco. 21v18-1y

---

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 638 Clay Street
SAN FRANCISCO.

J. VAN C. HORNER,
DENTIST,
Cor. J and Third Streets, Sacramento.
☞ All work warranted. 7v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.
DR. BEERS, Dentist,

Has removed from Tucker's Building to No. 100 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. R. R. ROBERTS,
The Great Magnetizer,

Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all curable Chronic Diseases by Animal Magnetism and the Swedish Movement Cure. 2v20-1y

---

DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

References.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; D. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

---

DR. MABON,
ORTHOPÆDIST,
(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the

MOST EFFICACIOUS INSTRUMENT

Yet invented for the cure of

RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment.

Office, No. 128 Kearny Street, near Sutter,
SAN FRANCISCO. 11v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.

Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.

Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 Clay Street, bet. Kearny and Montgomery, San Francisco. 11v20-3m

---

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,

Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

☞ Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted. 11v20-3m

---

H. G. STILLEY,
PLANE MAKER.

Planes of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 Belden Place (near Bush street), below Kearny, San Francisco. 11v20-3m

---

W. C. & JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.

Job work of all kinds in the Drug and Spice Line promptly attended to.

Second Department.—Feed Ground, Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

---

EVENING DRAWING SCHOOL
—BY—
N. P. LANGLAND,

(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 1215 Mission Street.
☞School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3v20-3m

---

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

---

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale, 26v19-3m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

---

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

Metallurgy and Ores.

S. W. HOWLAND. J. W. THURMAN.
S. W. HOWLAND & CO.,
Crushers and Samplers
— OF —
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

☞All work done at the shortest notice. All orders promptly attended to.

References—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co., Assayers. 7v20qy

---

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street, San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES. Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

---

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
☞Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE..........Manager.
J. A. MARS..........Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.

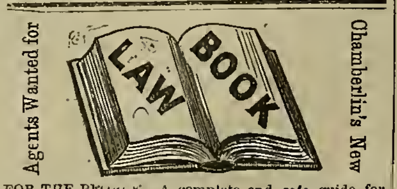
Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

SILVER AND LEAD ORES
Of every description purchased or worked at
The Oreana Smelting and Refining Works.
JOSEPH MOSHEIMER,
Oreana, Humboldt County, Nevada.
Office in San Francisco, 328 Montgomery street. 6v20

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

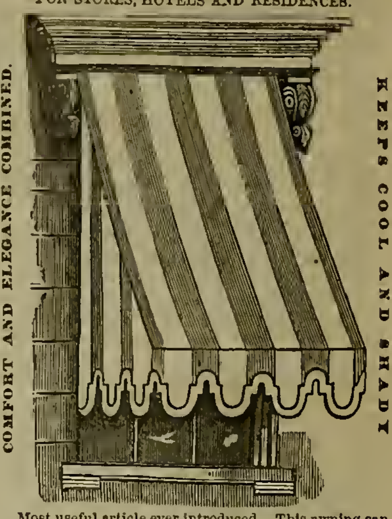
---



FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-12t

---

Newly-Improved Venetian Awning,
FOR STORES, HOTELS AND RESIDENCES.



Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

---

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM
PRINTING ESTABLISHMENT.
Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf

SPECIAL NOTICE.

TO DEALERS AND CONSUMERS
—OF THE—
H & L
AXLE GREASE

Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possible meet the market of our Chicago friends, we have made a great reduction in prices, and from our long experience we will satisfy you that there is none BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,
144 Natoma Street.

Depot, 320 Jackson Street.

N. B.—We are prepared to furnish Bulk Packages to contractors on equally liberal terms.

HIBBERD, SANBORN & CO.,

South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Reading for the Hour.

Spontaneous Combustion of the Human Body.

The earliest case of supposed spontaneous combustion of the human body which has a semblance of authority to sustain it is said to have happened in 1725, and from that time down to the year 1847, when the last alleged case occurred, some fifty instances are recorded. Liebig made an analysis of all these cases in 1851, and found that they nearly all agree in the following points: (1) They took place in winter. (2) The victims were hard drinkers, and were drunk at the time. (3) They happened where the rooms were heated with fires in open fire-places, or pans of glowing charcoal. Cases where rooms are heated by means of closed stoves are exceedingly rare. (4) It is admitted that no one has ever been present during the combustion. (5) No one of the physicians who collected the cases, or attempted to explain them, has ever observed the process, or ascertained what preceded the combustion. (6) No one has known how much time has elapsed from the beginning of the combustion to the moment when the consumed body was found. Out of forty-five cases collected by Frank, of Berlin, in 1843, there are only three in which it is assumed that the combustion occurred when there was no fire in the neighborhood; and Liebig clearly shows that these three cases are totally unworthy of belief. The conclusion to which he comes is that "spontaneous combustion in a living body is absolutely impossible." Flesh which has been saturated with alcohol for a great length of time, as anatomatical preparations, is not combustible; if ignited, the alcohol burns off, scarcely scaring the flesh. The corpses of drunkards have never been found to be combustible. M. Duvergie has opposed Liebig's views, and has expressed the opinion that molecular changes may take place in the living body by which it becomes more combustible from the absorption of alcohol, or from its conversion into more inflammable compounds; but he admits that the combustion is probably never spontaneous. Dr. Marc has suggested that inflammable gases, and possibly even phosphoreted hydrogen, which, under certain circumstances inflames on contact with the air, may be generated in the living body, and may thus give rise to its spontaneous combustion; but this is merely a theory to account for such cases of combustion, if they have occurred—*The Engineer.*

How the Pheasant Drums.—Very few persons ever saw the ruffled grouse *(Bonasa umbellus)*, commonly called pheasant in the Western States, and partridge, in New England, in the act of making that peculiar noise called "drumming," for the reason that the bird never drums except when in a close thicket. For this reason, the manner in which it is done has been differently described by hunters. Some say the bird beats its wings upon a log; others, that it beats its body. A gentlemen who recently had an excellent opportunity of witnessing the act, writes to the *Journal of Agriculture* that the bird simply "beats the air" with its wings, as in the act of flying—the wings, during the act, being fully distended at right angles with the body. The sound is the same as that made in the act of flying, being made in the same way.

How to Treat a Burning Chimney.—If it is desired to extinguish the fire in a chimney which has been lighted by a fire in the fire-place, shut all the doors of the apartment so as to prevent any current of air up the chimney, then throw a few handfuls of common fine salt upon the fire, which will immediately extinguish the same. The philosophy of this is, that in the process of burning the salt, muriatic acid gas is evolved, which is a prompt extinguisher of fire.

Wood Oil.—There is a tree in India which yields a remarkable substance known as "wood oil." There was a consignment of this oil received here by the last China steamer. This oil is obtained from several species of *Dipterocarpus*, by simply tapping the tree.

A Strange Story.

Not many years since certain miners, working far underground, came upon the body of a poor fellow who had perished in the suffocating pit forty years since. Some chemical agent to which the body had been subjected—an agent prepared in the laboratory of Nature—had effectually arrested the progress of decay. They brought it up to the surface, and for a while, till it crumbled through exposure to the atmosphere, it lay the image of a fine sturdy young man. No convulsion had passed over the face in death—the features were tranquil, the hair was as black as jet.

No one recognized the face—a generation had grown since the miner went down into his shaft for the last time. But a tottering old woman, who had hurried from her cottage at hearing the news, came up, and she knew again the face which, through all these years, she had not forgotten. The poor miner was to be her husband on the day after that on which he died.

They were rough people, of course, who were looking on; a liberal education and refined feelings are not deemed essential to the man whose work is to get up coal or even tin; but there were no dry eyes when the gray-headed pilgrim cast herself upon the youthful corpse, and poured into its deaf ear many words of endearment unused for forty-six years. It was a touching contrast, the one so old, the other so young. They had both been young those long years ago, but time had gone on with the living and stood still with the dead.—*London Herald.*

Interesting to Coffee Drinkers.—When the coffee fields of Java are just turning from a sombre to a crimson hue—the sign that the berry is just ripening—the fields are visited by great numbers of little marten-like animals, called the "musang," which feed with great avidity upon the ripened berries. The soft, pulpy substance which envelops the berry at this time is that which attracts the little animal, and of this, as a food, it is extremely fond. This pulp is readily digested in the musang's stomach, the gastric juice of which, however, has no effect upon the berry itself. As a result, the ground is more or less covered with the whitish excrements of this little long-tailed *rodent*, which consists wholly of agglutinated, but otherwise unchanged coffee-beans. These beans are carefully gathered up and sold, at the highest price, mostly to the wealthy Dutch residents of the Island, because they are said to make the best coffee. The fastidious animal is more discriminating than the most experienced pickers, and never selects any but the very choicest of the berries for his food.

Aristocratic Marriages.—Some of the young ladies of high-toned Eastern families of recent elevation to wealth, have been endeavoring, of late, to unite themselves to the nobility of Europe, and have succeeded admirably in getting just what they deserve. Not having sufficient sense nor culture to be able to discern between the genuine and the fictitious article, they have the first cousin of Lord Brougham or nephew of Count Bismarck who came along, and have married these noble individuals, who invariably turn out cheats and gamblers. We have no sympathy for either the female or the male parties in the transaction, which is a swindle on both sides.

The Cow Tree.—On the parched side of a rock on a mountain in Venezuela grows a tree with dry and leathery foliage, its large woody roots scarcely penetrating into the ground. For several months in the year its leaves are not moistened by a shower—its branches look as if they were dead and withered; but, when the trunk is bored, a bland and nourishing milk flows from it. It is at sunrise that the vegetable fountain flows most freely. At that time the blacks and natives may be seen coming from all parts, provided with large bowls to receive the milk, which yellows and thickens at its surface. Some empty their vessels on the spot, while others carry them home to their children. One imagines he sees the family of a shepherd who is distributing the milk of his flock. It is named the *palo de vaca*, or cow tree.

Report of Samuel S. Fisher, Commissioner of Patents.—1869.

CONTINUED FROM PAGE 169.

Qualifications of Examiners.

Although ample means are provided for the correction of an erroneous decision of an examiner, when adverse to the grant of letters patent, there is no check to his action, when favorable to the applicant, except the general authority lodged in the Commissioner. But it is impossible to revise the cases that are passed for issue except in special instances. It becomes very important, therefore, to secure competent men for positions of such responsibility. An examiner should be a man of great patience, industry and honesty, of varied and yet thorough mechanical and scientific attainments, with a good knowledge of patent law, and a mind capable of the nicest discrimination. Though many men offer themselves for the position, but few are fit to fill it. As a rule, it is entirely safe to say, that no man should be appointed a principal examiner who has not served as assistant, thus becoming thoroughly conversant with the practice of the office, and demonstrating his capacity. But the demand for qualification does not apply to examiners only. So numerous are the applications for patents that assistant examiners, and even examiners' clerks, are charged with a portion of the duties of examination, as soon as it is possible thus to employ them.

Other clerical positions in the office require in the incumbents a knowledge of the different classes and machines, that many men do not possess, although they may be otherwise competent as clerks.

It is obvious, therefore, that the ordinary rules regulating the appointments of clerks in other bureaus cannot safely be followed in this.

The American System of Patents.

Letters patent for invention in this country are in the nature of a contract between the public and the original and first inventor, whereby he receives the exclusive privilege of exercising his invention for a limited time, as a compensation for his time, ingenuity, and expense in perfecting the invention and reducing it to practice; for the communication of it to the public, and for their right to use it freely when the exclusive right of the patentee expires.

An invention is property of the highest order. Whatever may be said of the right which men may acquire in the soil, by his occupancy of it, or in the materials with which he works, or in the profits of his barter, it would seem to be a self-evident proposition that he is the owner of that which he creates; and that when his ideas, no longer vague or dreamy speculations, have taken useful form and been reduced to practice, not the abstract ideas, but the concrete and embodied principles are his own, to dispose of as he will.

As it is impossible to pay for useful inventions in money, we pay in time, which the inventor must turn into money if he can.

To insure the fairness of this transaction, under the patent laws of the United States, an examination is made into the novelty of the invention prior to the granting of the patent. This investigation includes an examination of the patents already granted, of the applications rejected, of the foreign patents, printed copies of which are furnished to us, and of the text books and cyclopedias. In making the examinations reliance is placed for the most part upon the drawings; the text and models being resorted to only where the drawings are obscure and need further explanation.

Bennefits and Difficulties of Examining Applications.

As nearly one hundred thousand patents have been granted, and fifty thousand applications have been rejected, in this country alone, it is manifest that this examination is not an easy task. It would be impossible to make it without a careful classification of the subjects of invention, and without the assistance of trained and skillful examiners. With these appliances it is for the most part accurately made at a cost of only fifteen dollars for each application.

I do not hesitate to say that such an examination made by skilled, sworn, and impartial experts, is more thorough and satisfactory than it would be if made at much greater cost by solicitors, who made it in the interest of their clients.

Accordingly, the history of patent litigation will prove that but few patents have been held to be void by reason of the existence of prior inventions, the knowledge of which was within the reach of the Patent Office. The great source of litigation is the conflict upon the issue of infringement, or the effort on the part of the inventor to carry the patent beyond the limits assigned to it by the office at the time of its issue.

However good the patents may be, as representing an invention of undoubted novelty and technical utility, doubtless many of the inventions covered by them prove worthless upon practical test. The number of useless inventions is, however, much less than is commonly supposed.

Our patent laws have proved such a stimulus to invention, and have fostered so many valuable improvements, that we can well afford to patent some trash. A patent for a useless contrivance does but little harm, if it carefully defines the invention, since men will neither use nor steal that which is good for nothing. It must, however, be borne in mind that many good inventions are not developed for want of means, and many are laid aside because, although good and useful, and in advance in the art to which they belong, others, their contemporaries, are so much better and cheaper that they catch the public eye and secure the market.

Whenever the need of a new invention is suggested, the Patent Office is inundated with the applications of those who attempt to supply the demand. Some of these are crude, but suggestive of improvements, and very many are useful. Some few, however, in each class will prove to be the best and cheapest, and these alone will come into notice to the exclusion of others. The protection afforded by the patent and the hope of reward have proved the incentives to invention, and the public, enabled to choose from many devices, obtains the best thing.

Of course, the larger number of patents now granted are for improvements, and for new combinations. Some of these are doubtless trivial, while many are of real benefit. The issue of patents for mere technical combination is mainly due to the present system of patent soliciting.

[TO BE CONTINUED.]

New Tunnel at Chicago.—A second tunnel is to be built under the Chicago river at Chicago, for the purpose of connecting the two parts of the city. Under the river it is to consist of three passageways—one for foot passengers and two for vehicles; the eastern passage to be twelve feet high and ten feet wide, the others eleven feet wide. Beginning at a point 150 feet each way from the center of the river, the section of the tunnel changes to a single passageway; at this point 24⅓ feet wide and 21 feet high, and 40 feet nearer the banks, 19½ feet wide. The total cost is estimated at $475,000.

To Miners, Millmen and Metallurgists. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

Layres' Elements of Composition.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

Co-Operative Union Store.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block San Francisco. 24w

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Members of the Microscopical Union are requested to examine E. Muller's varied assortment of microscopes at 205 Montgomery street. *

F. Gruber, Naturalist, No. 626 California street, between Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

New Mining Notices.

Alban Gold and Silver Mining Company.—

Location of Works: Virginia City, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of March, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, or to Geo. Bordwell, Esq., President of said Company, at his office, No. 432 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Monday, the twenty-fifth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fourteenth day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. B. SMITH, Secretary.

Office, 432 Montgomery street, San Francisco. m26

Latawana Mining Company.—Near Hamilton City, White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of March, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, or at 526 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the tenth (10th) day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. mar26

North San Francisco Homestead and

Railroad Association:—Location of Property: City and County of San Francisco, State of California.

Notice.—There are delinquent upon the followed described stock, on account of assessment levied on the ninth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B F Moulton	281	1	$7 50
John A Zoller	60 226	5	37 50
James T Boyd	83 348	91	682 50
Prosper Huerne	98, 99 100	6⅔	50 00
Jno G Klumpke	143, 145 288	52	390 00
R Bayerque	146	30	225 00
Geo H Ensign	179 344	457½	3430 00
J B Richardson	246	10	75 00
M O'Neill	296	2	15 00
J O Shepherd	354	1200	9000 00
J W Hendrie	351	547	4102 50

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the fourteenth day of April, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessments thereon, together with costs of advertising and expenses of sale.

EDWARD C. LOVELL, Secretary.

Office, 415 Montgomery street, San Francisco. mar26

Pacific Pneumatic Gas Co.—Notice.—

A meeting of the stockholders of the Pacific Pneumatic Gas Company will be held at the office of the Pacific Iron Works, in San Francisco, on the First day of May, 1870, at 1 o'clock P. M., to consider the proposition to reduce the capital stock of said Company to the sum of two hundred and fifty thousand dollars ($250,000).

IRA P. RANKIN,
J. J. FELT,
J. W. STOW,
A. P. BRAYTON, } Trustees.

mar26

Mining Notices--Continued.

Cordillera Gold and Silver Mining Company, Morelos Mining District, State of Chihuahua, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company No. 321 Washington street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.

Office, 321 Washington street, San Francisco, Cal.

Eagle Quicksilver Mining Company.—Location of Works: Eagle Mining District, Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of March, 1870, an assessment of twenty dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 26 Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the sixteenth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.

Office, Room 20 Hayward's Building, 419 California street, San Francisco. mar19

Green Monster Copper, Gold and Silver Mining Company, Inyo Mining District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of March, 1870, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold or silver coin, to the Secretary, at his office, No. 16 Montgomery Block, San Francisco.

Any stock upon which said assessment shall remain unpaid on Saturday, the sixteenth day of April, 1870, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on Monday, the second day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

I. N. THORNE, Secretary.

Office, No. 16 Montgomery Block, San Francisco. m12

Glenwood Mill and Mining Company.—

Location of Works: Greenwood, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the seventh day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of March, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.

Office, 418 California street, San Francisco. feb52

Postponement.—The day for deeming stock delinquent on the above assessment is hereby postponed until the sixth day of April, 1870, and the sale thereof until Wednesday, the twenty-seventh day or April, 1870. By order of the Board of Trustees.

mar12 O. D. SQUIRE, Secretary.

Kincaid Flat Mining Company, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of March, 1870, an assessment of two dollars ($2.50) and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fifth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 23d day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.

Office, 220 Clay street, San Francisco. mar12

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice.—There are delinquent on the following described stock, on account of assessment (No. 1) levied on the eighth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
f I Herr	unissued	2000	$50 00
R P Johnson	unissued	2000	50 00
H C Kibbe	unissued	2000	bal. 30 00
Thos G Taylor	unissued	2000	50 00

And in accordance with law and an order of the Board of Trustees, made on the eighth day of February, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room No. 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the fifth day of April, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.

Office, Room 5 No. 302 Montgomery street, San Francisco, California. mar19

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of March, 1870, an assessment of four dollars per share was levied upon the capital stock of said Company, payable immediately, in U. S. gold and silver coin, to the Secretary, at the office of the Company, No. 419 California street, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the second day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 28th day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. A. JENNINGS, Secretary.

Office, 419 California street, San Francisco, California.

Yosemite Mining Company, Humboldt County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventh day of March, 1870, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to James T. Maclean, Superintendent, at the mine.

Any stock upon which said assessment shall remain unpaid on the seventh day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the twenty-third day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary pro tem.

Office, 220 Clay street, San Francisco. mar12

Valuable Ranch For Sale

NEAR HEALDSBURG.—In the fine valley of Russian River, three and one-half miles south of Healdsburg, on the west side of the river, is now offered for sale a splendid farm of 260 acres of land (minus eight by twelve rods occupied by a good school house), 100 of which is of the richest of Russian River bottom, eighty acres of which is now in small grain, not surpassed by any in the State, five acres in bearing orchard of the choicest selections, fifteen acres plowed for corn, and the remaining 160 acres is rich, yet rolling timbered land, five acres vineyard of choice selection. The Dwelling has ten rooms, not yet finished, and supplied by a good spring of excellent water, and cost above $12,000. The barns and outhouses are in excellent condition. The title is "Fitch Grant," which is undisputed. The entire farm is inclosed, about half with a picket and half with a rail fence, both in good condition. The farming utensils which are offered with or in the sale of the farm, are as follows: Five plows, two harrows, two cultivators, one Buckeye reaper; also twenty head of hogs. There are 200 redwood trees within about five miles of the premises, and wood enough to supply all the demands of the place. It is well known by all parties who have resided for any length of time on this coast, that the climate of Russian River Valley is lovely, healthy and not surpassed by that of any other place in the United States.

The reason for selling is, that the owner is getting too old to cultivate a farm, and wishes to close up his business and live more retired. The place is a rare bargain at the price asked for it.

For further particulars, apply to McLean & Hardy, Real Estate Agents, No. 338 Montgomery street, southeast corner of California street, San Francisco. 11v20

Our Home Physician.

AGENTS WANTED.—"OUR HOME PHYSICIAN."—New, complete, simple, reliable. The Pacific Medical and Surgical Journal says: "It is the best book on 'Popular Medicine' we know of." The Overland Monthly says: "The more generally this volume is introduced into families, the better it will be for them and the worse for quacks." Apply for circular fairly representing its character, at WESTERN PUBLISHING AGENCY, 411 Kearny street San Francisco. 6v20-3m

New Advertisements.

San Francisco Wire Works,

No. 665 Mission Street, near Third.
SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,
Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

THE FIREMAN'S
FUND
INSURANCE COMPANY.
OFFICE,
S. W. Corner California and Sansome Streets,
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL $500,000 00
SURPLUS 267,115 63
TOTAL ASSETS $767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President,
CHAS. R. BOND, Secretary.
13v20-3m

To Sufferers from Rheumatism.

NOTICE OF REMOVAL.

MR. J. W. MAC,

Master of All Rheumatic Complaints, Weak and Painful Loins or Joints, Neuralgia and Tender Feet,

Is compelled, from his great success for the past five months in this city, to remove to more central and extensive premises,

128 KEARNY STREET,

Where he can be applied to daily for his wonderful (and may be termed magic) PLASTERS. No useless drugging. A discovery made by himself in New Zealand, and first personally tested by himself, having been a great sufferer. The innumerable testimonials awarded him for his marvelous cures since his arrival in this city, and his former services in New Zealand, Tasmania, and Sydney, New South Wales, are open for the strictest inquiry, and may be seen at the office of the "Daily Call," or at his rooms, Nos. 34, 35 and 36,

No. 128 Kearny Street, bet. Sutter and Post.

☞ Office Hours, from 10 A. M. to 4 P. M., and from 7 to 9 P. M. 12v20-1m

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED WEED Machines work easier, simpler, faster and with more VARIETY. TO $500 Buy the LATEST always. Call and see S. F. Hoar, 329 Kearny St. S. F., Act.

SAN ANTONIO
PIONEER POTTERY.
DANIEL BRANNAN, Proprietor.

A Complete Assortment of
STONE WARE,
Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also
Chemical Ware, of Sorts Made to Order.
We manufacture to order
Terra Cotta Equal to the Best French.
Samples on hand.
FIRE BRICK.
A No. 1 article made to order, warranted superior to any imported.
Flower Pots and Ornamental Vases
Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

☞ Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.
8v20-tf

I. O. O. F.
THE NEW AGE,
A Weekly Journal of Sixteen Pages.
The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco, 19v19

Patent Brokers.

WIESTER & CO.,
PATENT BROKERS,
314 BUSH STREET,
SAN FRANCISCO.

Patents Bought and Sold on Commission.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

BURGESS' PATENT PAPER FILE.

This is a recent patent, and one of no ordinary merit. It is light and complete, yet costs but little. In all file-holders before presented to the public, the papers are very liable to tear, or else the method of inserting them requires too much time and trouble. This device is easily adjusted, is not liable to tear the paper, nor let it loose. This patent is also used in combination with covers for forming music folios. Musicians who have seen it, speak in the highest terms of its value. No person can fully appreciate the Paper File or Music Folio without seeing one.

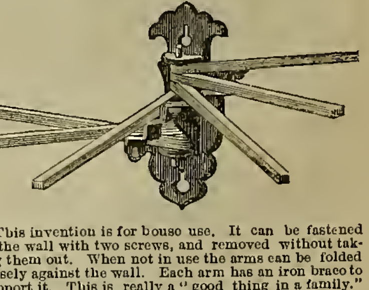
THE RANDALL RAKE.

Here is an article that we take pleasure in recommending. This patent has been for some time on this coast, but for want of means has been allowed to remain comparatively quiet. It will require from four thousand to six thousand dollars to handle this invention successfully on the Pacific Coast, and we would advise any one with this amount of capital to look into the merits of this patent before embarking in other business. We cannot see why it will not eventually supersede all other horse rakes. It does its work completely and is easily operated. It is so constructed that the teeth play on an iron rod independently of each other, and therefore accommodate themselves to any surface. The inclination of the teeth to the surface prevents them from raking up sand and dust with the hay, and causes them to glide easily over the ground. The driver has a spring seat to sit upon, and a simple action of the foot is all that is necessary to drop the hay. A complete model can be seen at our office, or references can be had to parties who have them in use on their farms.

LIGHT.

A Lamp that makes its own gas and burns it. No chimneys are required. It is equal to the best coal gas, and costs fifty per cent. less. Agents get the lamps at manufacturer's prices. This new light can be seen at our office, 314 Bush street, San Francisco. The Right for the State of Oregon will be sold cheap.

HOTCHKISS' CLOTHES DRYER.



This invention is for house use. It can be fastened to the wall with two screws, and removed without taking them out. When not in use the arms can be folded closely against the wall. Each arm has an iron brace to support it. This is really a "good thing in a family." County or State rights for this will be sold very low. Full particulars given on application.

A NEW SEED SOWER,

That can be attached to the Randall Rake at a cost of a few dollars, and is guaranteed to sow as well, if not better, than any other Sower in use.

A neat and convenient CUPBOARD LATCH, that answers equally well for single or double doors. It is suitable for Wardrobes, Wash-stands, Cupboards, etc.

A LOCAL AGENT wanted in every town on the Pacific coast to sell patent goods

WIESTER & CO.,
11v20 314 Bush Street, San Francisco.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, March 24, 1870.

IRON.—Duty: Pig, $9 per ton; Railroad, 60c ⅌ 100 ℔s.; Bar, 1@1½c ⅌ ℔; Sheet, polished, 3c ⅌ ℔; common, 1½@1¾c ⅌ ℔; Plate, 1½c ⅌ ℔; Pipe, 1½c ⅌ ℔; Galvanized, 2½c ⅌ ℔.		
Scotch and Eng. Pig Iron, ⅌ ton	$33 00	@$35 00
White Pig, ⅌ ton	28 00	@ 30 00
Refined Bar, bsd assortment, ⅌ ℔	— 03	@ — —
Refined Bar, good assortment, ⅌ ℔	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
COPPER.—Duty: Sheathing, 3½c ⅌ ℔; Pig and Bar, 2½c ⅌ ℔.		
Sheathing, ⅌ ℔	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
TIN PLATES.—Duty: 25 ⅌ cent. ad valorem.		
Plates, Charcoal, IX, ⅌ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ⅌ ℔	— —	@ — 42
STEEL.—English Cast Steel, ⅌ ℔	— —	@ — 15
QUICKSILVER.—⅌ ℔	— 55	@ — 60
LEAD.—Pig, ⅌ ℔	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
ZINC.—Sheets, ⅌ ℔	— 10½	@ — 11
BORAX	— —	@ — 46

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.

2v17-3m **T. G. DURNING & CO**

Phœnix Iron Works.

LABOR OMNIA VINCIT.
FIRE-PROOF SAFES.
PHOENIX
WORKS
BURGLAR-PROOF SAFES.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of House-smith Work; Bridge, Prison,

FORGING AND MACHINE WORK,

FIRE AND BURGLAR-PROOF SAFES,

BANK VAULTS,

Improved Monitor Safes,

Constructed of Welded Steel and Iron, fastened with conical steel bolts.

Safes Let by the Month.

Manufacturer of the

Duplex and Excelsior Combination Bank Locks.

Agent for the ISHAM KEY REGISTER BANK LOCK.

1v17-tf

R. SAVAGE. R. E. DORAN.

SAVAGE & CO.,
Empire Iron Foundry,

No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices. 9v20-3m

---

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED........APRIL 30, 1868.

CAPITAL........$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	Wm. Alvord,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD........Secretary.

24v17-qy

UNION IRON WORKS,
Sacramento.
WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

SACRAMENTO BOILER WORKS,

I Street, between Front and Second,

SACRAMENTO.

All kinds of Marine and Stationary Boilers, Wrought Iron Tanks, Girders, Bridges, Gasometers, and all kinds of Sheet Iron Work, etc. All work warranted. Millmen and Grain Threshers are cautioned to look to the safety of their boilers. Repairing promptly attended to at the lowest possible terms. Refers to Huntington, Hopkins & Co. and H. Adams, Esq.

J. V. HALL, Practical Boiler Maker,
6v20-3mnuf Proprietor, Sacramento.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. ☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL.

9v13-1y

CITY IRON WORKS COMPANY,
CLERC & CO.,
IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco.

10v14qr

CALIFORNIA TOOL WORKS,
Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

CALIFORNIA FILE MF'G CO.

No. 437 Brannan Street,

Between Third and Fourth, San Francisco.

W. WUSTHOFF, L. KRAMER, M. HARBIS. J. BURKE.

NEW FILES OF EVERY DESCRIPTION ON HAND AND MADE TO ORDER.

Old Files Re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS, etc., made to order at short notice. Orders from the country promptly attended 9v19-qy

---

MACHINERY
AT
GREATLY REDUCED RATES.
Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

---

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

PARIS
Scouring and Blanket Cleaning

ESTABLISHMENT.

Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling*. Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

---

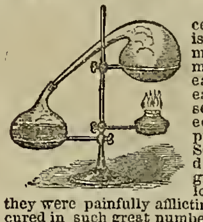
☞ ☞ ☞ ☞ ☞ ☞ ☞ ☜ ☜ ☜ ☜ ☜ ☜ ☜

TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. C. ALLEN & CO., Augusta, Maine. 5v20-3m

---

Ayer's Sarsaparilla,

FOR PURIFYING THE BLOOD.



The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this *SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears*, and other eruptions or visible forms of *Scrofulous* disease. Also in the more concealed forms, as *Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia*, and the various *Ulcerous* affections of the muscular and nervous systems.

Syphilis or *Venereal* and *Mercurial Diseases* are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. *Leucorrhœa* or *Whites, Uterine Ulcerations*, and *Female Diseases*, are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. *Rheumatism* and *Gout*, when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also *Liver Complaints, Torpidity, Congestion* or *Inflammation* of the *Liver*, and *Jaundice*, when arising, as they often do, from the rankling poisons in the blood. This *SARSAPARILLA* is a great restorer for the strength and vigor of the system. Those who are *Languid* and *Listless, Despondent, Sleepless*, and troubled with *Nervous Apprehensions or Fears*, or any of the affections symptomatic of *Weakness*, will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; H. McDonald & Co., Sacramento, General Agents. 7v02eow-4m

---

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.

DIVIDED INTO 1,200,000 SHARES OF

TEN DOLLARS EACH,

FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President........SAMUEL MERRITT.
Vice-President........MICHAEL REESE.
Treasurer........J. SELIGMAN & CO.
Secretary and General Agent........W. K. VAN ALEN.

BOARD OF TRUSTEES—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm. H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, SEVEN MILES IN LENGTH BY FOUR THOUSAND FEET IN WIDTH, EMBRACING FIVE THOUSAND AND TWENTY ACRES.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of ALL mines discovered by the Tunnel.

4th—A royalty forever of TWO DOLLARS on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of his great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in, all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast.

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
Secretary and General Agent,
625 Montgomery street,
3v20-3m Opp. Montgomery Block.

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

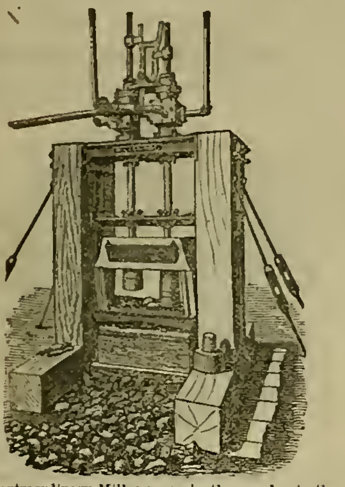
New York City, Saturday, March 12, 1870.

IRON.			
Pig, Scotch, No. 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No. 2................	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	165 00
Common...........................	87 50	@	92 50
Refined.............................	95 00	@	— —
Rods................................	100 00	@	155 00
Horse-shoe.........................	115 00	@	— —
Hoop...............................	125 00	@	180 00
Scroll..............................	110 00	@	145 00
Nail-rods, per lb....................	— 8¼	@	— 9¾
Spring..............................	— 9¼	@	— —
Tire.................................	— 9¾	@	— —
STEEL.			
Bars, best cast, warranted, per lb...	— 23	@	— 23¾
Sheet, best cast.....................	— 23	@	— —
Sheet, second quality...............	— 20	@	— —
Sheet, third quality.................	— 18	@	— —
Saw-plates, circular................	— 27	@	— —
Double-shear, warranted............	— 23	@	— —
Single-shear........................	— 19	@	— —
Montague & Co. (cast bars).........	— 18	@	— —
Machinery, round....................	— 16	@	— —
German, best........................	— 16	@	— —
German, goat........................	— 13¾	@	— —
German, eagle.......................	— 12	@	— —
Blister, warranted...................	— 16	@	— —
Blister, common.....................	— 15	@	— —
Jessop & Sons', common.............	— 17	@	— —
Double-refined......................	— 26¾	@	— —
Stone-ax shapes.....................	— 26¾	@	— —

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

☞The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

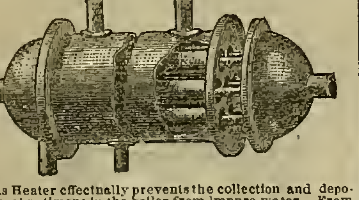
A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

CROSS' COMBINED
Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal

Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, Sacramento COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

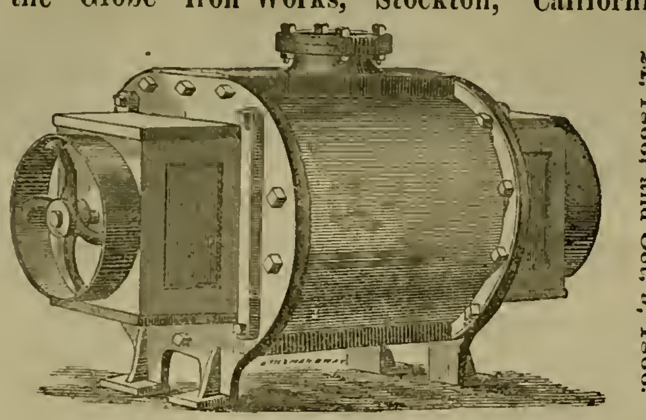
---

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

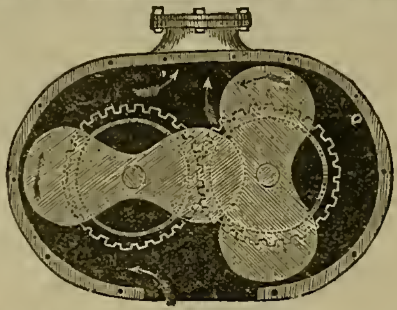
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866 and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** LESS POWER **Than any Blower** Now in use.

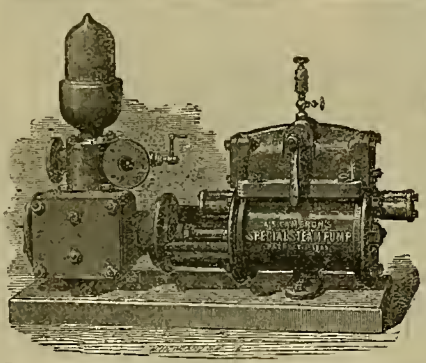
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

GIFFARD'S
INJECTORS.

MARINE
ENGINES.

SURFACE
CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

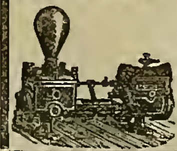
This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,
1v1 San Francisco.

Blake's Patent.



THE BEST PUMP for Boiler Feeders, Breweries, Sugar Houses, Tanneries, Mining and Fire purposes, etc., is Blake's

Patent Steam PUMP

It is simple, compact and powerful, needs no expert to run it, and will start at any point. Is warranted positive under all circumstances. Send for a circular.

BERRY & PLACE, 112 and 114 California st., San Francisco.

Carmen Island Salt Works

MANUFACTURE AND OFFER FOR SALE

TABLE, DAIRY, COARSE-FINE,
CARMEN ISLAND ROCK,
AND LIVERPOOL COARSE AND FINE
S A L T.

Dealers and Packers supplied in quantities to suit, at the lowest market prices.

MILL, 249 STEWART STREET.
HOLLADAY & BRENHAM, Agents,
11v20-3m **325 Front Street, San Francisco.**

LEA & PERRINS'
CELEBRATED
Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good Sauce The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for Lea & Perrins' Sauce, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed,

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c.. &c,; and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco, 1v20-1yeow

---

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE,

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer, Inquire of

R. T. VAN NORDEN,
10v20 609 Clay street, San Francisco.

WHOLESALE DEALERS IN

DRUGS, CHEMICALS,

Patent Medicines,

DRUGGISTS' SUNDRIES,

TILDEN & CO'S
SOLID AND FLUID EXTRACTS,

Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.

SAPOINE
FRAGRANT SAPOINE FOR THE TEETH

THE GREAT MEDICAL DISCOVERY!

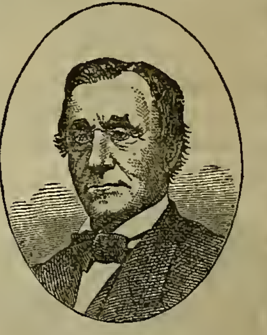
Dr. J. Walker's California

VINEGAR BITTERS.

More than 500,000 Persons

Bear testimony to their wonderful Curative Effects.

WHAT ARE THEY!



They are not a vile

FANCY DRINK,

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN, TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ Send for a Circular. ☜

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, free from all alcoholic stimulants. They are the GREAT BLOOD-PURIFIER and LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition. No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it, when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

R. H. McDONALD & CO.,
Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞ SOLD BY ALL DRUGGISTS AND DEALERS.

Railroads and Steamers.

FAVORITE VALLEJO ROUTE.

Shortest and most direct Route between SAN FRANCISCO, SACRAMENTO, MARYSVILLE, CALISTOGA, and all points North and East. Fifty-two Miles saved in distance, and Three Hours in time, between San Francisco and Sacramento, and Eighty Miles less than any other line between Marysville and Sacramento.

Arrival and Departure of Trains.

Leave San Francisco (New World), 8 A. M., 3.30 P. M.; Sunday, 9 A. M. Arrive in San Francisco, 11.45 A. M., 7 P. M.; Sunday, 5.15 P. M.

Leave Sacramento, 7.15 A. M., 2.45 P. M.; do., Marysville Accommodation, 11 A. M., 6.15 P. M.; Sunday, 1.30 P. M. Arrive in Sacramento, 12.15 P. M., 7.50 P. M.; do., Marysville Accom., 8.15 A. M., 4 P. M.; Sunday, 1 P. M.

Leave Marysville, 6 A. M., 1 P. M.; Sunday, 10.30 A. M. Arrive in Marysville, 2 P. M., 9 P. M.; Sunday, 3.45 P. M.

Leave Calistoga, 7.45 A. M., 2 P M.; Sunday, 1.30 P. M. Arrive in Calistoga, 12.50 P. M., 7.15 P. M.; Sunday, 1 P. M. D. C. HASKIN, General Manager.

R. S. MATTISON, Superintendent.
Vallejo, March, 1870. 12v25-1y

Pacific Mail Steamship Company.—For New York, via Panama. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

April 2..........................CONSTITUTION,
Connecting with Alaska.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

April 1—GREAT REPUBLIC, Capt. Cavarly.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.
13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation COMPANY,

Steamer CAPITAL..................CAPT. E. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE..............
" CORNELIA..................CAPT. W. BROMLEY
" JULIA.......................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE, President
13v12

To Solicitors.

AGENTS WANTED.

One or two active and reliable Agents can obtain permanent and profitable employment by addressing or calling at this office.

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞Can compete in prices with any other dealer. 11v20-3m

---

Valuable Stock Ranch For Sale IN ALAMEDA COUNTY.

The attention of miners, "new-comers," or others, who wish to buy desirable real estate, is called to

675 ACRES
— OF —
Excellent Pasture, Grain, Garden
— AND —
ORCHARD LAND
FOR SALE AT A BARGAIN.
TERMS EASY.

This Ranch comprises hill and valley, is supplied with an abundance of good living water, is well fenced, buildings good, and is stocked with implements and animals. It is one of the best DAIRY RANCHES in the State, and is near the Railroad. Inquire of

JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock..........................	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends.....	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000....................	1,056,996 21
Cash in Banks........................	132,240 67
United States and other Stocks owned by the Company......	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets....	146,000 00
Other Assets........................	150,217 92
Total Assets in Gold...........	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞Insurance effected on the most reasonable terms.☜

Office, 422 California Street.
9v20-qy16p

OCCIDENTAL Insurance Company,

OF SAN FRANCISCO.

Cash Capital, - - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 20v17

THE CALIFORNIA Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:
JAMES T. DEAN..............................President.
JAMES MILBURN..............................Secretary.
RODGERS, MEYER & CO......................Treasurers.

Company's office, 121 Post Street, San Francisco.
12v20-3m

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology, and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v16-1y16p

---

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

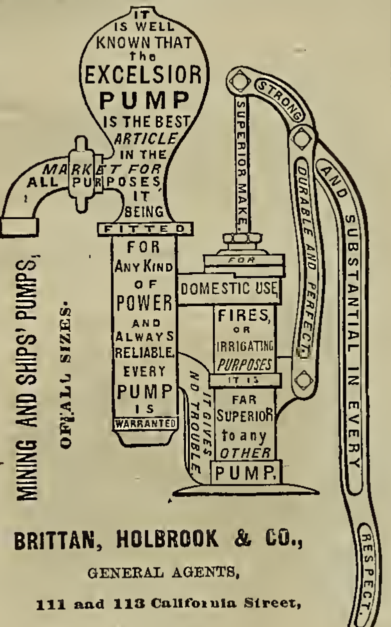
Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.

GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
18v18-9p **519** Front street, San Francisco


IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES, IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE, FIRES, OR IRRIGATING PURPOSES
IT GIVES NO TROUBLE.
IT IS FAR SUPERIOR to any OTHER PUMP.
SUPERIOR MAKE.
STRONG
DURABLE AND PERFECT,
AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS,
OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

MAGAZINES.	P. An.
Harper's..............	$4 00
Atlantic.............	
Godey................	
New York Ledger..	
Blackwood............	
Hours at Home.....	
Good Words........	
Peterson's...........	3 00
Arthur...............	
Lady's Friend.......	
Harper's Weekly....	5 00
Chimney Corner....	
Literary Album......	
London Society.....	6 00
All the Year Round..	
London Ill. News...	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

SPAULDING & BARTO,

BOOK AND JOB PRINTERS,
Scientific Press Office,
NO. 414 CLAY STREET,
CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,
AND
PRINTING OF ALL KINDS FOR BUSINESS MEN
BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,
Neatly, Correctly and Promptly Printed.

W. T. GARRATT & CO.

CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —
HARDWARE.
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
— ALSO AGENTS FOR —
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY.
54 K Street, Sacramento.
7v20-ng

N W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market.
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect,
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, Made of Fulled Rawhide, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco,

☞ **Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** as

---

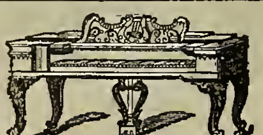
PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
— AND —
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
— ALSO —
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p



PIANOS
From the following celebrated Makers:
CHICKERING & SONS,
MARSCHALL & MITTAUER,
J. W. VOSE.
— ALSO —
Mason & Hamlin's Cabinet Organs,
— AND THE —
METROPOLITAN ORGANS.
KOHLER, CHASE & CO., Wholesale and Retail Agents corner Sansome and Clay streets, San Francisco. 11v20

Scientific Press.—Dewey & Co. are the publishers of this sterling paper. It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican,*

SCIENTIFIC PRESS.

An Illustrated Journal of Scientific and Industrial Progress,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, April 2, 1870.

VOLUME XX.
Number 14.

DOUBLE SHEET—24 PAGES.

Our Progress.

We issue, to-day, eight pages extra made up of both reading and advertising matter. This arrangement enlarges this number of our paper to TWENTY-FOUR PAGES—making it the largest sheet yet issued in the United States devoted to Scientific, Mechanic and Industrial Interests.

With this number, we commence the second quarter since the change in our title. We promised on the first of January last, that we would not curtail the Mining Department of the paper, and would increase the reading on agriculture and other industrial subjects. This pledge we have carried out with such good results that our circulation has been increased nearly 1,000 copies within the past few months. We have heard no complaint from any quarter in regard to the timely change in our columns; but are told by subscribers in mining localities that the paper is now better appreciated in the mountain districts than ever before.

Although dull times still linger in our community, we find that the columns of our weekly issue apportioned to advertising are crowded to the utmost, and, being determined not to lessen the space devoted to reading, we have adopted the expedient of issuing a double sheet on the first week of the month to accommodate our advertising, and give STILL MORE READING.

Readers of this number, who are not already subscribers, are reminded that our subscription terms have been reduced to $4 per annum, and that the present is the very best time to subscribe.

◆

CHINA MAIL LINE.—It would appear that at last we are to make a struggle for the existence of our steam marine, as the Postal Committee of the United States agreed to report in favor of a subsidy of $1,000,000 per annum to the Pacific Mail Steamship Company, in support of its steam service between San Francisco, Japan and China. Without subsidy our lines cannot, of course, contend with the heavily subsidized English companies.

◆

BRIDGE-BURNING.—On the night of the 23d inst., some villains set fire to the bridge over the American river, on the Central Pacific Railroad, some three miles from Sacramento. The structure was very substantially built and cost some $80,000. It is a total loss. The energetic management immediately set to work on a temporary bridge, which was ready for the passage of the trains on the afternoon of the 27th.

◆

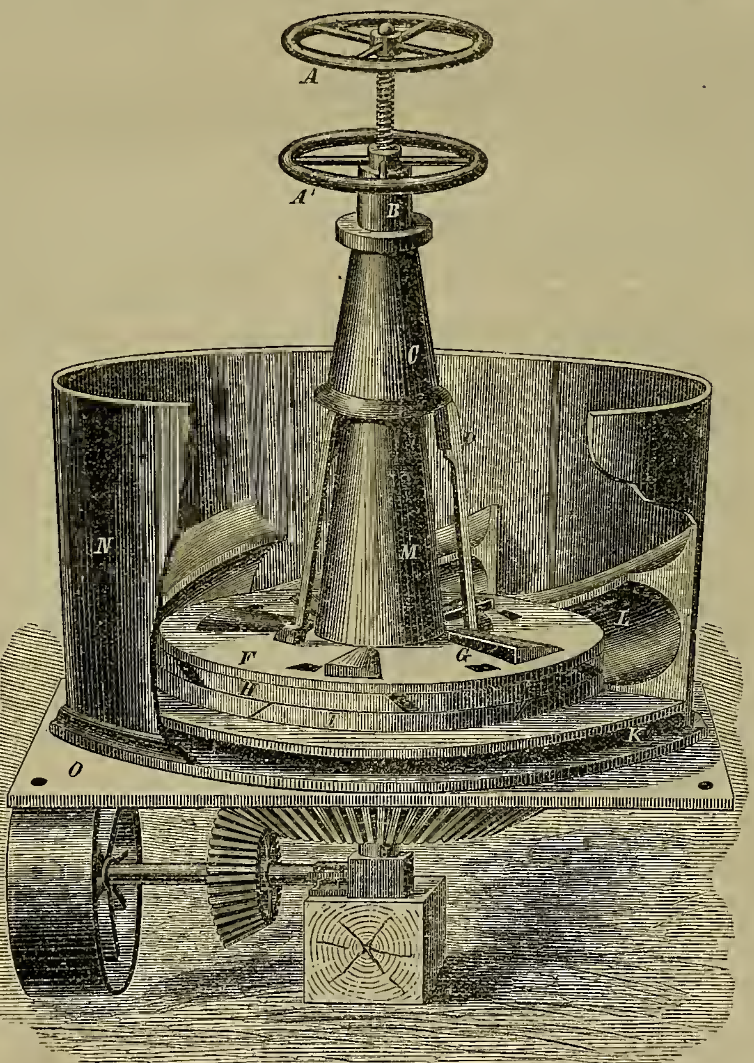
FIRST THROUGH CARS FROM THE EAST.—Last week the steamer Oakland landed at the wharf of the Western Pacific Railroad, in this city, three cars loaded with scrap-iron, the first case where goods over the Pacific Railroad have been landed here without breaking bulk.

◆

THE Senate has passed a fence law for El Dorado.

A New Amalgamating Pan.

The pan-amalgamator may justly be called an American invention, and its history from the first simple forms, working a comparatively small amount, to the large ones now in use, is an interesting topic for millmen. We could willingly trace the various changes in form and construction as they were made, were it not that we should be repeating what has been already treated of quite copiously, and that we have not at present space enough in which to do justice to the topic. Our object now is to call attention to a new modification which has recently been invented by one who has had long experience in working ores, and whose standing among millmen is such as to justify an examination of his device.



STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

The object of this construction is principally to secure a nearly level surface of pulp with rapid motion of the mullers, and to present the least possible resistance to the motion of the pulp, while at the same time the whole mass is effectually subjected to a thorough grinding and amalgamating process, and, by constantly lifting it, to prevent too heavy a pressure on the mullers, thus allowing of the working of large amounts. To secure these objects, a series of inclined wings or guides are constructed of such form that the pulp, as it escapes from the muller on the outside, will be carried up these inclined planes, thus meeting with the minimum resistance from the sides of the pan, and being started on its return to the center above the muller with the least expenditure of power; moreover, a series of curved openings or housings are provided on the upper surface of the muller at its inner periphery, by which the current of pulp is forced beneath the muller at that point, so that the whole receives a thorough and perfect grinding.

The muller, F, is constructed with shoes, and operated in the ordinary manner, as shown in the illustration. Around its inner periphery, on the upper surface, are raised plates, placed at an angle so that they cover the openings, G. As they revolve, they take in the pulp and force it through the openings, so that every portion is subjected to the action of the muller.

Around the side of the pan are placed the curved grooved guides, L, shaped like the mold-board of a plow, and formed in sections so that they can easily be replaced. The surface presented to the pulp is so grooved that the mass coming from beneath the muller, as it meets it, glides up the curve with very little resistance, and is led up and towards the center of the pan to be again passed under the muller. By this construction, no mercury is allowed to settle in the bottom, and thus be without effect on the mass, but is continually carried up the inclines and poured off into the pulp below. The other parts of the pan require no particular description. This apparatus has been running, in competition with others, at the Douglas mill at Gold Hill, Nevada, for the past eight months, and for five of these has been working ore from the Overman mine, and to the Overman Company is referred anyone desirous of ascertaining how they are satisfied with its working. The average return for the five months was 76½ per cent. of the assay value, and for the month of February, 85 per cent. The loss of quicksilver was very small, being for these same five months only forty-nine one-hundredths of a pound per ton of ore worked. This mercury, it is claimed, is not ground up to a slime, for the opening in the muller takes the sand under the shoes, so that at no time does the iron of the shoe and die come so close as to cut it up—and, moreover, it is most thoroughly and effectively used. In short, the special advantages claimed, are: economy of quicksilver and of power, higher percentage of bullion obtained, and the possibility of working more pulp in the same sized pan.

The objection of some that the grinding surface of the pan is too much lessened by the construction of the mold-boards, is answered by the fact that these mold-boards turn the pulp much oftener under the muller, while, as the shoes reach only about two-thirds of the radius of the pan, power is saved, and, consequently, the pan will grind its charge of four thousand pounds just as soon as an ordinary pan of the same size, and with one-half the power. This was shown, we are told, by the competitive trials. Another advantage is, that the mold-boards take all the wear from the pans, and being cast in sections, they can be replaced at pleasure.

This pan is manufactured at the Golden State Iron Works, No. 19 First street, San Francisco, where it can be examined and further particulars be learned; or persons may apply to the inventor, Mr. C. C. Stevenson, at the Douglas mill, Gold Hill, Nevada, who has received a patent for his improvement.

◆

THE ROCKY MOUNTAIN COAL CO. is taking practical measures for the introduction of their coal, and several tons are to be tested at the Hale & Norcross hoisting works at Virginia City.

Communications.

Mills and Mines of Colorado.—No. IX.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

As I pay more attention to the new features of Colorado than to those more familiar to miners, I must not pass by the Haskin & Grove mill, although I am so directly associated with it as to make a heavy strain on my modesty. This mill is more particularly noted as having been built for

Paul's Dry Amalgamating Electric Process,

Which is a new feature in the manipulation of ores, and as such I will be sufficiently minute to give some idea of it. The ore is first dried and then crushed as fine as it is possible to set the Dodge crusher, which is used instead of stamps, and answers the purpose very well; still I must say, as reducers to a given fineness, I have not got stamps altogether out of my head, although I would very much like to dispense with them. From the Dodge crusher the ore passes into a stave pulverizing barrel, where three-ounce iron balls are used. Here the ore is more minutely reduced until it will pass through No. 90 wire cloth.

These *stave* pulverizing barrels are peculiar to Colorado; at least I have not seen any in California or Nevada, and it is one of the institutions wherein I think Colorado is ahead. This pulverizing of ore, dry, in cylinders, however, is no new thing in California, and my opinion is, they would be better off if they would give more attention to barrel pulverizing than they do. After the ore is reduced to the fineness desired, it passes into

Paul's Preparing Barrel,

Where the ore is chemicalized and prepared for the mercury. The preparation is done under heat, which, at the same time, expels all atmospheric dampness, and puts the ore into an electrical condition. This preparing cylinder is encased so as to prevent the escape of any dust, that being delivered into a dust apartment, while the smoke from fire is led off by flues. The ore being prepared for mercury, it is changed to

The Amalgamating Barrel,

Where is now added 25 per cent. (in weight) of mercury. The barrel revolves at the rate of twenty-five revolutions per minute, and two hours are given for amalgamation, when the mass of ore and mercury are so closely blended as to make the mercury almost imperceptible to the naked eye.

The ore from the amalgamating cylinder is now discharged into a large settler, made of wood, and, with the exception of the mullers, of ordinary construction. Here the body of the mercury is precipitated, in water, and three-fourths of it, with the metal it may carry, can be drawn off in fifteen minutes after the ore is discharged. The finer portion is now discharged into

An Electric Settler,

And the mercury and metal contained therein precipitated by electricity, upon the principle of electro-plating, excepting that there is no adherence of metal or mercury, which is easily drawn off. The residue is then allowed to run of as wastage, or can be concentrated if very rebellious ores are being treated.

The system is simple, cheap and efficient. The barrel used for amalgamating works 500 pounds at a time. The gold in this locality is extremely fine, and has baffled about all the systems employed to save it; but this one of locking dry-heated ore and mercury up together, and setting all a whirling together, rather masters it. All the tests of gold ore, of which many tons have now been worked, show that the system has all the merits I have claimed for it on this ore, though so heavily sulphuretted, as well as it has worked elsewhere.

The ores of this locality, as well as about Central City and vicinity, contain much base metal, such as copper, lead, antimony and zinc, but more especially copper, which fouls the mercury, and renders amalgamation imperfect, besides getting into the bullion and reducing its fineness. By this system, all base metals are placed in antagonism, and are not taken up in amalgamation, neither do they interfere with the pure condition of the mercury.

In the alchemistic days they had what was termed

Philosophical Mercury,

Mercury which had an affinity only for the precious metals, and which has been by moderns considered a myth. It turns out, however, to be true, as I can clearly demonstrate that there is such a thing as this, and also the working ores in iron containing lead, copper, zinc, antimony or iron, and producing bullion as high as 980 fine, and no lower than 950;—in other words, the mercury has an affinity for the precious metals only, and rejects the base.

To get back to the Haskin & Grove mill, I would say their tests have been so satisfactory that they propose enlarging their capacity on the same principle, and, of course, I wish them all the good luck possible for their enterprise in introducing a California-Nevadian to help them out in conquering these terribly rebellious ores.

The Ore in Empire District

Carries a good percentage of gold, and there is no reason why, with industry, it cannot be made one of the most prosperous districts of Colorado. The ore wants fine reduction, because the gold is as fine as flour itself. It then wants care in manipulation to secure it. This stamping-down system, under a head of water, is simply pounding up the mountains to elevate the plains.

I leave to-morrow for Central City and its surroundings, and after a look over this section, will start for the balmy atmosphere of California. To-day it is 20° below zero (March 14th), and I tell you it makes one wish for a snuff of the flowers now blooming in "Frisco."

◆

Petroleum in the Caucasus.—One of the most remarkable deposits of petroleum known, exists in the region of the Caucasus. On the east coast of the Caspian Sea there are no less than 20,000 petroleum wells. Although they have been known for generations, it is only within the last few years that they have been worked upon a large scale. They are generally of a slight depth, and are frequently found beside each other.

A new source was recently discovered beside an old one, which for centuries has daily produced 3,400 pounds of petroleum, and which is not in the slightest degree affected by the vicinity of the new source, which daily produces 40,000 pounds.

The American system has lately been applied to them; the sources rising from a depth of 250 feet, frequently overflow their orifice, and ascend above them in great jets over the height of 50 to 65 feet.

It is calculated that the district of the Caucasus yields annually 19,000,000 pounds of petroleum, and 200,000 pounds of paraffine of asphalt.

◆

Bitumen and Coal in Texas.—A. R. Roesler, Geologist of the U. S. General Land Office, writes to the N. Y. *Engineering and Mining Journal* of specimens received of genuine bitumen found in large quantities on the Texan shore of the Gulf of Mexico; also of numerous specimens of true coal, including the bituminous and anthracite varieties from Young county. The deposits of coal belong to the carboniferous formation, and their extent throughout the State reaches to 600 square miles, and has an estimated thickness of 300 feet. The Memphis and El Paso road can obtain abundant supplies from these deposits.

◆

The ceiling of the new opera house in Paris is to be composed of copper plates screwed together, so as to be easily taken apart or put together, and so that the ceiling can thus be raised or lowered at will. The whole is divided into sections, which are painted with allegorical representations of the house. More than one hundred figures are said to be included in the design.

◆

Determining the Age of Wine by the Spectrum Microscope.—The result of Sorby's application of the spectrum microscope to ascertain the age of wines, has been that he considers it quite possible, up to six years, to determine the age to within a single year. After about six years the difference is so small that it would be almost impossible to determine.

From Idaho—Men Wanted.

[Written for the Scientific Press.]

Editors Press:—A few weeks since your correspondent stated that this summer the demand would be for brick-masons. Now then, we add further, that there will be an active demand for good, true, working men of *all kinds*. We want men who will work, and not lazy, drunken loafers who will stand in the sun in winter and lounge around shady ice-water fountains in summer.

Mining Operations.

This Territory is thoroughly entitled to the name she bears, "The Gem of the Mountains." Above Salmon Falls Ferry are a party of men who have been mining on the bar on Snake river all winter and making good wages. These men started from Lewiston and traveled up Snake river, prospecting the bars and gulches as they went along and finding good prospects all the way, and at last fixed on the placer which they now work steadily. Another party of miners lately passed near here on their way to the same place to join in getting out "oro." Some Mexicans in the hills a few miles north of this city have been prospecting and carrying gravel from the hills to water. They get about thirty-seven cents to the flour-sack of dirt. The prospects of the mines on the Boise, about thirty to forty-five miles above here, are better and better, and every prospector finds greater assurance of the extent of the gold region along the banks and high bars of the river. These places have hitherto been ignored because it cost too much to live and clothe oneself, but now prices are down. Flour, $6 per 100 pounds, coin; bacon, 35 cents per pound, coin; sugar, 25 cents per pound, currency; coffee, 40 cents per pound, currency; salt, 10 cents per pound, currency; dried fruit, 20 to 30 cents per pound, currency; miners' boots, $4 to $6, currency; pants, $4 to $10, currency; gray overshirts, $1.50 currency, and other things in proportion, and much cheaper in any quantity. The "diggings" above referred to are called $4 to $8 per day diggings, and those on Snake river can be worked about all the year, and those on the Boise between ten and eleven months in the year. Yet it is not for mining alone that we invite immigration to our beautiful Territory.

Agriculture.

Ader county has as fine agricultural lands as can be found, and not a quarter of them has been taken up yet. Thousands of acres are asking, as it were, for the *good* farmer to take hold and farm them, and what we want are men who know how to take advantage of everything, not afraid to spend their time and money on their farms, but determined to come and make this their home.

I could name several who sold out a year since and left, who have returned and would willingly pay a large bonus. In some cases $1,000, coin, has been offered thus for the old farm, but it cannot be got back; and others who left and have gone to California, some to Puget Sound, and not a few to the East, wrote to their friends here, regretting the step they took, and wishing it were in their power to come back here; saying, moreover, that they will if ever they can. I send you a copy of the "Capital Chronicle," the paper having the largest circulation of any Territorial paper, for Idaho items.

Geographical Ignorance.

You people in California have not much better ideas of the topography of Idaho than our Eastern friends, who speak of the Shoshone Falls being in California, and of persons going to Grass Valley, Cal.; as probably coming to Boise City, the places being near together. I saw a letter addressed to a man, "Boise City, Idaho, Oregon, California." That fellow was bound to get it right some way; but in these enlightened days such ignorance is without excuse.

Farming.

Farmers have been plowing about three weeks steadily and many were breaking ground in January. Some seed has already been sown, and agriculturists are generally at work. Large quantities of fruit and shade trees are being set out around our town. Farmers are forming local clubs in different places, and live hedges instead of fencing is now the all-engrossing theme of discussion. Osage thorn is preferred by some, and those who have tried it in the last two or three years report very favorably; the only present objection is that neither seed nor plants are for sale in the country, and they ought to be in the ground within the next month. Lumber fencing is too expensive, and rails are getting scarce and do not last long any way, as cottonwood is the only timber handy for fencing.

Adahoi.

Boise City, March 14, 1870.

◆

The Pennsylvania Oil Region.

Tidioute, Pleasantville, Shamburg and Oil City are the four principal oil centers now, though there are a great many farms and isolated localities in which oil is produced. Tidioute has been from the first a steady and reliable point. Dennis Run is a ravine 450 feet deep, and wide enough at the bottom for a wagon road. The daily production of Dennis Run is now 300 barrels, a barrel being forty-two gallons. The wells at the bottom of the run have to be drilled from 150 to 200 feet deep before reaching the "third sand," as it is called, in which the oil is found. As you ascend the bluff they must be proportionately deeper, so that those on top are very nearly 700 feet down.

The rock in which the oil is found is a coarse, gray sand, or gravel. The coarser it is the better, for then it is said to be loose, because the oil freely percolates through it into the slender well, while it is said to be "tight" if too fine, and you have to labor hard for a modicum of oil. The wells are usually five and a quarter inches in diameter, and are drilled by the same machinery, pretty much, that afterwards pumps the well; that is to say, the walking-beam and engine. The drill consists of four parts—the bit which drills the earth and rock, the drilling-rod and a pair of jars. A rope cable, from what is called the "bull-wheel," is allowed to pay out as the drills descend into the ground, and as long as cables can be made, so long deep wells can be drilled. The cost of putting down a well with first class machinery and casing is about $4,000; but should the hole prove a dry one, as they say, when they have drilled the usual depth without finding the third sand, the machinery can be moved to another place, but they will have spent $1,000 or $15,000. With no mishaps, it takes two months to put down a well.—*Springfield Republican.*

◆

Big Prospecting Party.—In Montana they are proposing, according to reports, to prospect the land in force and to clean out any savages which may come in the way. These Indians have had it all their own way for a long time, and have rendered the country too hot for miners. The Bozeman city *Pick and Plow* thinks the expedition can be cotten up on a large scale: It is now proposed to do this. We will try and send out about 300 men from Bozeman in April, in two divisions—150 to the southward, and 150 to go directly east; then, about the same time, from 500 to 1,000, divided into bodies of not less than 100, will start northward from Cheyenne, and other points of the railroad. Thus by the middle or latter part of May, we would have from 1,000 to 1,500 men prospecting, in easy communication with each other, and the savages could be held in check. This is the only plan by which the rich undeveloped mines of Eastern Montana and Northern Wyoming can be made immediately available; and its adoption may now be considered as a fixed fact.

◆

The Liverpool copper market, according to the March report of Messrs. J. Lewis & Son, is rather dull. The amount of stocks is estimated at 18,673 tons for Liverpool and Swansea, and the supply is still greater than the demand. For ore the last quotations (March 1st) were $3.27 per unit. Tin has improved a little. Quicksilver is difficult to obtain at $34.75 per 75 pound flask. Antimony regulus is quoted at $325 per ton, and California manganese at $11¼ for 70 per cent., while good quality sells at $20 per ton.

◆

Cost of Thirteen Years' War.—M. Leray-Bennean, a "peace" man, argues that all the wars between 1853 and 1866 might have been avoided, and estimates their expense at $9,566,000,000. The number of men killed he gives as 1,743,491.

Mechanical Progress.

Hints to Boiler Makers and Boiler Users.

We cull the following from the January report of the Hartford Boiler Inspection Co.: "We frequently find boilers without hand-holes. This is a great oversight. Several cases have come under notice where the fire-box sheets were badly burned by collection of sediment in the water legs, no hand-holes being provided by which this could be removed. Again, we not unfrequently find boilers set in angles of the building, where if they are furnished with hand-holes, they are inaccessible from the boilers being set so near the wall. In the construction and setting of boilers every facility should be given to make the removing sediment free from trouble.

Steam gages are frequently found incorrect. This can only be detected by making frequent examinations and comparing them with a test gage. The attention of an inspector was recently called to a steam gage that had not varied in its indications for a month; it was found that a stop cock was turned so as to shut the steam entirely off from the gage. In another instance, where the steam gage was not working, it was found that the steam gage pipe entered the boiler through the head, and then turned a right angle, descending perpendicularly below the water line; the pipe was filled with sediment at the lower end, hence the gage was useless.

Raise the safety valve slightly and carefully, allowing it to return to its seat easily and without concussion. This should be done daily at least. See that the steam gage is in working order, and if for any reason it is thought to be incorrect in its indications, have it attended to at once. Keep the gage cock clean and bright, no-allowing them to become foul and in, crusted, and if provided with a water gaget see that it is in working order."

The New Process of Platinizing Mirrors.—C. Widemann thus describes the manner in which this is done: One hundred grammes carefully laminated platina in very thin sheets, soaped in order to remove all grease, is dissolved in aqua-regia, composed of 400 grammes nitric acid for 1,000 grammes pure hydrochloric acid. It is heated by means of a sand bath to dryness, care being taken not to decompose the chloride by excessive heat. It is then crushed in a porcelain or glass mortar, and laid on a grinding glass plate, where it is mixed with small quantities at a time of essence of lavender (rectified) care being taken not to work at too high temperature or the reaction would take place on this glass plate. About 1,400 grammes of essence of lavender having been thus added the mixture is collected in a porcelain dish and left to itself for eight days without disturbance. The liquid is next decanted, filtered and left again for six days, and must then be about 5° at the acid test Baumé. For the above quantity, 25 grammes litharge and 25 grammes harate of lead, ground to an impalpable powder, with 8 to 10 grammes essence of lavender, is then added and stirred with the platinizing liquid. It is then applied with a brush to the plate in a vertical position. After partial drying, the plate is placed in a cast iron frame with others, and baked in an oven.

New Form of Steam Engine.—A recently patented English invention may be thus described: In a disk or wheel, mounted on a hollow fixed shaft or axis, are cylindrical chambers, in which weighed pistons work steam tight. The chambers are placed in a line with each other on opposite sides of the shaft, and the pistons opposite each other are connected together in pairs by connecting-rods. In the hollow shaft openings are formed to conduct the steam to and away from other openings in the disk communicating with the chambers, so that the steam may be alternately admitted to and conducted away from them, and in doing so move the pistons in pairs, so that one of each pair may be moved outwards towards the periphery of the disk, and the other inwards towards the axis, whereby the pistons are caused to give rotary motion to the disk.

Boat Towing By Means of a Fixed Wire Rope.

The London *Artisan* describes and illustrates a method of river and canal navigation which is coming into use in Belgium and Holland. We quote a single paragraph, which gives an idea of the arrangement: "Under all the circumstances of navigation, and especially under those usually met with on rivers and canals, a dead pull from a fixed point must be a more effective mode of applying power than any depending upon the resistance of the water as the fulcrum against which the propelling power is exerted; and this principle has been adopted for towing boats by means of a fixed wire rope and clip drum. The wire rope is laid in the bed of the canal or river from end to end, being anchored only at its two extremities; and an engine fixed upon the tug takes hold of the rope by means of a clip drum, round which the rope is passed. The clip drum being put in motion by the engine winds itself along the rope, lifting it up from the bottom of the canal in front of the tug, and dropping it again into the water behind. The engine thus exerts a direct pull upon the rope, which in consequence of its weight and the friction upon the bed of the canal does not materially alter its position. By this means the whole of the power applied to the clip drum is utilized in the propulsion of the boat, independent of the currents of the water or the section of the channel."

Estimating the Power of Motors.—The *Scientific American* illustrates a dynamometer invented by James Emerson, of Lowell. A pulley, loose upon a shaft, is made to revolve with it by levers connecting its rim to a "spider" which is keyed to the shaft. These levers are connected with a pendulum on a graduated arc. We quote: The apparatus "demonstrates that little reliance can be placed in the common methods of estimating the amount of power used. We are informed that in one place, where it was claimed that but four-horse power was used, the dynamometer gave sixteen. Examination proved that one-half was wasted by bad arrangements. In another case, 231-horse power was claimed; the dynamometer gave 145, and it was found upon examination that the head of water had been estimated from the bottom of the 'pit' to the surface of water in the flume, and that the wheel was clogged with sticks and leaves, which were removed; then the dynamometer gave 190-horse power."

The Pedespeed.—This is the latest fancy in the way of appliances for locomotion. It looks like a cross between the velocipede and the parlor skate. It consists of a pair of wheels 14 inches in diameter, one of which is fastened to each foot of the performer by means of a stirrup-like appendage just below the axis of the wheel. Firmness is secured by an upright from this foot-piece reaching to, and clasping, the leg just above the calf. The *Scientific American* gives a cut of it. It is, we imagine, destined to even a shorter-lived popularity than the velocipede.

Building Stone Containing Lime.—A correspondent of the London *Builder* has experimented upon bath-stone with a solution of oxalic acid, so as to obtain a surface of oxalate of calcium, in place of the carbonate, which is friable. The result is so far most satisfactory. He has soaked for hours in water the nearly insoluble surface thus obtained without injury. He sees here a valuable hint in reference to the rendering building stone indestructible.

Slaking Lime.—The best way is to grind it fine first. A French engineer estimates the loss incurred in slaking it in lumps at twenty-five per cent. Besides this saving of material, it is found that lime in powder is spread with greater facility, and the mortar thus made sets quicker, and is more solid.

Scientific Progress.

Transmission of Electric Signals.

C. S. Lyman gives in *Siliman's Journal* for March a notice of Dr. Gould's report on the Trans-Atlantic Longitude. He closes this notice with the following remarks upon the inferences to be drawn from the experiments, in reference to the transmission of telegraphic signals: "From these results the inferences seem warrantable, 1st, that the velocity of transmission is greater when the circuit is direct and consists of a good metallic conductor exclusively, than when the signals are given by induction, although the earth may be at the other electrode; and 2d, that an increase of intensity in the electromotive force is attended by an increase in the velocity of propagation of the signal.

From the observations for longitude, and from other experiments made with special reference to particular points, the following general conclusions were reached:

'It appears manifest that not an electrical charge or discharge, but simply an electrical disturbance, is requisite for transmitting a signal; that an inductive impulse, sufficient to deflect the galvanometers employed, was transmitted through one cable, having at each end a condenser with ten cells, in somewhat less than the third of a second, five seconds after the transmission of an impulse of the opposite sort; that with a circuit formed by the two cables, a smaller electromotive force sufficed to transmit the signals with yet greater rapidity; that the signals traveled more rapidly through a cable which had not recovered its electrical equilibrium after a current of opposite character; and that the speed of the signals is modified by the earth-connections, more readily than by changes in the battery-power. And the very marked differences, found in the rates of transmission, between signals given by completing an interrupted circuit and those given by interrupting a closed circuit, may perhaps lead to investigations which will afford an explanation."

Color of the Water of Lake Leman.

The beautiful blue color which the water of Lake Leman, Geneva, Switzerland, was said by Sir. H. Davy to be "doubtless due to some compound of iodine." Dr. A. A. Hayes, Massachusetts State Assayer, gives an account in *Silliman's Journal* of some careful analyses of this water made by him. We quote: "A large volume of the water was mixed with a small portion of a diluted solution of sub-acetate of lead quickly and uniformly diffused. Another portion was treated in the same way, with a water solution of pure soap—both precipitates slowly formed, were collected in a moist state, subsequently examined by the microscope, and were found to contain only the ordinary constituents of 'white' waters (colorless waters, containing lime salts in solution) when so treated. The negative results of these trials were sufficient to prove the absence of all coloring or colored bodies. Chemical analysis, thus conducted, having thrown no light on the cause of color in this water, we are led too ascribe the origin of its peculiar tint to natural influences; namely: the reflection and refraction of an azure sky in a colorless water."

The Zodiacal Light and Terrestrial Magnetism.—Balfour Stewart, F. R. A. S., sometime since suggested that auroral displays may be secondary currents due to small but rapid changes in the magnetism of the earth. He now adds that the *zodiacal light* may also be somehow connected with the phenomena of terrestrial magnetism. He says: "For not only will secondary currents be caused in a stationary conductor in presence of a magnetic core of variable power, but also in a conductor moving across the lines of force of a constant magnet. The question arises, have we on the earth such moving conductors? In answer to this, let us reflect what takes place at the equator. When once the anti-trades have reached the upper regions of the atmosphere, they will become conductors from their tenuity; and as they pass rapidly over the lines of the earth's magnetic force we may expect them to be the vehicles of an electric current, and possibly to be lit up as attenuated gases are when they conduct electricity. May not these form the zodiacal light?"

Proof that Ammonium Exists in Ammoniacal Amalgam.

Dr. Albert Gallatin, of New York, has proved, for the first time, that metallic ammonium actually exists in the ammoniacal amalgam. He says: "If the hydrogen escaping from the mercury together with the ammonia can be shown to be in the nascent state, it would be evidence that it had just been in chemical combination with the ammonia, in other words, that metallic ammonium (NH_4) existed in the amalgam. Some pellets of sodium were placed in contact with some particles of the transparent variety of phosphorus, wrapped in bibulous paper and plunged beneath the surface of water. A red glow was seen; and as the nascent hydrogen from the decomposing water came into contact with the phosphorus, bubbles of phosphid of hydrogen were formed. Occasionally one would flame as it came into contact with the atmosphere, placing the nature of the reaction beyond doubt. As phosphid of hydrogen cannot be formed by direct synthesis if ordinary free hydrogen be employed, this becomes a test for the presence of that gas in its nascent state. The hydrogen escaping from the ammoniacal amalgam was now tested by this process. A sodium-amalgam dipped beneath a solution of chlorid of ammonium was employed; and it became necessary to wait until the sodium was exhausted, that results might not be vitiated by the nascent hydrogen escaping from the water. At the proper time the decomposing amalgam was covered with fragments of transparent phosphorus, when many bubbles of inflamable phosphid were obtained. The hydrogen must then have been in the nascent state and just escaping from the ammonium."

Dinitronaphthylic Acid.—"This,"—says Dr. H. C. Bolton, in a paper read on March 14th before the New York Lyceum of Natural History,—"is the rather formidable name of a new coloring matter known in Germany as Martins' yellow. Experiments with a view to obtaining colors from naphthylamine, similar to those prepared from its homologue aniline, have heretofore been only partially successful. Dr. C. A. Martins was the first to obtain satisfactory results, and in accordance with his investigations, Bayer & Co., of Barmen, now prepare the yellow dyestuff on a large scale by the following process:

A solution of nitrate of potash is added to a dilute acid solution of chloride of naphthylamine until the liquid is precipitated red by an alkali (Diazoamidonaphthol). As soon as the naphthylamine has been entirely converted into diazonaphthol a quantity of nitric acid is added, and the liquid heated to boiling. The naphthol in a nascent state is immediately transformed by the nitric acid into dinitronaphthylic acid."

The discoverer claims that it is one of the most beautiful and fixed yellow colors known; it dyes silk and wool without mordants in various shades, from lemon yellow to a deep gold color. The coloring power is very great; one kilo of the lime salt suffices to dye 200 kilos of wool deep yellow.

Effect of the Sun's Heat on a Sand-hill.—Geo. Davidson, of the Coast Survey, writes from San Buenaventura, in this State, that while engaged in determining the azimuth of the principal lines of the triangulation from that station, he found that the heat of the sun during the afternoon upon the sandy bluff on which the station is situated, had expanded it so that the level showed changes as great as 45″. This, together with the contraction in the evening, made a change of one minute and thirty seconds. Moreover, he found that in cooling, the tongue of the bluff *twisted irregularly* in azimuth as much as 18″ in three hours. All his results were vitiated by the discovery of these facts; and he was obliged to move his instruments. At one hundred yards or so from the edge of the bluff they were perfectly steady.

Non-vulcanized Rubber Tubing.—M. Jonant has made experiments which show that this is far less permeable for gases than that which is vulcanized. One of the latter lost in three days by diffusion 21 per cent. of hydrogen, and admitted 11 per cent. of air. A non-vulcanized tube, submitted to the same experiment, lost in 28 days only 22½ per cent. of hydrogen, and admitted only 5½ per cent. of atmospheric air.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Mining Items.—*Miner*, March 19th: Mt. Bullion tunnel is over 1,800 feet and going ahead at the rate of from 12 to 15 feet a week....Barnes, of the Rodgers mine, Hope Valley, has purchased the Pioneer Quartz Mill, Markleeville....Three tunnels in this county now exceed 1,800 feet each in length—Imperial, Mt. Bullion and Mountain No. 1....Slow progress has been made in the No. 3 tunnel of the M. C. Co., on the Tarshish lode, this week, the rock being hard to blast....The lower tunnel of the Schenectady Co. is getting into rock which contains sulphurets and now and then real Tarshish ore.

Pennsylvania Co. —*Chronicle*, 19th: Assessment levied of two dollars a share. The company will shortly commence active operations again. The mine looks well and a large body of good ore is in sight.

AMADOR COUNTY.

Items.—*Dispatch*, 26th: We learn that the Oneida mill took out $40,000 after a run of fifteen days....The Cony mine is advertised for sale on the 13th April. We hope it will fall into the hands of parties who will work it as it ought to be worked. It is a good mine.

Ditch Survey.—*Ledger*, 26th: The engineer on the Butte ditch extension started in yesterday. The old portion of the ditch will be enlarged, and the extension constructed to correspond. This ditch will convey water to the vicinity of Sutter creek, and will open up an extensive mining section heretofore unavailable.

EL DORADO COUNTY.

Gold Dust. — Placerville *Democrat*, March 26th: There has been shipped during the present month gold dust to the amount of $40,000.

INYO COUNTY.

A Los Angeles telegram of 29th says: Twenty-thousand pounds of base bullion from Cerro Cordo has been received, which contains 20 to 30 cents of silver to the pound.

LOS ANGELES COUNTY.

Gold.—*News*, March 19th: Upon the San Gabriel river from one to two hundred ounces are taken out each week. There is hardly a cañon between here and San Diego that "specimens" are not taken out.

A telegram of 24th says: Miners engaged in sluicing the bed of San Gabriel river continue to make handsome wages.

MARIPOSA COUNTY.

Mariposa Co.—*Gazette*, 25th: The company's mill below town, after a suspension of over two weeks, started up on Monday, and is now stamping night and day. The mills of the Co. on the Merced river have all been changed from dry to wet crushing, the last one altered starting up last Monday under the old style. This Co. has thoroughly tested both and finds that wet crushing pays best in the long run.

NEVADA COUNTY.

Mining Situation.—Grass Valley *Union*, 27th: From all parts of the county we hear the best news. The hydraulic mines are run night and day, and not a drop of water is lost. The results are satisfactory. Quartz in Grass Valley is active, though the rains have interfered with hauling rock. Ben. Macauley's stamps at Boston Ravine are idle. There are a few loads of rock on the platform of the Gold Hill mill.

Eureka.—The clean up for the last 12 days shows that the mine is in the same old way of splendid yields. The Idaho, just east and adjoining, is doing well.

Perrin's Mine.—The new openings show the ledge to be as good as ever with greater facilities in getting out rock. The mill is running a portion of the time. The cleanings of the plates show the rock to be worth $30 to $40 per ton.

Allison's Ranch.—This claim is giving out fine rock. The openings do not supply sufficient to keep the stamps running night and day.

Coe.—The mine is getting along well. The shaft is down 150 feet on the incline; the ledge is 3½ feet thick and shows well. The mill will start up about the middle of April.

Items.—The Wheal Betsy is to be worked about the first of May. Others of the idle mines are to be started up again....The Empire mine and mill, on Ophir Hill, is working full handed with good results....The North Star is yielding surplus funds, and above and below ground the situation is satisfactory....The West Eureka is constantly at work. The shaft is down 165 feet on the incline and the ledge has improved much.....The Greenhorn remains a very large ledge, from 10 to 14 feet thick. Mill process shows that the ledge is good for $20 rock on the average, with not over $6 as expenses....The Pittsburg is wanting miners.

Middle Yuba.—The Lindsey or Mariette Company have a good ledge, 14 feet thick. The company have a 10-stamp mill working good rock. The Salathael Co. is also working good rock, with a ten-stamp mill. The Fidelity Co. have a tunnel in 200 feet, have struck the ledge and are sinking an incline from the tunnel on the ledge. The ledge is eight feet thick and shows heavy sulphurets, galena and some free gold. The tunnel gives 140 feet of backs. Recently the Co. have leased a mill close by their mine.

Gravel.—Brown Brothers, on Squirrel creek, are taking out plenty of gold by hydraulic process. Webster & Co., on Randolph Hill, are still getting out good gravel. The channel is widening. James McCauley and Hans Roberts, on the Roberts & Co. claims, took out $400 in nine days, two men working. The Town Talk mine is again working in good gravel and cement.

Big Project.—*Transcript*, 23d: The Branch Mint Co. has commenced a tunnel from Wolf creek, on the Grass Valley side of the ridge, between Grass Valley and Nevada, to Gold Flat on the Nevada side. This tunnel will be over a mile in length. It will be 300 feet below the highest elevation, and run in quartz all the way. The "back-bone" of the ridge is slate, and it contains a number of good wide ledges—the same ridge on which the Pittsburg and other mines of value are located. The rock yields readily to the pick, the blasting is easy and the workmen are making rapid progress.

Sucker Flat. —Same of 24th: The leading mine is the Smartsville Consolidated Hydraulic Mining Co's claims, which, from its name, has been spoken of as being located at Smartsville. This mine has an outlet on the Yuba, and about half of the ground is located in Nevada and half in Yuba county. It is being worked on a very large scale. The banks are one hundred feet in depth, and they have the blue gravel channel. The claim may be considered as a new development as only two full runs have been made. In December, after the first run, the yield was $41,000, and the last run of 30 days gave a gross yield of $70,000.

The Blue Point claim adjoins the Consolidated. In this a bed-rock tunnel is being run, which will be 2,270 feet in length. The Blue Gravel, Pittsburg and Union claims are washing, and tunnels are being run by several of them.

Orleans.—Same of 26th: This Co., on Gold Flat, have taken out fifty tons of splendid looking quartz, which is being hauled to Stiles' mill for crushing.

Mohawk.—We understand that as soon as the difficulties are settled, the mine will start up again under the management of competent men. Last season a party offered Mr. Barber $250 per ton for ten tons, if he would open the claims ten feet below where they were worked some years ago, when the shaft was lost.

A Good Run.—*Gazette*, 23d: Cobb & Co. made a partial clean-up in their hydraulic claims at Scotch Flat, on Friday last. The yield from eleven and a half days' run was $2,376.37.

The Saulsbury Mine.—*Transcript*, 29th: From what we learn this new discovery excels anything we have ever heard of in this township. Mr. Saulsbury pounded out, in a hand mortar, over $500 in one day, and he has a large quantity of the same kind of rock. The ledge is upwards of four feet in thickness. Work on it was performed by his own hands, no living being except himself knowing the exact location of the ledge. As soon as his brother arrives, he will have it recorded and put on a force of men, and take rock out as fast as possible.

Banner.—We learn that the ledge never looked better than at present. Twenty stamps are kept running constantly, and they have increased their force to sixty men. On the first they will commence using the other stamps, making forty in all.

Scott's Flat.—All are putting in their best licks. One company made a partial clean-up last week, and after a run of eleven days and a half, took out $2,376.37.

Eureka.—A telegram of 28th says: It is melting day at the Eureka mine; $24,000 or $25,000 were realized for twelve days' run.

PLACER COUNTY.

Michigan Bluff.—*Stars and Stripes*, March 24th: The North America Co's claims are turning out handsomely, the yield for one week amounting to near 120 ounces. This claim has been worked successfully for many years.

A Rich Boulder.—Nevada *Transcript*, 26th: L. R. Anthony and W. Chesney, in their claims at Dutch Flat, known as the Jim. Taffe Hydraulic Claims, struck a boulder on Thursday, weighing 300 pounds, the value of which is estimated at from $7,000 to $8,000. The stone has not been crushed yet, and its value is estimated from the gold in sight. These claims are very rich, and an offer of $100,000 was made for them some months since.

SHASTA COUNTY.

Good Pay.—*Courier*, 26th: Last week Henry Chapman, at Janesville, cleaned up, after a run of three days, $175.

Messrs. J. Leary and E. & D. Sweeney have purchased a three-fourth interest in the Spring Creek mining ditch.

SIERRA COUNTY.

Struck Good Rock.—*Messenger*, 26th: The Dreadnaught Co. on Kenaka creek have struck the ledge in their lower tunnel. We have seen specimens which were rich in free gold and carrying sulphurets. The ledge is four feet wide. About fifteen tons have already been taken out, and crushing will be commenced as soon as sufficient rock is obtained.

Howland Flat.—We understand that the claims are generally getting into good paying ground.

TRINITY COUNTY.

Dutton Creek.—*Journal*, March 26th: There can be no great result from this section until water is conveyed to the mines. Since our last, several companies have found the rim rock, and in every case the gravel prospects well, and is the same as in the discovery claim. Eight hundred dollars have been refused for one-fourth of the Dixon, Connor & Co. claim.

Prospect.—William Barber went to work a few days ago with a rocker on a point below McGillivray's ranch, and rocked out $20 the first day.

More Prospecting.—We are informed that good prospects were obtained last week on the divide between Indian and Redding creeks. From appearances the diggings are likely to be extensive, and consist of washed gravel, similar to that of Dutton creek. Plenty of water to be had.

Trinity Bar.—Jones & Hughes have found a very rich lead in Trinity bar, a short distance up the river from Douglas.

Junction City.—Cor. of same: Ed. Harthan and John Smith started up the mountain, the other day, to find a drifting claim. Having selected a place they started in on the "rim rock" and found good-looking gravel. Harthan took a panfull to a spring and found two bits. The following day these two went to work with a rocker, and took out $13.50, having to carry the dirt in buckets twenty yards up the hill to water. Several miners are now at work prospecting the flat.

YUBA COUNTY.

Struck Gravel.—*Appeal*, 26th: Workmen on the California and Oregon Railroad have struck on the line of the road two large and valuable beds of gravel.

Arizona.

Pine Grove.—Prescott *Miner*, March 12th: Notwithstanding the great richness of the quartz of this new district, the first attempts to work it have proved failures. The men lost both the gold and the quicksilver which they put into the arastras. A new trial is to be made.

Lynx Creek.—Men were endeavoring to sluice with ten inches of water—all there was. After crushing three tons of ore, "Uncle" Billy Pointer stopped his wheel and arastra—not having sufficient water to run them. He did not think it worth while to clean up. Miners from other camps tell the same story—no water to sluice with, but enough to rock with.

Quartz Mill.—Cal. Jackson, Solomon Shoup, and other citizens of this place, have gone to work to repair and run the Eureka 10-stamp quartz mill, in Walker district.

Wickenburg.—The Vulture Co's 40-stamp mill was running. The tunnel in the White Picacho mine was in 100 feet.

Colorado.

Franklin Co.—Central City *Herald*, March 23: No work is being done in the main shaft, but from a shaft 300 feet east. The ore yields over $100 per ton. There are 200 or 300 tons of average ore at the different dumps.

Russell Gulch.—Henry Chattillon, on the Ingomar, has from three to five feet of ore similar to the Pewabic. He is crushing at Berstom's mill. Henry R. Wolcot will start up the King Co's mill on Thursday. Bradley's mill will start next week. Perrin is through the cap on the Pewabic, and is taking out a cord a day. We learn that an English Co. is about buying all the mining property in Willis gulch.

Items.—The Gilpin & Coley mine last evening deposited three silver bricks, weighing 585½, 513½, and 590 ounces—total, 1,689 ounces. Another lot is to be added this evening....Cyrus Hurd, Jr., has started his 20-stamp mill in Black Hawk, on ore from the American Flag. Clayton, besides his Nevada mill, is also running, on Nevada ore, the Holdbrook, 13 stamps, and the Mead mills, 20 stamps. Taber & Lewis are repairing the O'Conley mill, in Nevada....Ore from the Schaffter lode, 10,275 pounds, yielded 12 ounces gold....Chas. Mather's quartz mill runs night and day.

Consolidated Gregory. — A large amount of money has been expended upon the mine during the past year, and everything is now in perfect order. New ground with $236-ore has been discovered. The last month netted $2,000 over expenses, and henceforth the mine will be self-supporting.

Items.—*Register*, 24th: Charlie Morris, of Spanish Bar, has had a crew of miners at work in the Whale mine for several months, and reports that they are raising very rich ore. The company contemplate putting up two or more of Buckner's roasting cylinders, with Frieberg barrels. Their mill, one of the largest in the Territory, is run by water power....Out of 89 patents to mines, which have been issued, 33 have been received at the Central City Land Office.

Idaho.

Prospects.—Boise City *Statesman*, March 17th: The late storm furnished sufficient snow to prolong the mining season at least 30 days into the summer months, affording a more copious supply of water than since '64.

Boise River Mines.—Same of 19th: The claims of Lambing & Co., 35 miles from this city, have already been in operation, but were compelled to stop on account of the freeze. They have a ditch, reservoir and hydraulic, all in order, and a fine prospect for the season. The bars are high, the gold fine and hard to save, but sufficiently plentiful to make $20 diggings. The claims of Quivey & Co., ten miles above, are also ready to begin with spring weather.

Snake River Mines.—Same of 22d: Jackson & Co. are rocking about four miles above Shoshone Falls, and making good wages. Jamison & Co. have two rockers running six miles below the Falls, and are making an ounce per day to the hand. The camp may be summed up as follows: Five rockers are run by four companies, consisting of twelve miners, making average wages. In addition to these I might add from six to ten prospectors scattered along the river. The reports that hundreds of men are making big money are all bosh.

Items.—Idaho City *World*, 17th: The King ledge, Summit Flat, have out 100 tons of rock, which will average $60, and will soon commence crushing....The Mammoth ledge have their tunnel in 420 feet, and have struck rich rock. The ledge is two feet in width, and will probably go $100 to the ton....The Elkhorn have out 180 tons, which prospects well, and will start their mill soon.

Montana.

Silver Bow.—Cor. of *New North-West*, March 11th: Our prospects are the brightest they ever were. This will be a prosperous season. Our only want has been water, and we will have it in abundance. When spring opens there will be from 500 to 700 claims started up that will pay from $5 to $50 per day per man. Two thousand men will find remunerative employment in this vicinity this season. The Miners' and Robinson & Turner ditches, nearly completed, will throw 2,000 inches of water on ground heretofore idle.

Pilgrim Bar.—We learn that some prospectors struck from 10 to 35 cents on the upper end of Pilgrim Bar last week. They are now working to ascertain the extent of the pay streak, and have three feet of gravel. It is supposed to be the same channel now worked successfully lower down. J. H. Meyer writes that new bar diggings have been discovered up Granite gulch, one mile from Pike's Peak.

Nevada.

COPE DISTRICT.

Mountain City.—Cor. of Elko *Independent*, March 26th: The Mountain City Co. is taking out good ore. The Argenta have struck the ledge in their tunnel. The Canty mill is running day and night on ore from the Crescent. The California Co. are pushing their tunnel with dispatch.

They have already struck two ledges. The Mammoth Co. is hard at work. Considerable excitement in regard to new discoveries in Cope and Bruno—the Sultana and Cocoanut at Cope, and the famous Lost Ledge at Bruno. A ledge, called the Washington, is over four miles in length, and four to five feet wide.

Items.—A 20-stamp mill is to be erected at Mountain City as soon as the roads become good. It was brought out to Idaho by Eastern parties, but never put up.... M. Oppenheimer will erect a mill in Cope. ....Whitney and Co. shipped to San Francisco on the 21st, 50,000 pounds lead bullion.

HUMBOLDT.

Battle Mountain. — *Register*, March 26th: The mill is kept running on ore from the Little Giant mine, that pays $150 per ton, and turns out over $1,000 in bullion per day. There are six or eight mines in the district yielding ore.

Pease continues work on the Union Series, and reports the mine looking better than ever. Sacking ore from a three-foot ledge, 250 feet below the surface.

The Butte Mining Co. at Galena, realized over $1,500 clear profit on the last load of ore shipped to San Francisco. The last assay from their new location (Butte No. 2) went as high as $1,400 per ton.

Unionville—The *Silver State* of the 22d inst. says: The Pioneer mill has been running to its full capacity on Manitowoc ore. ....Owing to the condition of the roads between the Arizona mine and the mills, the working force has been reduced. The yield of this ledge for the past twelve months is roughly estimated at $500,000. Work is to be resumed on the Seminole tunnel about the first of the month. The Alpha mine is looking exceedingly well. Smith's ledge, near the Alpha, will work from $100 to $500 per ton. Frank Germain has struck the Oregon ledge in his tunnel with very flattering prospects.

Oreana.—*Register*, 19th: J. Mosheimer, Supt. and proprietor of the Smelting Works, made his first shipment of crude bullion Monday—17 bars, weighing 1,500 pounds, and valued at $6,000

REESE RIVER.

Whitlach Yankee Blade.—*Reveille*, March 23d: The party who leased this mine have had a lot of several tons reduced at the Manhattan mill. The assay of the first class gave $1,420 of silver to the ton, and that of the second class gave $322.

Silver Bend will come up again this summer.

Mineral Hill.—We learn that the miners generally were working, and that large lots of excellent ore had been taken out in anticipation of the erection of a mill.

Bullion.—Same of 26th: During the week ending this date 13,530 ounces of bullion were produced at the Manhattan mill.

WASHOE.

Gould & Curry.—Gold Hill *News*, March 26th: The mine is yielding 80 tons of ore per day, assaying on the average nearly $60. A quantity of excellent ore is found which was passed by in the early days in the search for richer ore at a greater depth.

Imperial-Empire.—The cross-cut west at the end of the south drift from the 1,100-foot level has reached the east clay of the ledge at the Holmes ground, and cut into it eight feet. A long drill hole is kept in advance of the main working, so as to tap the water gradually, giving the men time to get out of the way. The new 120-horse power engine has already reduced the water to 30 feet.

Yellow Jacket.—Yielding 300 tons per day of high and low grade ore—about equal quantities.

Ophir.—A nice little streak of red ore was found day before yesterday, in drifting west from the south shaft of the upper workings, 75 feet from the surface. It is not extensive. The water will soon be all out.

Hale & Norcross.—Yielding 177 tons of ore per day. The 175-foot level shows an increased yield. The dumps are overflowing with accumulated ore. The shaft is now 70 feet in, good ore most of the way. Receipts for February, $145,202.66.

Crown Point.—The upper workings yield 60 or 70 tons per day. Prospecting is vigorously carried on.

Chollar-Potosi.—Daily yield 160 tons; average assays, $46 per ton. The drift west from the 450-foot station of the new shaft is now in 382 feet.

Sierra Nevada.—The drift at the mill battery level has reached hard rock in place of the expected gravel deposit, and a raise will be commenced to reach the deposit above.

Overman.—Some good ore developed in running south on the 223-foot level.

Sacramento & Meredith.—Some very fine specimen ore, rich in free gold, is occasionally met with.

Belcher.—Good progress in drifting at the 730-foot level, with favorable indications. The mine yields 65 tons of fair milling ore per day, and the Rhode Island Mill is kept running upon it.

Occidental.—Assays from the ledge in the lower tunnel are ranging higher. The face of the tunnel is half in the ledge.

Virginia Consolidated.—Drift west at the 500-foot level in 172 feet from the shaft to-day; in blasting rock, which works well, and no water.

WHITE PINE.

Weekly Review.—*Empire*, March 27th: Although the storms have retarded work, yet many mines have started up, and a large amount of ore is being taken out. Several mills have been compelled to suspend for want of water, caused by the shutting down of the water works. Steps have been taken to supply nearly all with water from springs. The general prospects are highly encouraging. The base metal ledges are producing ores of a hotter character than at any former time, and for the past 20 days our furnaces have produced more bullion. There are now ready for shipment over 200 tons; and although all teams from Elko go back loaded with base bullion, that article is accumulating at the rate of fifty tons per week.

Items.—*Empire*: A large amount of ore is coming out of Aurora Consolidated, and 1,200 tons now on dumps....In Eberhardt a deep excavation is being made next to the north wall, which yields a large amount of ore—milling from $100 to $200 per ton. A tunnel is being run to strike the ledge 130 feet from the surface....N. H. Rockwell has leased the Wabash mine. The pay ore is 80 feet from the surface, and nearly horizontal. The stratum is four feet thick, and superior to anything we have ever seen outside of the old chamber of the Eberhardt. Chunks of pure chloride weighing 30 and 50 pounds were taken out. A portion of the ore is being sacked, being too rich to ship now; 300 tons of common ore is at the Sheba mill....Montauk mine has a shaft 53 feet deep, the 13 feet lowest in high-grade ore....Original Hidden Treasure is being opened in good shape.... Blackfoot No. 2 promises well...The Elko is proving one of the best of base metal ledges. For forty tons now on dumps $50 per ton has been refused. It assays $200 to $600. Three men take out 6 tons daily...A blast in the Buttercup on Thursday threw out a ton of wonderfully rich ore....Big Treasure will start up again with water from its own spring.....Van Wyck's furnace is turning out 4 tons base bullion per day.... Stanford mill shut down for want of water. ....Henderson mill still toots its whistle, having its own water to wet it.

Items.—*News*: Treasure City is picking up again. About 150 men have been put to work within ten days. Crown Point No. 8 resumes work to-day....Fine ore struck in the Derby mine....Work is to be commenced in the West Point on an extensive scale.

Capitalists Coming in.—*News*, 21st: W. J. Bevan comes as the representative of Philadelphia capitalists, two inaugurate work in mines owned by the company in this district and Eureka. Mr. B. is accompanied by an engineer and a machinist, who will proceed at once to erect to iron furnaces in Eureka, for smelting base ores. The furnaces will be at hand in a few days. Mr. Bevan brings an engine and a patent furnace for Mr. Robinson, of Eureka district, to be employed in working ore from the Buttercup mine.

San Francisco, Chicago, Philadelphia, New York, and English capital, is coming in more freely at the present time that at any previous period in the history of White Pine.

Patterson District.—*News*, 26th: J. C. Bender, of San Francisco, has been testing some of the ores, and intends to erect 5-stamp mills in both Patterson and Shoshone districts. The figures of nine working tests, 50 pounds each, are given. The lowest is $71, and the highest $274 per ton.

Robinson.—Both Chicago and San Francisco parties will commence work in this district at an early day.

Silver Park.—*Empire*, 25th: Last evening Mr. Morris brought in some ore from the Jim Bradshaw mine, of uncommon richness. Horn silver exists in it as plentifully as in the Eberhardt. The district is lively.

New Mexico.

Over the Mountain.—Cor. of *Press and Telegraph*, March 9th: The Montezuma is running 15 of its 30 stamps. The Aztec mill cleaned up, after six days' run, 287¼ ozs. gold, worth $5,400. The mill pays regularly $4,000 to $5,000 per week. Wiggins, Ritchie & Co. have a 6-foot vein, and are taking out quartz by the cord. The French boys have a 60-foot shaft, and have out 8 or 10 cords of fine-looking quartz. From the Tunnel lode of Webb & Co., a pound of quartz in which no gold was visible, yielded 32 cents—at the rate of $640 per ton.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment.	Day Delinquent.	Day of Sale.
Alameda Coal, Feb. 16, 30c	March 30	April 22*
Alban, Storey co., March 21, 6c	April 25	May 14*
Bullion, Feb. 8, $4	Pay immediately	
Cordillera, Mexico, Feb. 17, 25c	March 25	April 11*
Cherokee Flat, B. G., Feb. 17, $5	March 22	April 8
Daney, Lyon co., Feb. 9, $1	March 14	April 2
Dutch Flat O. & C., Feb. 11, 75c	March 18	April 8
Eagle Quicksilver, March 14, $20	April 16	May 2*
Green Monster, Inyo co., March 10, $1	April 16	May 2*
Glenwood, El Dorado, Feb. 4, 25c	April 6	April 27*
Hartwell, W. P., Feb. 19, 5c	March 25	April 21*
Hormiguera, L. Cal., March 11, $2.50	April 15	May 8
Hidden Treas. Cons., March 28, 25c	May 3	May 24
Imperial, Storey co., March 7, $10	April 11	May 3
Julia, Storey co., March 12, 60c	April 16	May 3
Kincaid Flat, March 4, $2.50	April 6	April 23*
Lady Bryan, Virginia, March 17, $2	April 18	May 19
Latawana, W. P., March 19, 15c	April 23	May 10*
Meadow Valley, Ely Dist., Mar 26, 75c	April 28	May 20
N. Bloomfield Gravel, March 28, $2.60	April 30	May 17
Nevada L. & M., Feb. 8, 2½c	March 15	April 5*
N. S. F. Homestead, Feb. 9, $7.50	March 23	April 14*
Ophir, Storey co., March 7, $3	April 11	May 3
Pocahontas, El Dorado, March 2, $4	April 2	April 28*
Peytona, Va. Dist., March 18, $1	April 19	May 4
Sterling, Arizona, March 9, $5	April 18	May 17
San Jacinto Tin, March 4, 5c	April 4	May 4
Segregated Belcher, S. co., March 2, $2	April 6	April 29
Savage, Storey co., Feb. 7, $10	March 14	April 2
Sierra, Douglas co., March 29, $2	April 29	May 20
Silver Wave, W. P., Feb. 19, 20c	March 21	April 11
Tecumseh, Calaveras co., March 21, $5	April 21	May 5
West Point, W. P., Feb. 22, 50c	March 26	April 18
Yellow Jacket, March 16, $7	April 18	May 19
Yosemite, March 7, $1	April 7	April 23*

MEETINGS TO BE HELD.

Aurora Cons	Meeting April 11
Best & Belcher	Meeting April 30
Diamond Silver	Annual Meeting April 12
Gould & Curry	Meeting April 25
Exchequer	Meeting April 30
Flowery	Annual Meeting April 7
Hormiguera	Annual Meeting April 4
Osceola	Meeting April 2
Oriental	Meeting April 4
Overman	Meeting April 11

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable Feb 7, 1870
Chollar-Potosi, div., $1	Payable March 10, 1870
Eureka, div., $7.60	Payable Feb. 7, 1870
Golden Rule, div., 60c	Payable March 26, 1870
Hale & Norcross, div., $5	Payable March 10, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

◆

San Francisco Prices of Copper Ores.

San Francisco, March 31, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	28 85	19 " "	44 55
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	82 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

Havilah, Kern county.—We have received a communication, inquiring the reason of the depression of the mining interests around this place. We would prefer that some person in that locality should answer the question. Will not some one living there write us a letter concerning the cause of the cessation of operations?

◆

The Kansas Pacific Railroad is completed 84 miles west of Sheridan, and will reach Denver, it is hoped, in early fall. A telegraph line, built in advance of the road, will be completed next month.

◆

The volcano at Hawaii gives indications of a new eruption. The crater of Kilauea has been unusually active, and earthquakes have been frequent.

◆

The Senate voted an appropriation of $100 per month for Marshall, the discoverer of gold, and $250 per month for Gen. Sutter.

◆

Railroad Veto.—Gov. Haight has vetoed, as unconstitutional, the bill to aid the construction of the San Joaquin Valley and Southern Pacific Railroad.

◆

From Virginia City comes a report of gold ore found on the west fork of Pitt river.

◆

The stealing of ores or metals from mines is to be made grand or petit larceny.

San Francisco Mining Stock Market.

The mining-share market does not quite maintain the activity noted for some weeks past; nevertheless, sales of a number of leading stocks continue free, under rather better prices than ruled early in the week, while a number of others exhibit a slight recession. The claims on the Comstock lode still give great encouragement to those whose interests are so closely identified with their successful working, and strong is the hope in the ultimate good results in the present deep explorations.

From the White Pine *News*, of March 23d, we extract the following: "The large number of mines started up during the few days of fine weather last week, attests how eager our people are to commence the Spring campaign in mining. Melville Atwood, the distinguished mining engineer employed by the English company to examine some of the leading mines on Treasure Hill, with a view to their purchase, was among us a fortnight, and has departed for San Francisco, favorably impressed with the wealth and permanency of our mines. We have not learned whether his report to his company will be given to the public or not; but we have the foreshadowing of it in expressions let fall before he left. He made a thorough examination of the Aurora South, and partial ones of the Aurora Consolidated and Hidden Treasure. His report on the former will be highly favorable, so much so, that the mine will probably change hands at an early day, for a large figure. His observations in the other mines mentioned were incidental to a thorough understanding of the geological formation of that portion of the hill on which the Aurora South is situated. He confirms the theory advanced by us last Fall, in regard to the existence of a large ore-channel or dike fissure, extending from the Hidden Treasure to the Aurora South. This, Mr. Atwood believes to be the 'mother lead' which spreads out to enormous width on the Aurora ground, trending with the hill, and passing through the Nevada and Summit. Upon his report being made, his company will doubtless open negotiations for the purchase of the latter mines from the Treasure Hill Mill and Mining Co. In fact, we believe such negotiations are now going on."

Chollar-Potosi—has been in fair request, showing some improvement. For the week closing March 25th, 1,146 tons of ore were extracted, against 1,150 tons the previous week. Some improvement is perceptible in the ore producing localities. At the south end of the Blue Wing stope they have an excellent body of ore that has all the appearance of the Belvidere deposit, and promises to give a large amount of good ore. This streak is making off into virgin ground. In the Chollar-Potosi shaft, 69 feet have been added to the west drift, making the total distance from the shaft 446 feet. On the 25th of March they sent forward $8,380 in bullion. The daily ore slip of the 28th of March shows shipment of 202½ tons of ore to four different reduction mills.

Belcher—did not sell to so large an extent as last week, but has been well maintained in price. On the 28th of March, $10,098 in bullion was sent to the office in this city. In the 730-level the ground is favorable, and the southwest drift shows a face of clay, which is a change for the better.

Kentuck—has been moderately dealt in at an advance. For the week ending March 25th, 375¾ tons of ore were extracted—the 66 per cent. assay value being $6,199 97, or $15 60 per ton. For the month of February, the bullion yield amounted to $29,300. The prospecting work is still being prosecuted in all the levels from the 400-level up, with little encouragement as to good results.

Crown Point—sold at very uniform rates during the week under review. A yield of 492¾ tons of ore is reported for the week ending March 25th, the 66 per cent. assay value showing $7,543 98, equal to $16 31 per ton. Nothing favorable has been discovered since our previous report.

Gould & Curry—sold at fluctuating rates, but still maintained the recent advance. For the week ending March 28th, 647 tons of ore were extracted, against 540 tons the previous week. The stopes continue to show as much ore as heretofore reported. The El Dorado section has been "raised on" 34 feet from the track floor, and the ore at the top appears better in quality than that found at the tunnel level. At the seventh station, the No. 2 drift, running west, is now 170 feet in length, and during the last day a marked change is said to have occurred in the material—hard rock running out, and clay coming in, with healthy looking quartz in the face of the drift. The course of the drift running north has been changed to northwest, and thirty feet run in the latter direction—the face now being in a heavy mass of clay.

Hale & Norcross—has been in moderate request at an advance. The yield of ore for the week ending March 26th, was as follows: Upper mine—175 level, 246 tons; 300 level, 79½; 535 level, 851: lower mine—fifth station level, 72 tons; sixth station, 592½, making a total of 1,025½ tons against 1,204½ tons the previous week. They have on hand at the dumps 5,933 tons, of which 2,485 tons is low grade ore. The shaft is now 68 feet in depth beyond the sixth station, and the sinking continues in the ore vein without any appearance of the west wall. Three feet of the west side of the shaft show good ore—equal to any found in the level above. On the sixth level, the ore breasts on the south continue to look well. Five of the floors on the north, from the track floor in the sixth level upward, are now within a few feet of the northern boundary. Here the vein retains its former width of twelve or fourteen feet, but is greatly mixed with porphyry and low grade ore.

Overman—has been slow of sale at a recession. For the week ending March 27th, 1,025 tons of ore were extracted; previous week, 1,018 tons. The body of ore cut on the 226 level has widened considerably in running south, and the north drift on the 600 level is in 96 feet, showing fair milling ore. In the south drift on the 600 level the cross-cut is in 41 feet, the rock becoming softer as they advance, and it is expected that by continuing a short distance eastward, they will cut the ledge.——Hidden Treasure Consolidated (W. P.) levied an assessment of 25 cents per share on the 28th of March.——Aurora Consolidated (W. P.) annual meeting of stockholders, April 10th.—*Commercial Herald*.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Planting Trees by the Highways.

An act was passed by the Legislature two years ago, designed to encourage the planting of trees on the public highways. This law allows a premium at the expiration of four years after planting, provided the trees are in a thrifty condition at that time. The object of passing such a law was a commendable one; but few, however, so far as we have learned, seem to be making any preparation to claim the bounty. In the meantime some of the counties are agitating the propriety of offering premiums from the county treasuries as a still further inducement for forest tree culture. This matter has been agitated in this form in Napa, Yolo and Solano counties. It would, no doubt, be good policy for all our valley counties to unite in a concerted movement of this kind. The value of the land so improved would be sufficiently enhanced to more than meet the small premium that would be offered by the increased assessment thereon.

The most profitable trees to plant, among those which would come within the intent of the law, would be the locust, cottonwood, elm, maple, alanthus, black walnut, and, in short, any or all of the entire list of the nut-bearing trees. Every tree, so planted, and properly cared for, would enhance not only the land in front of which it might be placed, but, to a greater or less extent, all adjoining lands. The articles we have published from time to time appear to demonstrate, quite fully, from well established facts, not heretofore properly appreciated, that trees, even in isolated patches, do exert a most important meteorological influence upon large tracts of country which surround them. There can be no possible doubt but what the farming districts of California would be vastly improved, meteorologically and otherwise, by a general and judicious cultivation of trees. We have but little doubt that all danger from excessive droughts might thereby be removed, to say nothing of the large value which the trees thus grown would have for fruit, timber and fuel.

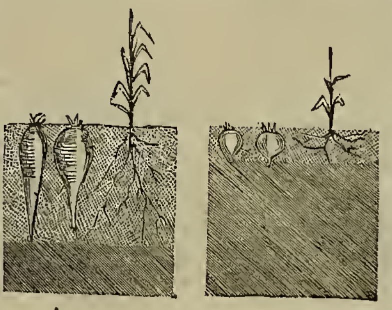
Notable Exportation.—The Montana, which left this port on Thursday of last week, took away $20,000 worth of hops *for export to Europe*. The fact is beginning to be appreciated abroad that California hops are unequalled by those raised in any other part of the world. We have no actual knowledge in the premises, but we presume the above shipment has been more or less influenced by the exhibition of California hops at the late Paris Exposition. A bale or two of hops were opened there, and freely distributed to brewers and others who were congregated there from the various countries in Europe, and who, without exception, bore united testimony to the fact alluded to above. May we not reasonably hope that this is but the beginning of a foreign trade in this product of our soil, which, in the future, will occupy no unimportant position in our list of agricultural reports?

In many of the rural districts of Germany, plows are used which in construction and shape resemble the old ones used by the ancient Romans, pictures of which can be found in illustrated editions of Virgil's Bucolics. Often one sees a cow and a woman drawing these agricultural instruments, while the able-bodied man directs the pole. But while these things seem so strange to us in this country, we must remember how different are the circumstances, and we should pity rather than ridicule those, to whom these things are a necessary condition of life. And yet they are contented, apparently.

Plowing—Deep or Shallow.

The process of plowing is acknowledged by everyone to be the most important of any operation on the farm. It lies at the very foundation of farming. With regard to the general objects sought for in this operation—the formation of a seed bed, by thoroughly loosening and pulverizing the soil—all are agreed; but the minds of men are not so completely harmonized in regard to the manner in which that work should be done. One man would plow shallow everywhere and for all crops; another would plow deep under all circumstances and for every kind of crop. The real truth of the matter lies between the two—or rather in *a mixture of both.*

There are cases where deep plowing would be highly disadvantageous; as, for instance, on a thin stratum of loam and subsoil lying upon a bed of dry sand or gravel, especially in a country like this, where the chief part of the moisture for sustaining plant life through the summer must come up from below, by capillary attraction. If the plow should cut through the subsoil, on such land, the moisture would be attracted downwards by the double force of gravitation and capillary action. There shallow plowing would be advisable. But such cases are rare. When the soil is deep, the plow may go down to the greatest practicable depth, with manifest advantage. Soils and subsoils differ so widely that we can never expect to arrive at any well-settled and uniform rule. Whenever it is practicable, however, we should advise deep plowing. On a stiff subsoil it may not be advisable to go down at once; it may be better to deepen it by degrees—plow a little deeper every year.



As a general rule, we believe that the deeper, within reasonable limits, the soil is stirred, and thereby exposed to the action of the elements, the more plant food will be formed, or be placed within reach of the roots. The roots of plants will not go down beyond the influence of the atmosphere, for the reason that they cannot *breathe* there, as elsewhere explained in our issue to-day. Hence if the subsoil is not loose and permeable by the air as well as water, it must be made so by the plow. The roots of perennials, by slow and persistent growth, from year to year, will force their way into comparatively compact soil or subsoil; but annuals, like wheat, corn, etc., and the various tuberous plants, such as potatoes, beets, carrots, etc., have no opportunity, by long and persistent growth, to force their way into the hard soil in search of moisture or food; the soil must be pulverized and rendered easily permeable to their tender and rapidly-growing roots, or the result will be as shown in the figure on the right of the engraving.

If the roots of a plant are kept near the surface they must dry up when a parching drouth comes. Pulverize the soil and let them go down. There is a great desire among American farmers to *spread out*—they want more land. More attention, too, is paid to extent than quality. Better far, would it be for them, if they would endeavor to extend their dominion *downward*—perpendicularly instead of longitudinally. Their titles are unlimited in that direction, and they can improve them without extra cost of fences.

Air is as necessary to the soil as water or manure, and it costs less than either; hence the farmer should not stint its supply. Air decomposes manures more effectually than water, and is absolutely essential to prepare their elements for the nourishment of plants. Air carries into the soil more or less ammonia and carbonic acid; hence it is equivalent to manuring. Air in passing through the soil, if it is able to penetrate it to any considerable depth, parts with a great amount of moisture, and hence supplies the place of rains or artificial irrigation.

The figures which accompany this article are fair illustrations of the difference in the size and vigor of plants, both below and above ground, when growing on shallow soil or on that made more suitable for their sustenance by deeper plowing and pulverizing.

Rearing Silkworms.

At the Academy of Sciences last week, Dr. Blake read an abstract of a paper translated from the proceedings of the Academy of Sciences in Paris. On account of the diseases prevalent amongst the silkworms in France, many experiments have been made in order to discover the best means of rearing them. The results obtained by M. Sintrae, and which were communicated to the Academy of Sciences in Paris in September, seem to contain facts which may be useful for the agriculturists of this State. This observer found that silkworms succeeded much better when raised in the open air than when kept in close rooms. His idea up to the present time has been that the worms require to be kept at a high temperature, and carefully preserved from sudden changes. M. Sintrae finds, on the contrary, that they bear very well a temperature as low as 47 degrees and as high as 104 degrees; that they are not injured by the direct rays of the sun nor by sudden changes in temperature. They were not hurt by rain, nor even by thunder-storms. The disease that has been so prevalent amongst silkworms in Europe, and which has called for so large an importation of foreign eggs, is considered by the author to be caused by the worms being confined in too close rooms. The only shelter he gives them is an open shed, with roof sufficient to keep off the rain. The yield of silk seems very satisfactory, as 38 ounces of eggs furnished 372 pounds of cocoons, besides a large yield of eggs.

Bad Policy.—The Tuolumne City *News* is authority for the following: "Notwithstanding the fact that our farmers are tillers of the most productive soil in the State, almost two-thirds of the vegetables used and the fruits consumed, is retailed to them by peddlers, who haul their produce from twenty-five to forty miles. This should strike our farmers as a very odd species of foolishness. In fact we do not believe the case ever had a parallel in any country, unless it was in some of the cotton-growing States ten or a dozen years ago. We are fearful that many of our hitherto successful farmers may yet have to learn the old maxim, "a dollar saved is a dollar made."

No farm should exist without its fruit and kitchen garden. The lack of fruit and vegetables on a farm are evidences of bad management and want of thrift. There seems to be a disposition among California farmers to devote their attention mainly to one product. It is all wheat, all barley, all fruit, all vegetables or all something else. Diversity of culture and rotation of crops, which is the acknowledged secret of success in every other country, appears to be almost totally ignored in California. This thing should be reformed altogether.

Tea Culture in Calistoga.—Mr. Samuel Brannan has started the culture of tea on his ranch at Calistoga, under the direction of a family of Japanese, which has been brought hither for that especial purpose. Tea-raising will soon become an important feature in California agriculture.

Tobacco in Massachusetts.—The single town of Hatfield, Mass., realizes $275,000 annually from its tobacco crop.

More About Opium Culture.

A correspondent of the *American Agriculturist*, writing with regard to the culture of the poppy for opium, says that he has experimented considerably in that direction, in the State of New York; and has sent specimens of the opium which he has raised to several medical colleges. A quantity was also sent to a chemist in New York City, to be examined with regard to the quantity of morphine which it contained, and upon which the value of opium chiefly depends. The report was that the specimen sent was fully up to the average of the best imported. He further writes as follows:

The first point to be considered in regard to this, as with all other crops is—will it pay? Mr. B. says: "It will pay, and pay well, if attended to rightly. I know that I can take an acre of land and get more money from it than from three acres in any other crop I ever saw. It is not an exhausting crop, but a good one to precede wheat. At $10 or even $8 a pound, it will pay better than corn or wheat. I am not afraid that many will raise poppies or that too much opium will be made. It is too small business to suit the mass of farmers. It is worse than a dairy in requiring close attention to business. The man of small means, with a little land, and who is close, careful and plucky, will make it pay. A good boy or girl can attend to a quarter of an acre, and have over half a day to spare. The labor of weeding and hoeing is no more than for carrots or onions. It is "small business,"—*i. e.*, full of minor details, the proper observance of which are necessary to success. Good, rich land is required, which should be pulverized and leveled as for an onion bed.

We have been frequently asked whether the seed can be readily obtained. The *Agriculturist* answers that question by saying that it is kept for sale by all the large seed-dealers in New York. It may readily be obtained from them by mail, in sufficient quantities for practical experiments. The seed for subsequent crops should be saved by the grower. It is not too late to obtain seed from New York and secure a good crop the present season.

A Hybrid Potato.

The Oakland *Transcript* makes the following reference to a very interesting experiment: Mr. Pryall, who lives out on Broadway extension, has recently been making some very beautiful horticultural experiments, all of which promise to culminate most successfully. One of these experiments, and the only one which we shall mention now, was undertaken for the purpose of obtaining a new variety of potatoes, by a system of hybridizing. Some of the potatoes raised by this method have a most beautiful, clear appearance, and we are assured that the flavor is vastly improved. The varieties experimented upon were the peach-blow and pinkeye, both of which are highly valued as articles of food. The product of these two varieties partakes of the character of both, containing as it does the best qualities of the parent kind. In fact, it is an improvement on either. The way in which the specimens exhibited to us were obtained, was this: Both varieties were planted on the same plat of ground, but in different rows. After the potato vines commence to bloom, the pollen or fecundating dust of the pinkeye is gathered and sprinkled on the blossoms of the peach-blow, which is then covered until the two qualities are thoroughly united. The result is, that the potato is a sort of mongrel, but superior to either of the species from which it is propagated.

Peach trees should not be set among apple trees. The peach is not so short-lived as many imagine, where it is properly pruned and cared for. By cutting back the old stocks, it is claimed that the tree may be made to last a life-time. Trees of all kinds planted in a bottom land or sheltered valley should be set further apart than when planted on hills. Ashes are very useful in the orchard. An orchard or vineyard can scarcely receive too much of this kind of dressing.

Cultivation of the Coffee Tree.

Various efforts have been made, from time to time, to introduce the culture of the coffee tree into this country. In the Atlantic States, Texas and Florida have been selected as fields for experiment; but we are not aware that any material success has thus far attended such efforts. The public was informed, some three or four years since, that a company with $3,000,000 capital had been organized for the culture in Florida. There were to be ten settlements of 1,000 people each. Dwellings and land were to be furnished by the company, rent free, to each family for ten years, at the end of which time deeds were to be given to each for forty acres. The profits to the company were set down at one million a year; but the project was altogether too speculative, and, of course, fell through.

There is no doubt but that coffee might be raised in both Florida, Texas, and in the southern part of this State. Several attempts have been made in Los Angeles and other places, to start the trees from seed; but almost or quite universally, we believe, without success. The reason for the lack of success has generally been attributed to the supposed fact that the seeds had lost their vitality by age. From what we can learn, however, we are rather inclined to the belief that the failure has most likely been due to the improper manner of the attempt at germination. If we are correctly informed with regard to these experiments, the seed has been placed immediately in the soil, exposed to the direct rays of the sun, with very little moisture, and in a condition of variable temperature; and that the result has been that they have failed to sprout. With such treatment the best and freshest seeds would be most likely to fail.

How to Plant the Seeds.

In the northwestern States of Mexico, where coffee is successfully cultivated, the practice is to plant the seed in October, at the close of the rainy season, under an artificial shade. The plants do not show themselves above ground until the next March or April—from five to six months. During all of this time the ground is watered daily. The seeds are planted in rows eighteen inches apart, and each seed from two to three inches apart. They grow to the height of about six inches at the close of the first year, and increase from fifteen to twenty inches each year afterwards, until full growth is attained. When the tree is to be transplanted, each plant is removed to the shady side of a plantain tree or castor-oil bean shrub, previously prepared for it, and some two feet from it. These plants being more rapid in their growth afford the necessary shade to the coffee shrub, and is cut down when the coffee tree comes into bloom. We have the above information from a gentleman now in this city, who has had personal experience in the culture of coffee in Mexico.

Another plan which we have seen recommended, may be described as follows:

The seeds, before being put in the ground, should be placed, enveloped in the natural dried pulp which holds the two halves of the berry together, into warm water, and kept there until they sprout. After the shoots have fairly put forth, they should be transplanted to the nursery, which should consist of moist, rich earth, *shaded from the direct rays of the sun.*

If no natural shade can be obtained, forked stakes should be driven, and poles laid across and covered with brush, at an elevation of four or five feet above the ground, so as to give ample room for free circulation of air beneath. The plants should be transplanted to the field at the close of their second year's growth. If put into the ground in the first place, there is danger that the proper and uniform degree of moisture and warmth will not be kept up, to induce the sprouting.

The statement is, that the seeds when placed in water, sprout in eight or ten days. We can scarcely think, however, that such would be the case, with seeds which require six months to germinate in moist ground; but a test of a few seeds can be readily made by anyone who is desirous of trying this mode of germination.

The Cultivation of the Tree.

To be cultivated to advantage, the coffee tree requires a climate whose mean temperature is about 68°; a fall below 53°, when the plant is in vigor, is extremely hurtful. It is by nature a forest tree, requiring shade and moisture. In many places, especially in Arabia, it is cultivated in the midst of scattered forest trees, in order to get the benefit of the shade from their spreading branches. The coffee, like most other forest trees, prefers the hills to the plains. In the best coffee countries the plantations are almost always located on the hills and mountain sides, which are cleared of their forest growth for this culture. The plant needs a rich loose soil; clay is especially unfavorable. New and virgin soils are preferable to that which has been previously tilled; although judicious dressing would undoubtedly keep the soil in good tilth for any length of time. The coffee tree is a great consumer of alkalies. It sends its roots very deep in search of moisture and food.

In some places, in setting out the trees, trenches are dug from four to five feet deep and three feet wide, into the bottom of which are thrown stones, decaying wood, etc., upon which the mold is placed. The object of this is to secure a more perfect irrigation, so that the tree may derive its sustaining moisture from below, upward. The tree requires a large amount of moisture until it reaches its third year, when it commences to bear. Its height, depending upon the moisture it receives and the nature of the soil, is from eight to twenty feet. When disposed to grow over twelve or fourteen feet high, it is usually cut back for convenience in gathering the berries.

Artificial irrigation will be essential to the cultivation of the coffee tree anywhere in this State. In fact, it is employed on almost all coffee plantations everywhere. Irrigation must be plentiful up to the time of flowering, but not in excess; but must be totally withheld while the berry is ripening. Even natural rains at that time are very injurious to the fruit. A dry climate, with proper artificial irrigation, is better for coffee than a climate with a plenty of natural irrigation from rains—for the former can be readily controlled. After the tree has attained its full growth it will require comparatively less irrigation than when young. In setting out for permanent growth, about 550 trees are generally allowed to the acre. The shrub should receive full attention for the first two or three years, and the ground kept as free as possible from weeds.

The plant commences bearing in its fourth year, and continues to produce fruit abundantly until it is past forty years of age. It lives to a great age. In Brazil it bears two crops a year—the principal one being gathered in the spring and a small one in the fall. The quality of the second crop is considered the best. The tree resembles very much a small pear tree—the limbs spreading very regular.

Kill the Fish.—It is both cruel to a fish and injurious to its flesh to allow it to die the lingering death to which they are usually subjected. A fish should be killed as speedily as possible after it has been taken from the water. There is about as much propriety in eating a drowned sheep or chicken as in eating a fish that has died in consequence of being taken from its natural element. The inhabitants of Holland are very particular in this respect, and always kill the fish by stabbing as soon as taken from the water.

Drainage.

Mr. Greeley devotes Nos. 10 and 11 of his series on "What I Know About Farming," to the subject of drainage. In the first number he gives his readers a description of his own farm, which is located in the town of Newcastle, West Chester county, N. Y. He details therein, at considerable length, the "difficulties" and "blunders" which he encountered in his efforts to effect a proper drainage of some twenty acres of swamp land which he found upon it, and the final "success" which attended his efforts.

In No. 11, he submits some general conclusions to which his experiences has led him, the first of which is as follows:

> While I doubt that there is *any* land above water that would be improved by a good system of underdrains, I am sure that there is a great deal that could not at present be drained to profit. Forests, hill-side, pastures and most dry, gravelly or sandy tracts, I place in this category. Perhaps one-third of New England, half the Middle States and three-fourths of the Mississippi Valley, may ultimately be drained with profit.

Drainage is no doubt a much more important matter east of the Rocky Mountains than it is in California; yet even here it deserves the attention of our farmers to a much greater extent than has yet been given to it. All swamp lands, of course, and all soils resting upon a substratum of clay should be drained; but it is difficult to give any general rules which shall be applicable to lands other than such as the above, by which the farmer may know when he should drain.

An experienced eye in looking over a field covered with a growing crop, may detect those portions, if any, which are affected by a surplus of water. In the Eastern States we often meet with crops which exhibit a want of vigor, which present a sickly hue of color, and in which the individual plants are not sufficiently developed. The unpracticed eye would be very likely to say that such a field was suffering from drouth, when the experienced farmer would at once perceive that the trouble arose from an excess of moisture—from water which was stagnant from lack of circulation by drainage.

If water stands upon or very near the surface, plant roots are drowned out. They must have air to breathe as well as animals; but the stagnant water keeps the air away. When drainage can go on, the movement of the water itself brings the air in contact with the rootlets. If we plant a tree in the richest soil, give it just the needed amount of water, but cover the ground for twelve or fifteen feet around it with an impervious cement, the tree will soon die for want of breath, just as sure as one of us would die if we were inclosed in an air-tight room.

Oftentimes, strange as it may seem, drained land stands drouths better than that which is not drained, for the simple reason that the former absorbs more moisture from the air, by means of the circulation which is established between the surface and the air spaces within the drains. The value of hundreds of Eastern farms has been doubled, and not unfrequently trebled, through the increased powers of production which have been imparted to them by a proper system of drainage that has cost but a tithe of their increase in value. Moreover, it is often the case that the higienic advantages derived from drainage are quite as important as those of a purely agricultural character; and by such means the sources of malaria are not unfrequently removed. No doubt some of the ague districts in this State might thus be greatly improved.

Surface ditching will very seldom accomplish the ends sought for in drainage. Underdraining is the only effectual remedy, and when that is undertaken it is better that it should be well done. Digging ditches and filling in with stones or bushes, as sometimes recommended, is poor economy; even covered drains of stone soon get out of order, and wooden drains decay. Porous tile drains are the cheapest in the end, and they are all the time much more effective than those constructed of any other material.

We believe draining has been practiced to some extent in California, for other purposes than the mere removal of the surface water, and to considerable advantage, and we should be pleased to receive from some practical California farmer his views of underdrainage as applicable to this State. It is a matter which has not yet attracted that attention which, in our mind, its importance deserves.

Grafting the Hickory.—The quality of hickory nuts varies much in the wild state, and the difficulties in the way of securing the best varieties by ordinary propagation have prevented any very large multiplication of the more choice specimens. Grafting forest trees, such as the hickory, has heretofore been considered a very difficult, and in many varieties an impractical thing. Mr. David R. Dickinson, however, writes to the *American Agriculturist* that after trying various methods of grafting the hickory but without success, he has finally hit upon the following with very satisfactory results:

Early in the spring he grafts the stock, which should be small, very near the surface, or, if possible, below it. The graft is waxed in the usual manner, and then the earth is heaped around to cover all of the scion except the upper end. Mr. D. has trees grafted on this plan now in bearing.

The Commissioners of Emigration in New York report that from January 1st to December 8th, 1869, there have arrived in that city 251,162 emigrants, against 208,101 during the same period in 1868—being an increase of 43,061. The receipts at the same time from emigrant fees have amounted to $805,128, and the disbursements to $517,837, with a balance in the treasury of $295,333. The balance in January 1st, 1868, was $8,041.

A man in Pennsylvania has two steers on which he challenges the United States to compete with him. One is six feet high, girths ten feet around the body, and weighs 3,425 pounds. The other stands six feet ten inches, girths ten feet two inches, and weighs 3,430 pounds.

To Save a Poisoned Dog.—It often becomes desirable to save the life of a valuable dog which has been accidentally or maliciously poisoned. The administration of flour and warm water will serve as an effective and most ready emetic, and if given promptly will often prove effective.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, March 31, 1870.

Flour, Extra, ꝑ bbl	$5 00	@	$5 50
Do. Superfine	4 50	@	4 75
Corn Meal, ꝑ 100 lbs	2 00	@	2 25
Wheat, ꝑ 100 lbs	1 30	@	1 62½
Oats, ꝑ 100 lbs	1 15	@	1 60
Barley, ꝑ 100 lbs	1 05	@	1 15
Beans, ꝑ 100 lbs	2 50	@	3 50
Potatoes, ꝑ 100 lbs	1 75	@	2 00
Hay, ꝑ ton	11 00	@	17 00
Live Oak Wood, ꝑ cord	9 00	@	14 00
Beef, extra, dressed, ꝑ ℔	7	@	12½
Sheep, on foot	2 50	@	3
Hogs, on foot, ꝑ ℔	5	@	9
Hogs, dressed, ꝑ ℔	8	@	8½
GROCERIES, ETC.			
Sugar, crushed, ꝑ ℔	13½	@	14
Do. Hawaiian	8	@	11
Coffee, Costa Rica, ꝑ ℔	18½	@	19
Do. Rio	—	@	17½
Tea, Japan, ꝑ ℔	75	@	90
Do. Green	60	@	1 25
Hawaiian Rice, ꝑ ℔	8	@	9
China Rice, ꝑ ℔	5½	@	6
Coal Oil, ꝑ gallon	40	@	42½
Candles, ꝑ ℔	16	@	18
Overland Butter	20	@	30
Ranch Butter, ꝑ ℔	25	@	30
Isthmus Butter, ꝑ ℔	25	@	30
Cheese, California, ꝑ ℔	18	@	22
Eggs, ꝑ dozen	25	@	30
Lard, ꝑ ℔	13	@	14
Ham and Bacon, ꝑ ℔	14	@	15
Shoulders, ꝑ ℔	9	@	10

Retail Prices.

Butter, California, fresh, ꝑ ℔	40	@	—
do. pickled, ꝑ ℔	35	@	—
do. Oregon, ꝑ ℔	25	@	—
Cheese, ꝑ ℔	20	@	25
Honey, ꝑ ℔	25	@	30
Eggs, ꝑ dozen	45	@	50
Lard, ꝑ ℔	20	@	25
Hams and Bacon, ꝑ ℔	22	@	25
Cranberries, ꝑ gallon	1 00	@	1 23
Potatoes, ꝑ ℔	2	@	5
Potatoes, Sweet, ꝑ ℔	—	@	2
Tomatoes, ꝑ ℔	—	@	—
Onions, ꝑ ℔	3	@	5
Apples, No. 1, ꝑ ℔	4	@	5
Pears, Table, ꝑ ℔	5	@	
Plums, dried, ꝑ ℔	10	@	12
Peaches, dried, ꝑ ℔	10	@	15
Oranges, ꝑ dozen	50	@	75
Lemons, ꝑ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ꝑ ℔	—	@	25
Soap, Pale and C. O	10	@	12
Soap, Castile, ꝑ ℔	18	@	20

Scientific Press.

DOUBLE SHEET—24 PAGES.

W. B. EWER........................Senior Editor.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance	$4 00
One copy, six months, in advance	2 50
Delivered by city carriers, per month	50

Rates of Advertising.

One square (ten lines agate), one week	$ 1 00
One square, one month	3 00
One column, one month	40 00
One column, one year	400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

Thomas Poyzer is now visiting Los Angeles and neighboring counties on business for this office, receiving subscriptions, etc. He is an old and worthy agent for the Press.

San Francisco:

Saturday Morning, April 2, 1870.

Table of Contents.

A new Amalgamating Pan—Ill....209
Mills and Mines of Colorado....210
From Idaho....210
The Pennsylvania Oil Regions....210
Improvement in Dentistry....216
Full List of Patents....216
Notes of Recent Patents.216
To Correspondents....216
Use of Electro Silver Copper Plates....217
Improved Flooring Clamp—Ill....217
National School of Mines....217
Dualin....217
Patent Commissioner's Report....218
Educating Workingmen in France....218
New Copper Process....218
Mining as a Business....219
New Pulley Block—Ill.219
New Books....219
Oakland and Alameda...219
Men Wanted....219
Agriculture in the Mountains....220
Improved Wire and Picket Fence—Ill.... 220
Fossils in California....221
Morton's Cork Extractor—Ill....221
Manufacture of Leather Belting....221
Our Progress....209
S. F. Stock Market....213
S. F. Shareholders' Directory....213
New York Metal Market.321
S. F. Metal Market.... 320
Farming and Gardening.—Planting Trees by the Highways; Deep or Shallow Plowing—Ill.; Rearing Silkworms; More About Opium Culture; A Hybrid Potato; Cultivation of the Coffee Tree; Drainage; S. F. Market Reports....214
Mechanical Progress—Hints to Boiler Makers; Boat Towing by Means of Wire Rope; Estimating the Power of Motors, etc....211
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Colorado, New Mexico, Nevada..212
Reading for the Hour.—How Waste Matter is Utilized; Adoration of a Tooth and a Cloak; Habits of Frogs, etc.....228
Scientific Progress—Transmission of Electro Signals; Color of the Water of Lake Leman; Ammonium in Ammoniacal Amalgam, etc....211

Notices to Correspondents.

Chloride Bill, Humboldt City, Nevada. We find, on looking over your letter, that all the items you give have previously appeared in the Press. We should be very glad, however, to have you give us any special accounts with regard to the mines or processes.

G. L. M., Empire, Colorado.—We have forwarded to you the pamphlet you ask for, and would be most happy to receive any specimens for our cabinet.

New Subscribers.—Notwithstanding the dullness of the times, we are now receiving more subscriptions by mail to the Scientific Press than at any former period. The reduction of subscription rates and the increased variety of reading matter is having a gratifying effect. We are now frequently reminded of the value of the Pacific Railroad by receiving, almost daily, cash subscriptions coming from nearly every State in the Union. It has enlarged our field of usefulness, and stimulates us to improve every issue.

◆

Golden State Iron Works.—At these works, which were lately damaged by fire, but not as extensively as at first stated, the carpenters are busily at work, and the energetic firm are determined to get everything into running order in about two weeks. The engine and boiler, and much of the machinery being not seriously injured at the conflagration, we have no doubt but that Messrs. Palmer & Knox will carry out their determination.

◆

The Summit Valley Ice Company have a warehouse on First street, near the Miners' Foundry, and are daily receiving orders for their excellent ice. We have given a description of how the ice is manufactured in previous numbers.]

San Diego Gold Fields.

All accounts agree in stating that the first excitement was overdone. The specimens which have been sent to other places came from the Washington lode, delay in developing which has been caused by some dispute as to whether the Julian District comes within a Spanish grant, the Quill Mac, said to have been confirmed by the U. S. Courts. The prospecting is done in an irregular, hap-hazard sort of a way. But things will right themselves in the course of time. It is ascertained that there is no proper wash gravel.

Washington City, containing three stores, one a tent and the others log cabins, is situated in Washington Gulch. A short distance above the city, up the gulch, at the right, is Gold Hill, at the base of which runs the Washington ledge, above this the Hayden, then the Kelly and then the Lincoln, all on the same hill. None have been worked to any extent. The widest is not over three feet in width. The character of the rock is said to be the same in all.

There must be hard work done before the veins yield the gold they contain, and, perhaps, litigation. Many who have been there are reported to have left, disgusted with this fact. A good assayer is needed, and would probably get constant employment.

◆

Major-General Thomas.

The death of Major-General George H. Thomas on Monday last brought sorrow to every heart that knew him. A brave soldier, a most able officer and a true gentleman, he has commanded the respect and won the love of all with whom he came in contact. His military-history is too well known to need any statements here, and his fame rests on the solid foundation of historical sucesses.

We cannot refrain, in this connection, from reëchoing the sentiments expressed a few days ago by the *Alta*, in regard to the proposed reduction by Congress in the office of Major-General. We had five, and now by General Thomas' death, have four officers of this rank, and there is a movement being made in Congress, on the ground of economy, for reducing the number to three. If five men had deserved promotion to this office, they deserve to hold it; and it is the greatest ingratitude to deprive them of what they have won on the battle-field. No other country would for a moment entertain such an idea, and the consideration of a few dollars is most paltry in comparison to the injustice done to gallant officers. How General Logan can favor the measure, unless from envy, passeth our understanding.

◆

Increased Demand for Steam Stamp Mills.—The Wilson steam stamp mill, manufactured at the Pacific Foundry, in this city, for the Overman Silver Mining Company, of Virginia City, Nevada, can be seen in operation at the works on First street. Mr. Wilson is now busy filling orders from several other prominent mining companies on this coast. There seems to be an increasing demand for these mills, and we hope they will be the means of making valuable many mines not worked at present for want of sufficient capital to build mills on the old plan of equal capacity with the steam stamp mill.

◆

The State Senate passed, on Monday, Mr. Roberts' bill regulating the rights of owning claims. The owners of mining claims are to have a right of way to them over the claims or lands of others for access, and also for the purpose of draining, reaching them by tunnel, and for carrying off tailings, etc., in working. When this right cannot be acquired by private bargain, it may be granted on application to the County Courts, after appraisement of damages by commissioners appointed, whose report is subject to revision and approval.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending March 22d.

Lenger-Index.—Charles A. Fitch, San Francisco, and William O. St. John, Oakland, Cal.

Extracting Copper from its Ores.—Nathaniel Haskell, San Francisco, Cal., assignor to himself and Joseph F. Steen, same place.

Bolster and Axle-Bed Plates for Vehicles.—John Henry, Suisun, Cal. Antedated March 1, 1870.

Wagon-Standard.—John Henry, Suisun, Cal. Antedated March 1, 1870.

Medicinal Beverage.—Luigi F. Lastreto, San Francisco.

Gang-Plow.—Jacob Price, San Leandro, Cal.

Sheet-Metal Seaming-Machine.—John M. Veasey, Denver, Colorado Territory.

Dress-Protector.—Frederick Wittram, San Francisco.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

◆

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Improvement in Windwheels.—C. Mahler, S. F.—This invention relates to an improved wind-mill, which may also, when divested of its regulating parts, be employed as a water-wheel for driving machinery, or as a propeller-wheel for vessels floating in the water. On the upright shaft is a box through which, at right angles to one another, pass the two arms which hold the vans or sails, the two opposite vanes on each arm being placed at right angles to each other. The vanes, moreover, are so secured on the shaft that their greater width is below it, and the upper side is weighted. On the shaft which rises from the top of the box are the four arms of a governor, each pair being connected by rods with an arrangement of blocks within the box. Those blocks are in two sets, and are all wedge-shaped. Of one set, one is attached to each side of the box, with the narrow end lowermost; of the other set, one is attached to each rod (on the arms of the governor) with the narrow end uppermost. Thus, when two blocks, one of each set, are placed together, they form a square. The inclined surfaces of these blocks are corrugated, to prevent slipping. The operation is as follows: When revolving, the vane coming against the wind lies horizontally, presenting no surface for it to act upon, while the one on the opposite end of the arm stands vertically, receiving the full force of the wind, until the former comes to a position where it catches the wind, when, on account of one side being righted, it turns to a vertical position, at the same time turning the other vane to a horizontal position. To prevent turning too far, there is a lug or projection on the arm, inside of the box, which, when the vanes have turned the proper amount, strikes on the blocks above spoken of. Should now the wind increase to a gale, the arms of the governor will fly out and raise the blocks attached to them, and, on account of the wedge-shape of the blocks, less play will be given the lugs, and hence the vanes will be made to stand at an angle with the wind, thus regulating the speed. The wheel can also be mounted vertically, in which case the governor is dispensed with, the vanes feathering automatically, owing to their peculiar construction. When used as a water-wheel or propeller, it is entirely submerged. Protection for this ingenious mechanism has been obtained in England and France through the Agency of the Scientific Press.

◆

Improved Tie-Laying Machine.—J. R. Adams, S. F., Cal.—This device is intended to supply a method of laying down, in regular order, the ties which bind the opposite rails of a railroad track, which shall be simpler, quicker and less expensive than any now practiced. It consists first, of a pair of wheels, moving inside a properly constructed frame, which receive the ties in recesses made in their peripheries and lay them down upon the prepared bed as they revolve, carrying them around one-half of their revolution. Behind and attached to the frame is a car running on numerous small wheels which move on the ties already laid. Upon this a truck, which carries the ties forward from the rear, is propelled, so as to place these ties in a convenient position for depositing them in the recesses in the wheels. These recesses are at such a distance apart as is equal to the interval to be maintained between the ties when laid, and to prevent the ties from prematurely leaving them, there is a curved guard before each wheel. To lay the ties by this device it is only necessary to draw the machine along the road-bed, while a man at each side of the frame places ties in the recesses of the wheels, as these last revolve.

◆

Improvement in Dentistry.

In the United States dental surgery has taken a higher stand than anywhere else in the world, and our American dentists are not equalled in any other country. Indeed, the best and most celebrated of the profession in Germany are Americans, who, after being educated here, have gone to practice their trade in the Old World.

We were lately shown an instrument which promises to come into extensive use in filling and cleaning teeth, for it obviates to a great extent (almost entirely, some say) the pain and inconvenience caused by the present common method. It is no "wonderful discovery" but simply a scientific improvement of the dental instruments. Instead of the tooth being cut by forcibly pressing a sharp tool against the hard substance, the burrs are revolved at a very rapid rate by means of a small pneumatic engine, very ingeniously constructed, and of a size to be as easily held in one hand as the common tools. The rapid revolution of the burrs cuts quickly and painlessly, as can be readily tested by a visit to Dr. Gillespie. The principle, which is nothing new, can indeed be seen in any shop where a saw is used for cutting instead of an axe, and anyone can see how much all disagreeable shocks can be avoided by the quick revolution of a sharp cutting tool. We have not space to give a full description of the "Pneumatic Burring Engine," as it is called, with its additional appliances for saving the teeth and its universal gear joint attachments, by means of which the burrs can be used in any position; but we advise those about to have their teeth filled, or dentists who desire to keep up with the age, at least to visit Dr. J. P. Gillespie at 313 Bush street, and see his instrument, for which the doctor is agent for this coast. Dr. G. is a gentleman of some twenty years practice in dental surgery, and this contrivance grew out of his experience in operating. This machine, while not wholly doing away with the use of hand instruments, still supplies their place in most of the operations.

◆

Improvement in Screw-Bolts.—Mr. Rutter, civil engineer, and a resident of Vallejo, has made an important invention, designed for locking nuts upon screw-bolts, the object of which is to prevent nuts from working loose on the bolts, as on fish plates for rail-joints, in use for gunnery, and in quartz mills. The Vallejo *Recorder* says that the chief engineer of the California Pacific Railroad Company has tested rail-joints for nearly a month, with great satisfaction, and twelve joints are undergoing severe tests on the Central Pacific Railroad at Sacramento, and if these trials succeed, of which there is but small doubt that they will, Mr. Rutter's invention will, no doubt, become universally adopted. Patents for this invention will probably soon issue both in the United States and Europe.

The Use of Electro-Silver Copper Plates for Saving Gold in Quartz Mills.

The Superintendent of the Kanaka Gold Mining Company writes as follows:

"I saw in the Press of March 12th, an article speaking about the silver-plated copper amalgamating plates of Mr. Edward G. Denniston, of the San Francisco Plating Works, and, partly in justice to that gentleman, but mostly in the interest of all my brother millmen, I would give you my experience in using these plates, which I have now employed for over two years, to great satisfaction. It is just about two years since the idea of using such plates occurred to me. I tried first, a fifty-cent piece pounded flat, which I nailed to a common amalgamated copper plate, and found that I saved on this so treated half-dollar piece more amalgam, in proportion, than on the copper plate to which I had the same fastened."

The writer states that he first commenced using these plates in Calaveras county, and that he is now employing them in a 20-stamp mill of the company named above, in Sierra county. He uses no other kind of plates. He employs 105 linear feet of plates for his five batteries. He refers to his mode of treating and using the plates as follows:

After receiving the same from the plating works I wash them off with a very mild solution of sulphuric acid, by the help of a soft sponge, then rinse them off thoroughly with clean water. After this I take another sponge and a mild solution of cyanide of potassium, wash the plates again off, and use the same sponge and solution for charging the plates with *good prepared* clean quicksilver, which will instantly adhere. Just charge enough quicksilver, but not too much. The first twenty-four hours the plates will not save as much amalgam as afterwards. I found it necessary to clean the plates off every twenty-four hours, and *never* to allow the amalgam to become hard on the plates. In such a case I would wash the hard spots of amalgam off with quicksilver.

Not to lose any time to handle the plates, I have my plates laying loose in the sluices, and have, at intervals in the sluices, according to the length of the silver plates, crosswise, a small piece of sheet iron nailed, the lower edge standing up a little, just enough to put the silver plate under this crosspiece, and so to hold the plate in its place. This way, each plate can be taken out at any convenient time, the amalgam taken off, the plate dressed and laid in again, and the mill never need to be stopped for such purpose. The amalgam I have taken off by the help of a piece of india-rubber belting cut straight and at a right angle. After the amalgam is taken off, I wash the plates again with a mild solution of sulphuric acid or cyanide of potassium, but a very mild solution, then charge them with quicksilver, rinse well off with clear water, and put the plate into the sluice for use again.

I have taken from my upper plates as high as twenty pennyweights of hard amalgam in twenty-four hours, where I at the same time took from our common amalgamated copper plates not one-half the amount of amalgam, and the sulphurets were producing stains on the common copper plates, when the silver plates remained as bright as a looking-glass. I would advise never to allow the amalgam to become harder on these silver plates than to be removed by a piece of india-rubber as above. The plates should not be brushed or otherwise touched while they lay in the sluices. My experience proved to me that such plates will pay for themselves in less than one month by the greater quantity of amalgam and by the work saved.

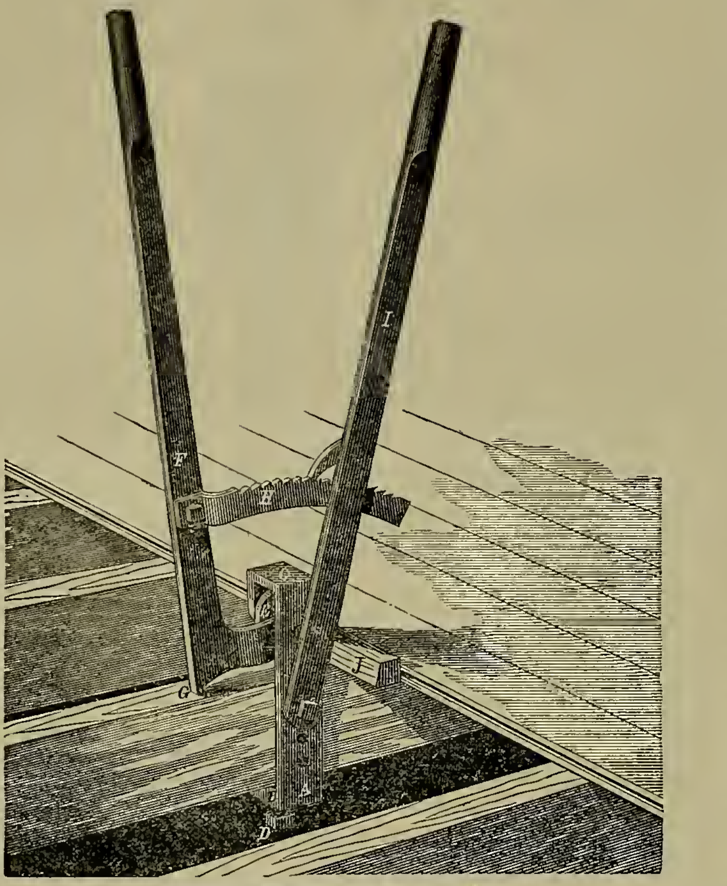
◆

Light Houses.—In England there is upon an average one light-house to every fourteen miles of coast; in Scotland, one to every thirty-nine miles; and in Ireland, one to every thirty-four miles. About half the lights are dioptric, and the remainder catoptric. The usual consumption of oil in a first-class dioptric is 700 gallons per annum. The cost of an apparatus complete is about £3,000; sufficient elevation being given, in clear weather a first-class light may be visible 100 miles. Practically, 250 feet from the water is considered the maximum; this gives a horizon of 18 or 20 miles. The last novelty is the division of the lantern into sectors of different colored light, thus throwing a different color toward different quarters of the horizon, which is of great utility in guiding to the entrance of harbors.

Improved Flooring Clamp.

From Colorado comes a very useful device for clamping together the boards, in laying floors, before nailing, and one which would seem to be desirable for carpenters. It is made of wrought iron, and can be quickly applied, as there is no tedious operation of turning screws necessary, while by placing it on the joist and pulling the levers apart, the boards are effectually clamped.

A represents the stock of the clamp, which has two right-angled brackets, B and C, which in use are placed over and under the joist. The lower bracket turns up about one half inch, leaving an opening between it and the upper bracket to receive the joist. The lower bracket is provided with a set-screw, or stud, D, to bite into the wood, to prevent slipping. The upper bracket supports a hinged tongue, E, which covers the opening and steadies the clamp. Near the top of the stock a cranked lever, F, is pivoted to A, having a sharp heel, G, which, when in use, bites into the top of the joist to prevent slipping.



NEVIN'S IMPROVED FLOORING CLAMP.

It is also provided with a segmental rack, H, to hold what is gained by the clamping lever, I, which is provided with a pawl to catch into the rack, H. There is also a number of holes in the stock, A, so that the levers, F and I, can be altered at pleasure, to suit different depths of joists.

To use this device, raise the tongue, E, and place the stock, A, on the joist, having previously placed a loose piece of wood, J, between the lever, I, and the edge of the board, and reaching from the joist on which the clamp is placed to the next one on the right. Then the one movement of pulling the levers apart fastens the clamp on the joist and clamps the floor; for this movement presses the set-screw, D, into the botttom and the heel, G, into the top of the joist, and the lever, I, is pressed up against the boards.

It is claimed that the economy of time and labor effected by this machine will pay for its cost in a few weeks. It certainly seems to be a device which fulfils the need long since felt of some machine for this purpose.

Persons desirous of further information, or of purchasing, at reasonable terms, the patent right for California, can apply to the inventor, David Nevin, Georgetown, Colorado Territory.

National School of Mines.

Senator Stewart's latest bill provides for the appointment of a Comptroller and two Professors, one of chemistry and metallurgy and one of mining engineering. The school, until otherwise provided by law, is to be located at one of the mints or assay offices of the United States. It is proposed to appropriate $50,000 for books and apparatus.

Senator Stewart has been untiring in his efforts to establish a school of mines, and deserves great praise for his perseverance. But it would seem as if there would be required still more exertion before he can carry his point. Apparently, he hopes now to induce our economical Congress to take action by proposing a small beginning, and then gradually build it up properly. We are afraid, however, that a commencement on so small a scale may work disastrously. Nobody will be attracted to the institution except a few persons in the immediate locality of the school, and then it will be argued that the United States cannot and ought not to appropriate public moneys for the benefit of these few individuals.

If we are to have a national school of mines, it must be properly supported and made worthy of the subject; and to get an appropriation, the Western States and Territories must first unite in deciding on the location, and then direct their representatives at Washington to use their combined efforts to pass the measures. So long as California is opposed to having the institution at Washoe, and Nevada to having it in California, and Colorado to having it at either place, other Congressmen will justly think it a useless affair. If we cannot agree in this matter, we may as well give up the idea.

◆

The Trench mine at White Pine, near Hamilton, Nevada, bids fair to rank with the best mines in that district. The company are taking out large quantities of ore, which they are selling at $100 a ton on the dump as fast, we are told, as they can take it out.

◆

The School of Art for women in London is prosperous. The number of students is 128, and their efforts are highly spoken of. The school is free from debt.

Dualin—Dynamite.

In our issue of January 22d, we made some remarks on dualin, giving it as the invention of Mr. Nobel. We have received a communication from Mr. Carl Dittmar, formerly of the Royal Prussian Artillery, now at Boston, and as Mr. D. gives the best of references, among them Gov. Claflin of Massachusetts, and Gen. Foster of the U. S. Corps of Engineers, we condense the substance of his letter, which we have not the space to publish in full. We readily retract anything wrong in our article. The following is from Mr. Dittmar's communication:

Sombrero, an Italian chemist, not Mr. Nobel, was the inventor of nitro-glycerine. Mr. Nobel, however, was the first to apply this compound to blasting purposes, and the first who endeavored to lessen the danger of handling and using the substance, by mixing with it common powder and also of increasing its effect. Mr. Nobel is likewise the originator of the idea of using fulminating caps for exploding nitro-glycerine and dynamite, but invented neither dynamite nor dualin.

Mr. Carl Dittman, in 1862, resigned his commission in the Prussian Artillery and the position of Assistant Director of the Government Powder Mills at Spandau, near Berlin, to take the place of Director in some large private powder works. In 1866 he became Technical Director with Mr. Alfred Nobel, whose first nitro glycerine factory he built at Kruemmel, near Lauenburg. Here he invented dynamite, for which Mr. N. obtained letters patent in the United States, without Mr. Dittmar's knowledge.

As far as safety alone is concerned, dynamite has many advantages over nitro-glycerine, yet it does not come up to the standard of an explosive which will combine all the advantages of common powder and nitro-glycerine, without, at the same time, being liable to any of the objections to which either of these explosives is subject.

Dynamite will pack together in cold weather, thereby becoming inexplosive, and necessitating, before use, the thawing or warming process; it cannot be exploded without a cap containing fulminate, and it is not as strong as pure nitro-glycerine. Continued researches and experiments led me to the discovery of my improved compound dualin. This I claim to be safer than common powder, as strong as nitro-glycerine, and in its application cheaper than either.

On my arrival in this country, hardly two months ago, I found that quite a number of American patents have been granted to certain parties, for explosive agents and various apparatus used in their fabrication, all and every one of which had been originally invented, fabricated and used, and finally abandoned or improved upon by myself years ago in Germany.

It may be sufficient to state that on December 5th, 1867, protection by letters patent (No. 3,458) "for the production of material for blasting and similar purposes," was granted me in England.

In regard to dualin, I would only say that Mr. Nobel has never fabricated a single ounce of this compound, which, for European markets, is expressly furnished from my factory at Charlottenburg, near Berlin. The three American letters patent which I hold, grant me the desired protection in the fabrication of my powder within the territory of the United States.

Dualin is not composed of nitrate of ammonia and sawdust, else it would be very sensitive in attracting moisture; and water-tamping, such as I recommend in preference to other tamping, would be out of all question. It is, under all circumstances considerably stronger than dynamite; chilled cast iron plates from sixteen inches to twenty-three inches thick have been broken into fragments by the explosion of a small quantity of dualin placed on the surface of the plates. Dynamite, in even larger quantities than the ones in which my powder was used, had, on similar plates, produced no effect whatever. These experiments were made in December last, on the artillery practicing field at Tegel, near Berlin.

The above communication has been delayed several weeks by press of matter.

◆

A caisson for the East River Bridge, to connect New York and Brooklyn, was launched on the 19th inst., in the presence of a vast crowd. This bridge is one of the most interesting engineering operations now going on in the U. S.

Report of Samuel S. Fisher, Commissioner of Patents.—1869.

[CONTINUED FROM PAGE 204.]

Honest and Skillful vs. Cheap and Unreliable Patent Agents.

Where establishments are organized for the purpose of procuring patents, they are apt to become more solicitous about the number than the quality of those which they obtain. This tendency is aggravated by those who solicit patents upon contingent fees, or who, without special training or qualifications, adopt this business as an incident to a claim agency, and press for patents as they press for back pay and pensions. Such men are more desirous of obtaining a patent of any kind and by any means than they are of obtaining one which shall be of any value to their clients. Inventors are often poor, uneducated, and lacking in legal knowledge. They desire a cheap solicitor, and do not know how to choose a good one. They are pleased with the parchment and the seal, and are not themselves able to judge of the scope and value of the grant. Honest and skillful solicitors, with a thorough knowledge of the practice of the office and of patent law, and who are able and willing to advise their clients as to the exact value of the patents which they can obtain for them, may be of much service to inventors. There are many such; but those who care for nothing but to give them something called a patent, that they may secure their own fee, have, in too many cases, proved a curse. To get rid of their clients and of trouble, they have sometimes been content to take less than he was entitled to, while in many cases they have, with much self laudation, presented him with the shadow when the substance was beyond his reach. Between such men and the office the strife is constant. They have the ear of their client, and, to some extent, of the public, and much of the misrepresentation of the spirit and character of the work of the office is direcctly traceable to this source. It must be said, however, in justice to attorneys, that many inventors are so foolish as to wish to obtain patents for trading purposes, or as a salve to wounded expectations, even when they know that the grant covers nothing of value unless it be combinations which, if never made before, are never likely to be made again, even by themselves.

Registration System of Foreign Countries.

The patent system in vogue in Europe is substantially one of registration. Patents are granted upon the application of the inventor, without examination into the novelty or utility of the invention. The responsibility is thrown upon him of so framing his specifications and claims that they will bear the test of subsequent investigation. This he does at his peril; and if he attemps to make any preliminary examinations into the state of the art, he can do it only by the aid of solicitors, whose charges are far greater than the fees for a similar service would be if the work were done by sworn officers. But, although no examination is made, the patent fees abroad exceed those which the inventor pays in this country. This will appear from the following table:

Countries.	*Duration of Patent.*	*Fees.**
United States	17 years.	$ 35 00
Great Britain	14 years.	875 00
Farnce	15 years.	300 00
Russia	10 years.	450 c0
Italy	15 years.	250 00
gavaria	15 yesrs.	115 00
Austria	15 years.	350 00
Belgium	20 years.	420 00
Prussia	15 years.	100 00

*In a majority of the foreign countries mentioned the fees are much less for shorter periods than the full terms mentioned.

Proportions of Rejected, Amended and Patented Cases.

That the foreign plan is inferior to what I have called the "American system" of examination will appear from the following considerations: During the year 1869, 19,271 applications were filed in the United States Patent Office. Of these, 5,285 were rejected finally, and no patents were granted upon them. These constitute about twenty-eight per cent. of the whole number. By the English or foreign system all these rejected applications would have become patents, and 5,285 worthless patents would have been foisted upon the country. But this is not all. Of the 13,986 patents which were actually issued, about 12,500 were rejected in the first instance, and were only finally allowed after material modifications of the specifications or claims. By far the greater part of these modifications were in the nature of limitations of claims, which would otherwise would have been too broad. In other words, the applicants for 12,500 of the patents issued during the past year originally claimed too much, and were required to abate their pretensions before the grant was made. If the patents had been issued as they asked for them, they would have deceived the public as to the scope of the inventions and the state of the art.

Validity of Patents.

It may be safely asserted that the large majority of the patents issued from the patent office are good and valid; and, if rightly read and properly construed, fairly represent the status of the inventions in the arts to which they relate, so that no one who adopts ordinary precautions need be deceived by them as to the character of the inventions patented. It is a testimony to the thoroughness of the examinations, and to the public appreciation of them that while no man would buy a lot of land at any price without an examination of the title by competent counsel, thousands of dollars are freely invested in patents upon mere verbal representations, and with scarcely a reading of the document. That much loss has been the result of this easy-going confidence may be asserted, but very few such losses occur which ordinary prudence and business sagacity might not have prevented.

Questionable Reliability of Foreign Patents.

Under the foreign system, however, neither patentee nor public can have any confidence in the patent, however carefully it may be construed or scanned. It represents nothing more than the "guess" of the inventor as to what his invention may be, unsupported by any investigation or adjudication whatsoever. It is sometimes said that no patent can be known to be valid until tested by litigation, and that, therefore, a registered patent is as good before liligation as one granted upon examination. To this it might well be answered that frequently neither a first nor a second suit fully developes the state of the art or confers a fixed validity upon a patent. It may also be asserted that the machinery of the courts is not as good for the examination of mechanical questions as that of the Patent Office. A more conclusive answer is, that by the system of examination, one-third of the applications are not patented at all, and the remainder are so winnowed from the chaff of false claims that they are necessarily better than if issued as originally presented. Every process of examination compels the supposed invention to assume to some extent its proper place in the art, and, to that extent, adds validity to the patent that has passed its ordeal.

Unpopularity of Foreign Patent Systems.

Indeed, the lack of this examination and the practice of granting patents to the first introducer, as well as to the first inventor of a new improvement, has led to a movement abroad against the whole patent system. Its enemies clamor for its abolition. Its friends demand that it be improved, and the improvements which they suggest is the adoption of the American system. One or two smaller powers have declared against protection by patents; not so much, it would seem, to destroy the monopoly of their own inventions, as to obtain the free use of those made by their neigbbors. In the abolition of patents this nation, which during the last year patented more inventions than all the rest of the world put together, would of necessity be the greatest loser. It would give much more than it could receive in exchange.

I doubt if any one can seriously advocate or desire a change of our system, unless it be disappointed applicants, who would rather have bad patents than none, their counsel, who share in their disappointment, and such patent solicitors as hope to increase their fees by making for the inventor, at much cost of fees, that examination which the office now makes for the moderate charge of fifteen dollars.

A system of registration is, however, at present, practically impossible. It would be a simple outrage upon inventors and the public, if either were prevented from making any examination whatever into the state of the art prior or subsequent to the grant of the patent. Until the drawings are printed or copied so as to be made accessible to the public, this can never be done. This subject is, however, considered elsewhere.

[TO BE CONTINUED.]

* * *

The Paris *Cosmos* states that a material which can be pressed into the form of combs, buttons, knife-handles, etc., may be made from leather scraps by cutting them into smaller pieces and keeping them for several days in chloride solution. In this way they become hard and brittle. After being washed they are dried, ground to powder, and mixed with glue, or a solution of gum arabic, or any other adhesive substance, when the mixture is ready for the molds.

Educating Workmen in France.

A most interesting and instructive example is given by the conduct of the French company called Les Messageries Imperiales towards its employés at La Ciotat, a small town in the south of France, containing 10,000 inhabitants, who are almost all families of workingmen employed by the company. What this company does and the lesson it teaches are so well worthy of universal consideration that we condense the account given by the *Railway News:*

The company is the proprietor of a large fleet of Mediterranean steamships. It is not more than fifteen years since it obtained possession of La Ciotat and made contracts for the French government in the Mediterranean, and in this time it has succeeded in driving off from the coasting trade English competition, which previously controlled almost exclusively this sea. Indeed, so well is everything managed and executed by this company, that, in the English Parliament, the representative of the Treasury stated that the interest of England and its colonies would be best consulted by giving it a part of the mail service before entrusted to the English Peninsular and Oriental Company.

The engineers and superintendents of the company are all persons who have received the best education provided in France. Employing educated men has proved so successful that even the workmen receive special instruction. The infant and elementary schools of La Ciotat are wholly, or very largely, supported by the company. At the age of fourteen the boys commence their technical instruction, given specially by this concern. An apprenticeship in the works of La Ciotat is, from beginning to end, a course of technical instruction, and the foremen and workmen teach the youth and delight therein. The company has done away with the system of obligatory apprenticeship for a fixed period. The children not only receive wages from the moment they enter the establishment, but these wages are increased as soon as greater knowledge and skill enable them to do better work.

But their apprenticeship is not merely a school for mechanical dexterity. The company has a school-room, in which all the apprentices are educated gratuitously one hour each day, and that hour counts as one of the ten hours of their day's work. Attendance at this school is compulsory; but there is also an evening school which those may attend who wish. Three evenings a week plan-drawing, designing of machinery and of ships and ornamental drawing are taught gratuitously. The men attend and work diligently; and there is the strong inducement that the company selects the responsible engineers of steamships from those who have distinguished themselves in this course and take the highest places at the annual examination, at which gold and silver medals are awarded. The company also provides a library. The formation of bands of music is encouraged. Workmen's houses have been erected with all the modern conveniences, and each having a garden attached. The houses are let for $13 to $20 a year. With a further view to economy, the company has organized a market for the workmen. It has founded hospitals and savings banks, provided funds for sickness and death, and pays members of the religious orders to attend to the moral and religious education of the people.

The result of all this is apparent and important. The number of crimes committed at La Ciotat is surprisingly small. There is no trouble from strikes. The work done is excellent and the managers say that, in a money point of view, the company reaps an ample reward in the superior intelligence and steady conduct of their workmen.

It is to be hoped that a plan so beneficial to both parties may be adopted in other large works. The grand agent for elevating and refining the masses now-a-days is education. The advice cannot be given too often nor urged to strongly, educate, *educate*, EDUCATE.

* * *

Resuming Specie Payments.—The Merchants' Bank of St. Louis resumed specie payments on March 10th. This is the first step taken in this direction.

Gunpowder Explosion in a Mine.—A short time ago a cask of powder exploded at Morfa Colliery, in Wales, resulting in the death of twenty-three persons.

The New Copper Process.

Dr. T. Sterry Hunt writes that the experiments at Harvey Hill have been retarded by the inefficiency of the lixiviating tubs. He has, however, a plan which promises to overcome the mechanical difficulties. Trials with a Freiberg barrel gave the following result: The ores, dressed to about twenty per cent., and containing the copper as sulphurets (yellow and purple ore) with considerable amounts of carbonates of lime magnesia, were passed through a sieve of forty meshes to the linear inch and calcined at a low red heat, after which they held five to six per cent. of copper as soluble sulphate and the rest as oxide. Charges of 300 and 400 weight of this were treated in the bath of protochloride of iron, previously heated to 212° Fah., and after six hours' agitation in the barrel, the gangue was found to contain not over 0.5 per cent. copper. From the solutions 100 parts of metalic iron precipitated 170 to 172 parts of pure cement copper. The precipitation is very rapid in tanks, having the iron arranged on gratings at different levels, the liquid being kept hot by introducing a little steam. The reactions are: 1st. From the bath, oxide of of copper precipitates oxide of iron, forming chlorides of copper. 2d. From these chlorides, metallic iron precipitates metallic copper and regenerates protochloride of iron. These reactions alternate with one another, and with certain precautions the same bath can be used indefinitely. In the trials made the amount of protochloride regenerated was 80 per cent. of that in the original bath. The deficiency may be supplied by the action of sulphurous acid on the precipitated iron oxide. Rather than using the sulphurous fumes, as described in the British specification—which process has the practical disadvantage that the oxygen of the air, always present, raises the bichloride of copper to protochloride at the expense of a portion of decomposed protochloride of iron—he treats with sulphurous acids the insoluble residue from the solution of the oxide of copper. The turbid solution, rapidly drawn off from the gangue, soon deposits its suspended iron oxide in a settling tank, which is treated with sulphurous acid after the liquid has been drawn off to the precipitating vats.

The cupric chloride, so powerful in dissolving copper from copper-glance, purple ore and rich regulus, is feeble with copper pyrites, and only the iron of the double sulphide is attacked. The reaction is analogous to that between chloride of copper and sulphide of silver. A solution holding cupric chloride and common salt chloridizes and dissolves both silver sulphide and metallic silver. Advantage of this reaction has been taken in treated ores containing gold and silver, and trials have shown that in the case of an argentiferous copper ore the silver is readily extracted by the iron bath, from which it may be precipitated by filtration through spongy copper. With rich regulus holding gold, the gold goes with the residue, after extracting the silver and copper by the bath, and is in a favorable condition for removal by chlorination; which denotes that good results may be expected from the application of the process to our gold and silver-bearing copper ores.

* * *

Migration of the Whale.—The author of "Narrative of a Naval Officer" says: "From what I am able to learn of the natural history of the whale, she brings forth her young seldom more than one at a time in the northern regions, after which, with the calf at her side, the mother seeks a more genial climate to bring it to maturity. They generally reach Bermuda about the middle of March, where they remain but a few weeks, after which they visit the West India Islands, then bear away to the southward, and go around Cape Horn, returning to the Polar Seas by the Aleutian Islands and Behring's Straits, which they reach in the following summer, when the young whale, having acquired size and strength in the southern latitudes, is able to contend with his enemies in the north; and here also the dam meets the male again. From my own experience, and the inquiries I have been enabled to make, I am tolerably certain that this is a correct statement of the migration of these animals, annually making the tour of the two great American continents, attended by their young.

Mining as a Business or for Investment.

The London *Mining Journal*, January 15th, contains a communication from Mr. Charles Thomas, in which he discusses the merits of mining compared with other pursuits. His remarks were designed to apply to mining in England, where it has been prosecuted for centuries. If applicable to that country, with how much more force will they apply to the Pacific coast, where the business is yet in its infancy, the greater part of the country unexplored, while, with few exceptions, the surface of the explored ground has been merely scratched? No man is in a condition to say where the mineral deposits commence or where they end.

Mr. Thomas says: "Mining, although one of the principal sources of our natural wealth, is only thought of as a speculation, but is usually considered more risky than any other reproductive expenditure of money. There is a great deal of force in the prejudice; but, on the other hand, in justice to mining, it ought to be conceded that risk attaches to everything, and, therefore, that the risks of mining are only risks of degree. What are the risks of mining? They are various, and often serious." He enumerates a number of contingencies, few of which have application in this country. He then refers to the ordinary risks in other pursuits, and then to the list of bankruptcies at the close of the last and the beginning of the present year, and asks how many of the bankrupts are connected with mining, or how many of them may trace their misfortune to mining? It would be, of course, a rash assertion to say that their misfortune is owing to a want of connection with this industry; but it generally does appear that mining furnishes fewer names to "*The Gazette*" than almost any other industry of the Kingdom. "There is, in truth, no more speculation in mining than in ordinary business pursuits. As an investment, mining may not only be trusted in for dividends, but for a high rate of interest," provided only that it is pursued, like other business callings, for legitimate mining produce, as distinguished from market price premiums. Much demoralization has been occasioned by premiums, and it would be well were they to be more generally and strenuously disapproved. "Mere scheming for paltry premiums divests mining of its purely commercial character, and frightens persons from embarking in it, whose check-books would otherwise be ready."

Again, C. Chipman, in his "Mineral Resources of Northern Mexico," just published in New York, after describing the immense mineral wealth of that country, which he estimates could, with modern science and machinery, be made to produce, in silver and gold alone, £200,000,000 or $1,000,000,000 annually, discusses the question: Is silver mining a speculation? and concludes that, compared with farming, the risks are no greater, if so great. Mining for silver and gold, if entered into with the same business precautions that are generally observed by business men who engage in merchandising and mechanical pursuits, would present less hazards, and be attended with less failures than any other employment or business. He says much more, which may interest, perhaps console, Californians who have money invested in that country.

An English company, the "North Del Rey," mining for gold in Brazil, paid dividends last year to the amount of £53,000, thus returned in profit for the year the entire capital paid in.

California may point to the Eureka, and the Amador, and perhaps others which did more, and have done so for many years in succession—have returned hundreds for dollars invested in the actual development of the mine and erection of works.

M.

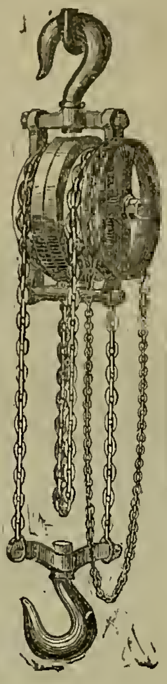
* * *

A Large Sewer.—West Philadelphia is building a great sewer. The section now in process of construction is two thousand six hundred and forty-seven feet long. The stone wall is at least thirty feet wide at the base, but becomes narrower towards the top. The conduit is of twenty feet diameter from side to side and of about nineteen feet height. The upper half is a semicircle, and the bottom, of course, is thus flattened. The inside cross-section area is two hundred and seventy-nine feet. It is estimated that 300,000 cubic feet of water per minute can pass through this conduit on a gradient of 322 feet per mile, or 7⅜ inches in 100 feet.—*Artisan.*

A New Pulley Block.

Among the devices which have been made in this direction, we find the following English device described in the *Ironmonger*. As we have given, from time to time, accounts of improved pulleys, we add this, which is worth noticing:

"The block is made on the differential principle. The lifting chain is passed over two sheaves, each of which is geared internally, the one having one or more teeth in excess of the other. Revolving around these internal teeth is a pinion, actuated by an eccentric, which is keyed on to a shaft passing through the center of the block, with a bearing at each end in the outside frame of the block. At one end of this shaft is a wheel with an endless hand chain passing over it; this gives the motion of the eccentric shaft. The teeth of the internal pinion are broad enough to gear into the teeth of both the sheaves, but as there are more teeth in one than in the other, they (the teeth) are not exactly opposite the other, and therefore will not admit the teeth of the revolving pinion without moving; but the tooth of the pinion, acting as a wedge, and entering with great power, pushes the one tooth forward and the other tooth back; and this continually occurring, a continual rotary motion is given to the sheaves, in opposite directions, with a power which is proportioned to the number of the teeth, the throw of eccentric, and the leverage gained by the diameter of the hand wheel. The lifting chain is passed over the one sheave, then down, and up over the other, the two ends being attached to a powerful cross bar, to which is connected the lifting hook. By this means the weight is distributed over the two sheaves and the two parts of the chain, increasing the safety and diminishing the friction of the block.



The blocks are very simple in construction, and are not at all liable to get out of order; the construction being such that the weight cannot run down, though the men lifting let go the chain. They hang quite plumb when in action, and the men are able to stand clear away from under the load, and the hand-wheel chain can be worked at any angle."

* * *

A New Publication.

We have received the initial number of the *Technologist*, which was born in February in the city of New York. The journal is especially devoted to engineering, manufacturing and building, and is published by the "Industrial Publishing Company."

From a personal knowledge of some of the managers, we were prejudiced in favor of this journal before looking at it. We happen to know that there is here combined a sufficient capital, extensive journalistic experience and great scientific ability. And our *a priori* judgment was not disappointed. The appearance and general arrangement of the publication are very pleasing, the illustrations are excellent, and the subject matter is of the highest quality.

The purpose of the publishers is most praiseworthy, and we believe they will persevere in their aims. They assert that they edit it solely in the interest of the subscribers. While, of course, we don't believe that they intend to impoverish themselves for the general welfare, we do believe, from the character of the management, that the acquisition of a high reputation is their *chief* object, and that this will lead them to the most indefatigable exertions in placing their paper in the first rank. We cordially extend the right hand of fellowship to our young brother with the old head and high aims, and wish him all success.

* * *

A steel coil spring, sixty feet long, five inches wide and three-sixteenth of an inch thick, has lately been made in Pittsburg, Pa.

New Books.

A History of Oregon. 1792 1849, drawn from personal observation and authentic information. By W. H. Gray, of Astoria. Published by the author for subscribers. Portland, Oregon: Harris & Holman. San Francisco: H. H. Bancroft & Co. New York: The American News Co. 1870. 8vo, cloth; pp. 624.

This book is a valuable addition to the historical library. The author is one of the oldest of pioneers, having gone to Oregon in 1835 and having resided there since, and having taken a prominent part in many of the events described. He puts many things in a new light; but speaks as one of authority, and brings strong documentary proof for his assertions. He has given no place to poetical effusion, but talks plainly and deals always with facts. We cannot give a better idea of the scope of the work than to quote from the introduction, premising that he brings in all cases very strong proof of his assertions:

> We make no claim to literary merit or attractive style; the facts we have collected, the proofs we are able to give of the policy and practices of one of the most gigantic frauds ever continued for a series of years by one professedly civilized and Christian nation upon another, in chartering and continuing to license a monster monopoly; and the manner in which they have sought for a series of years to prevent American trade and settlement of the western portion of our country, is contained in the following pages. We can only give the principal events, which in the future may be better arranged in an interesting a authentic history, which we must leave for others to write. The reader will find in the following pages: I. The American history of the Hudson's Bay and Puget Sound Agricultural companies. II. The causes of the Protestant mission, the causes of Indian wars, and the causes that must tend to the utter destruction of the Indian race on the American continent. III. The adverse influences that the early settlers had to contend with in coming to and settling in the country, fully explained. IV. A concise history of the early settlement of the country, a short sketch of many of the public men in it, their public character and proceedings, and the organization of the provisional government. V. The mining and agricultural interests of the country.
>
> There are two grounds upon which every fact is based: 1. Personal knowledge, observation, and participation in what stated for one-third of a century. 2. The written and printed statements of others, so compared that conclusions are intended to be without a possibility of truthful contradiction; thus making this a standard history of the country for the time included within the period from its discovery by Captain Robert Gray to 1849.

The Science of a New Life. By John Cowan, M. D. New York: Cowan & Co. 1870. 8vo, cloth; pp. 405.

This book is a plain, out-spoken treatise on those matters, to a great extent, of which, through false modesty, many are unwilling to speak. It is dedicated "to all the married, but particularly to those who contemplate marriage."

It is, in our opinion, a mistaken idea on the part of parents and others to allow children to acquire the knowledge of the sexual relations from chance sources, for these sources are always impure. As to exactly how a child should receive the information, whether verbally or by proper books, we do not pretend to say; but we do think that the way generally followed leads too often to evil results. The sexual instinct is implanted in everybody, and makes itself known as surely as the body ripens. And as imagination forms a very large portion of life, we think it far better to have the subjects treated of plainly and publicly rather than to have them restrained to secret companions and to the debased imagination. We, therefore, welcome such a book as this, as one greatly needed. We have but glanced it through, but are strongly impressed with its value. The chapters on The Law of Continence, The Prevention of Conception and on Fœticide are especially profitable for reading at the present time. We commend it to our readers.

For this book, H. B. Crist is sole agent in this city. Orders can be left at the drug store, corner of Sixth and Howard streets, or at Charles Eaton's music store, 138 Montgomery street.

Oakland and Alameda Co. Directory.

This directory for 1870, compiled and published by Cook & Miller, has been laid on our table. It forms a very neat volume, and contains a mass of information on all matters of public importance, selected and printed in a style which shows the ability and excellent taste of the publishers. It gives due place to educational, industrial and progressive matter, and contains much of value for all who have interests in this section.

Alameda county takes rank among the wealthiest in California. According to the assessed value of the real and personal property within its limits, it ranks as third in importance; San Francisco standing first, Santa Clara second, Alameda third and Sacramento fourth. Its numerous towns and villages, its flouring mills, its manufactories and its varied and extensive industrial enterprises, all tell of its prosperity and bear testimony to the thrift and prosperity of the farmer. The population is made up of nearly all the industrial classes; but out of the 5,308 registered votes, 2,117 are farmers. The assessed valuation of property for the year ending April 1, 1870, is $11,074,294.

The city of Oakland has maintained a steady and healthy growth and her future is bright with promise. Numerous buildings have been erected within the past year, the City Hall has been built, although the interior work is not yet finished, the exercises of the State University have commenced, and the fine buildings projected at Berkeley are in process of erection. The number of young men in attendance at this institution is forty-two. There are many other matters of which we would fain speak had we space. We cannot conclude, however, without expressing the wish that San Francisco would follow the lead of our sister city in the manner of revising street grades, if no further.

* * *

Men Wanted.

We spoke some time since of the opportunity for laboring men in the interior. A correspondent writes us from Boise City, Idaho Territory, saying that there is plenty of chances for good workers, and the *Capital Chronicle*, published at that place, gives a number of instances, and has the following to the point:

> We believe we do not over-estimate a single man when we say that 10,000 more men can find lucrative employment by coming to Idaho. Mile after mile of ground has been prospected and found to pay well. At Clark's Ferry, on Snake river, there are accommodations for many; on Boise river, miles of ground remain not taken up, and the Basin will ask for hundreds of more men to work the ground in that locality. Besides our mines, we have our valleys, which need settlers. The upper Payette is, as yet, comparatively uninhabited, while plenty of claims on the upper Weiser are waiting for owners. This is not one-half the land we have, nor have we mentioned one-third of the ground ready to yield up its rich deposits if men will come and work them. Men wanted! Young man, with bone and sinew of a jackass, loafing around the street corners of large cities, and complaining of hard times, come to Idaho, pull off your coat, and go to work. Middle-aged man, if you would retrieve your fortune, come to Idaho, take a pick and shovel, and toss the mother earth around. If you want work, young man or old man, pack up your "duds" and come along. You can make from six to ten dollars a day in many places here in Idaho.

* * *

Mining in Wales, according to reports, is causing some excitement at present. In view of this, a correspondent of the London *Mining Journal* writes, as a caution to capitalists, that all the productive lead mines in that country are in the lower silurian or limestone formations, while none of those in the upper silurian have ever paid expenses.

* * *

Bessemer, well known for his steel process, has invented a plan for avoiding seasickness, by keeping the passengers in chambers which are suspended on the principle used with a ship's compass. English papers have taken advantage of the opportunity afforded for jokes and sarcasms.

Agriculture in the Mountains—What's the Matter, and the Remedy.

It is a mistaken idea that the large valleys and plains of California are the only localities in the State where agriculture can be made profitable. The fact is, that from the very western verge of the foothills, even up to the line where placer mining ceases to be valuable, there is scarcely a square mile of territory where some branches of farming may not be profitably carried on. Of course, the mountain lands should be judiciously set apart for such culture as their soil, topography and market facilities more particularly adapt them for. Grain, vegetables, fruits, grapes, the mulberry, corn, sorghum, hops, the sugar beet, the poppy and tea may all find a place for extended and profitable culture and a steady market, provided a judicious encouragement is extended to all the other resources hereinafter enumerated.

There are numerous valleys in every county in the State where the dairy business—the making of butter and cheese—for the best market in the world, can be profitably carried on. Some of these valleys are already thus occupied, and we have yet to learn of the first instance of failure, where the business has been judiciously managed. These valleys afford the best and most nutritious natural grasses, and abundant opportunities for raising roots to feed in connection with hay, when the grasses fail in the dry season, or when, in the higher localities, the ground is covered with snow in the winter.

Irrigation is much less needed there than in the valleys; and when needed is much more easily and cheaply obtained. The grape, when once brought into full bearing, in the mountains, *never* needs irrigation; and experience has fully proven that the best grape and the best wine *must* come from natural growth, without artificial irrigation. Not a single vineyard has been started in the mountains that has failed to prove a profitable investment.

In order to show that we have not overstated this matter of fruit growing, we append the official statistics of one of the smallest mining counties in the State, and one only second in point of mineral wealth. We copy from the Surveyor-General's report on the fruit production of Amador county, for 1869:

Apple trees, 32,400; cherry trees, 2,200; peach trees, 20,200; pear trees, 6,000; plum trees, 5,000; nectarine trees, 900; quince trees, 2,000; apricot trees, 1,900; fig trees, 1,100; lemon trees, 120; orange trees, 140; olive trees, 20; prune trees, 280; almond trees, 850; mulberry trees, 370; English walnut trees, 850.

The above extract will show persons at a distance, and unacquainted with our climate, the variety of fruits that can be raised in the very midst of one of the best mining regions in the State. And just here we may add that the mountain fruits of California are universally superior in both quality and flavor to that raised in the valleys.

On the hills, and in the still higher regions of the Sierras, may be found the finest sheep and goat ranges which the world can produce. Wool may there be raised in quantity sufficient to supply the entire demands of the country, and of qualities suited to every grade of manufacture, from the coarsest blanket that wraps the form of the "honest miner," to the finest cashmere which spreads its delicate folds over the shoulders of the gayest votary of fashion. Within these same mountains, and in every county thereof, may be found water-power sufficient to build up a dozen Lowells; but a mere moity of which would be required to manufacture all the wool that could be raised there. In addition to all these advantages, we have also within the same territory, the finest mineral region on the globe, and the one to which the world looks for its chief supply of the precious metals.

Where is the man who will venture to call in question any one of the propositions here stated? Yet, with all these advantages, lands in the mountains have no fixed value. Millions of acres may be obtained at Government rates, with a title good against all the world. In fact, with the exception of now and then a small patch of improved orchard, field, vineyard or town seat, almost the entire country can be taken up under our land possessory Act. There is also an immense extent of good valley land that is still open to the settler that prefers the plains to the mountains.

Why is this? Why do not the toiling, suffering millions of Europe rush to this land of plenty—this land literally flowing with the milk and honey of beneficient Nature? The reason is a simple one, and easily stated—We don't try to help ourselves. Why we *don't* try, how we *may* do it, and the *effect* of doing it, will be considered next week.

◆

The Overland Monthly for April has been received. A few of its articles are perhaps a little inferior to the general average, and one or two read as if the editor's pencil had been extensively used in cutting them down. We were naturally attracted by the title of "Russian Gold and Silver Mining," but were disappointed at finding so little about mining in the sketch, and we must likewise confess to a little disappointment in the "Pioneer of 1920," although he does make several good hits. Other articles, however, are healthy and vigorous, and in "Pacific Ocean Lines and Privileges" there is much of especial interest at the present time. As a whole, the Monthly is good, and if we have spoken rather disparagingly of one or two parts, it is only because we are so desirous of seeing the periodical maintain without faltering the prëeminent rank which it has obtained in the land.

◆

California Silk Manufacturing Co.—A delegation of the trustees of this incorporation are now visiting our prominent citizens and receiving names on the subscription list. We have faith in this enterprise. Such industries should be organized and carefully fostered on the Pacific coast to develop its resources and to afford lucrative return for labor and capital.

◆

The telegraph cable, for the line between Bombay and Suez, had arrived in the third week of January at Bombay, having been brought by the Great Eastern and the Chiltern, and was to be laid, commencing about the first of February.

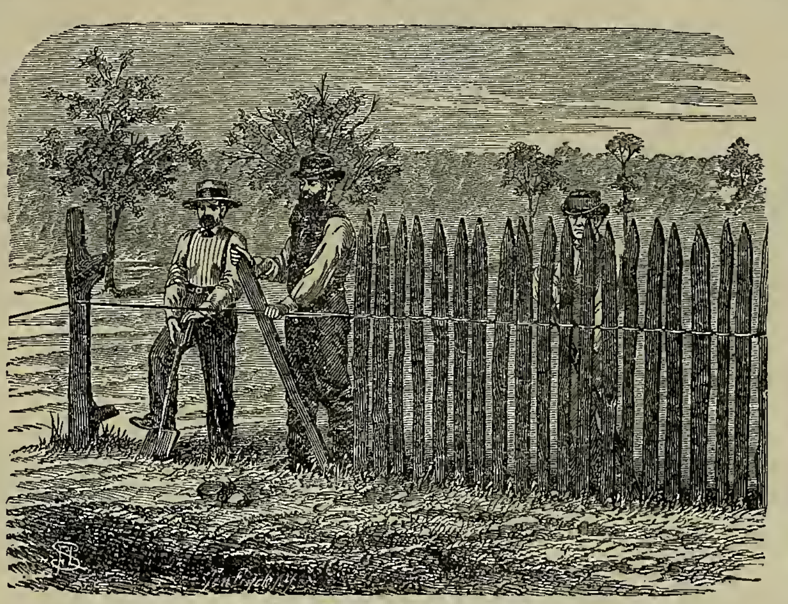
◆

Coal.—The total amount of coal consumed in the United States, in 1869, was 29,839,014 tons; in England, in 1868, 103,141,157 tons.

Improved Wire and Picket Fence.

The fence question has been exciting considerable discussion of late, and the acts of our Legislature on this subject have been spoken of by us at different times. In this connection it is of great interest to know what kind of surrounding is the best and cheapest for those who are obliged to fence in their land; and we give an illustration of an effective and comparatively inexpensive apparatus invented within the past year for this purpose.

This consists simply in setting posts at intervals of twenty or thirty feet, drawing two wires through holes in these posts, leaving them slack along the line for the insertion of the pickets. The wires are fastened by being wound around the first and last post of the section of fence to be constructed. They are then tightened by laying on the slack between the posts the pickets distributed along the line, one end of these resting on the ground while the other rests against the wire, as many being used in a bunch as may tighten the wire sufficiently; or any other method may be used. Then a shallow trench is dug between the posts and the butt of the palings set in this, while the tops are placed between the wires, as shown in the cut, these being crossed between each picket. As fast as the pickets are in place their lower ends are held by filling in and packing the earth in the trench. Should the wires become slack, they can be readily tightened by simply putting a twist in them, using a pair of palings for the purpose, turning them in opposite directions. The pickets need only be set from four to eight inches in the ground, according to the character of the soil. When stones are plenty they can take the place of a trench.



DAVIS' IMPROVED PATENT FENCE.

The engraving represents a rude farm fence made with split palings, and intended for use where economy is of more importance than mere appearance. But by using sawed palings of equal width it can be made very tasteful, and any form of wood or metal pickets may be used, to suit the builder.

In regard to the strength and effectiveness of the fence, it is claimed that it is impassable to all domestic animals; for the pickets cannot be crowded apart, and it can be passed only by either burrowing under or climbing over it. The pickets take the strain off the posts, each one being, in fact, itself a post, and as each is self-sustaining, the breaking of one panel, by some extraordinarily violent shock, does not overthrow the remaining portions. Where the fence has been used it has stood uninjured either by man or beast, since first put up.

The best wire is No. 10 annealed, the same kind as used for telegraph lines, which can be very easily repaired in case of an accidental break.

The fence is very cheap. The actual expense of a complete farm fence with top-sharpened split palings, and with the butts coated with tar or petroleum, is, in Virginia, where the patentee resides and first introduced his invention, less than fifty cents per rod. It can be built very rapidly, and three men can easily put up 600 yards in a day.

The economy in lumber is a very important item on this coast, and it can easily be seen how a great saving in this item is effected by the construction. Almost any kind of wood can be used by saturating the butts in hot tar or petroleum before inserting in the ground; but that protection is not needed for such wood as the cedar, cypress or redwood of California and Oregon.

The late war caused the destruction of all the fences in the country visited by the contending armies, and, in replacing them, the utmost economy, compatible with the proper strength and durability, was necessary. This condition of affairs gave rise to the invention of this construction, which certainly seems to be most valuable to the farmer who is obliged to protect his crops against the intrusion of animals.

Persons desiring further information with regard to the fence, or the purchase of State or county rights, can obtain the same by addressing the patentee, P. Davis, of Newport News, Virginia.

◆

Timber for mining purposes is growing more scarce every year, in many parts of the mineral regions. This fact should encourage the growth and care of trees suitable for such purposes, in localities where such scarcity may be noticed or apprehended. The Grass Valley *Union* suggests the planting of the locust and ailanthus—trees which grow rapidly and make good timber and fuel. A grove of such trees in any place where timber is scarce, will have a money value from the start, which value will increase at a more rapid ratio than any ordinary interest rate. In planting trees for timber, nut-bearing trees should not be forgotten, as they will have double value. Mr. Greeley is doing a good service for agriculture in urging upon the people of this country, everywhere, to devote more attention to planting and caring for our forest trees. A fortune awaits everyone who will plant a reasonably large tract of forest trees in any of the treeless regions of this State.

◆

Coal in China.—A. S. Bickmore lately read a paper on Chinese coal before the American Association. According to him, coal was mined in the mountains west of Pekin six centuries ago. There are immense quantities in the kingdom, and large mines in Manchuria and in the mountains west of the gulf of Lientang, in the province of Shensi and along the Yangta. The quality is rather inferior, and the best deposits still remain undisturbed. At the mine at Munti-kaw, which he visited, an adit has been driven a long distance, following the drift of the coal, up which the coal is brought on sleds by man-power, one Chinaman for each sled, the capacity of which is a bushel and a half. No machinery of any kind is used, nor are artificial means of ventilation known. In the north of China the coal is ground to dust and mixed with clay, that it may burn slowly.

◆

Oxide of manganese has been used in England for lining puddling furnaces. During the finishing of the metal, the manganese, it is said, separates in the form of silicate, carrying with it other impurities, as phosphorus and sulphur. This may be good for the iron, but bad, we should think, for the furnace.

◆

The U. P. R. R. intend locating shops at Evanstown, 84 miles east of Ogden.

Fossils of California.

One of the most fascinating branches of geological investigation is the tracing back into remote periods the indications of the presence of man on the earth. Undoubted evidences of his great antiquity have been found, but we still know so little, comparatively, on the subject, that every fact which can throw any light on the matter is eagerly sought for. We bring together, in this article, notes of the discovery of fossils (human and animal) which have appeared, from time to time, as supplementary to previous articles of the kind.

Siskiyou County.—At Canal Gulch, near Yreka, in 1854, a tusk, probably of the mastodon, 11 feet 9 inches in length, and 24 inches in circumference at the base, was found imbedded in auriferous gravel at a depth of 20 feet.

Butte County.—In the vicinity of Oroville, some years ago, some stone relics were found, consisting of mortars and pestles, from 20 to 40 feet deep in auriferous gravel. Some also were found near Bidwell's Bar, at various depths, and at Junction Bar, north fork of the Feather river, 30 feet deep.

Nevada County.—In 1859, at Buckeye Hill, an arrow-head and stone mortar were found in auriferous gravel at a depth of 80 feet below the surface.

El Dorado County.—In 1864, fossil remains of the mammoth were found on Indian creek, 16 feet deep, in auriferous gravel; also at Indian Diggings, in 1869, in auriferous gravel, at a depth of 200 feet, after passing through various deposits. In 1855, stone mortars and other relics were found near Diamond Springs, in auriferous gravel, 100 feet below the surface.

Calaveras County.—At San Andreas, some years ago, in a gravel claim known as Marshall & Co., stone mortars were found in auriferous gravel at a depth of about 130 feet, under the following formations:

No. 1.	Coarse gravel	5 feet
" 2.	Sand and gravel	100 "
" 3.	Small beds of brownish gravel	3 "
" 4.	Cemented sand	4 "
" 5.	Bluish volcanic sand	15 "
" 6.	Auriferous gravel	6 "
	Total	133 feet

These relics were found in bed No. 6, and are evidently the work of human hands.

Mariposa County.—At Horse shoe Bend, in October, 1869, in some mining claims, a large deposit of fossil bones of the mastodon and other animals, were found. In the immediate vicinity of these were found 40 to 50 human skulls of a low type, and about the size of the skull of a child eight years old. The bones rapidly decayed after being uncovered, but the skulls remain sound.

Solano County.—At Bottle Hill, the fossil remains of the mastodon and horse have been found in beds of gravel with oyster shells and boulders of sandstone.

In 1867 an immense fossil tusk, 14 feet in length, and about 14 inches in diameter at the base, was found between Bottle Hill and Benicia.

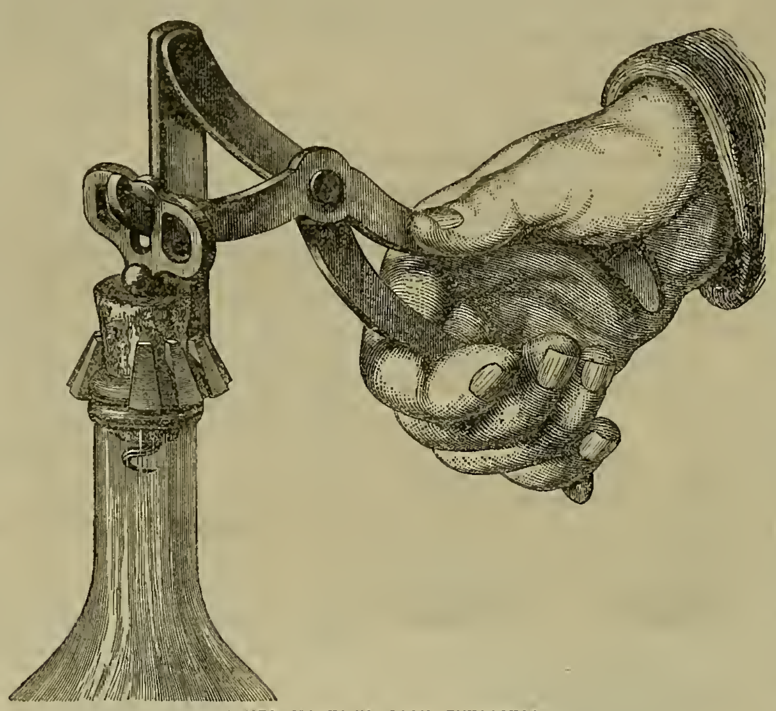
Tulare County.—In 1864, near Oil Springs, a few miles east of San Luis Obispo, fossil remains of the elephant and of other smaller animals were found.

◆

We are informed that the Pacific Stone Company, owning the Ransome patents in California, have made an engagement with one of the patentees, Mr. Ernest Leslie Ransome, of England, to take charge of the opening of their new works in this city, and the gentleman named will arrive about the first of July next. The company propose to manufacture building-stone, made earthquake-proof by interlocking each stone with that around it, by means of a tongue or bead and corresponding groove. Blocks so made cannot be displaced when laid in the wall, and can be manufactured as cheaply as plain blocks.

Morton's Cork Extractor.

This is a simple contrivance for extracting corks from bottles without the exertion required by the use of the common corkscrew, and without any risk of cutting the hands of the operator. It consists of three bars, one of which has, at its lower end, a socket, which is placed around the nose of the bottle, while the other end is pivoted on a second bar. The second and third bars are pivoted near their center, and the third has, at one end, a hook. To remove a cork, the screw is turned down in it to the handle, the socket placed around the neck of the bottle, the hooked end of the third bar attached to the corkscrew, as shown in the cut, and then by simply bringing the outer ends of the lever together the cork is drawn with ease and without shaking up the contents of the bottle. The screw is made of the best cast steel and the levers of malleable iron; hence it is a durable contrivance, which many will find exceedingly convenient. For further particulars address James Morton, No. 407 Cherry street, Philadelphia, Penn.



JAMES MORTON'S CORK EXTRACTOR.

◆

Hardware and Metal Trades Directory.—Next spring Messrs. Symonds, Wentworth & Co., No. 19 Central street, Boston, Mass., propose issuing a directory of the iron, steel, hardware and metal trades and their collateral branches of business, of dealers and manufacturers, and of all articles made from the baser metals, in the United States and in Canada. The information is to be arranged by States, giving cities and towns in alphabetical order and classified under business headings. The valuable addition of a copious index will not be forgotten. Such a book will, of course, have a most extensive circulation, and, if complete, as the publishers intend, will be invaluable to the trade, and exceedingly useful to all business men for reference. Persons desirous of advertising can address as above.

◆

Australian Gold Mining.—Melbourne papers speak of the rush to Berlin and of some rich claims which have been made, and large gold nuggets found. In New Zealand the gold fields show no exhaustion, while fresh ground is being continually discovered. In several districts in Victoria new discoveries in the old gold fields have caused great excitement. In Auckland province, valuable ledges have lately been found, but the wild speculations some months ago render it difficult to raise capital.

Our Home Industries.

Manufacture of Leather Belting.

There is nothing like leather, say the solid leather dealers of Boston, and their remark has passed into a proverb. Certainly this article performs the most varied and useful services, and is one of the most important for all classes of people. One of the uses to which it is put is for belting for machinery; but in this respect there has always been considerable complaint among millmen. On account of the cost of properly preparing the leather, belt-makers are apt to put an inferior article into the market. Belt-leather, although quite strong when new, is too often found to become brittle and hard after use, as the result of improper treatment. It is, therefore, interesting to know how and where it can be obtained of a proper quality. As we happened, while passing through Brannan street this week, to visit

H. Royer's Belt Factory,

We propose to give our readers a description of the process of making a belt, which is well known as being of a very superior quality. Mr. Royer has been a long time in the business, and his workmanship is noted for its excellence. We may premise that he avoids at his works the use of chemicals, to which are due to a very great extent the imperfections of the article. It may likewise be stated that the hides of California and Texas are superior to those of any other State for this purpose.

Removing the Hair, Etc.

The raw hides are purchased of the butcher and immediately washed and cleaned in a tank of water. The trimmings, as heads, ears, etc., are removed, and, as these are useful for the manufacture of glue, they are sold to the glue factories in the city. After cleansing, it is first necessary to remove the hair. For this purpose lime is very generally used; but this is injurious to the leather and cannot be entirely removed, so that the quality of work thus prepared is always inferior. At this establishment the hair is removed simply by "sweating,"—that is, by hanging the hides for a time in a closed box, an efficient and harmless process. Then they are removed to a loft and dried, by suspending them in a current of air.

Fulling.

The hides, after this cleansing and depillatory process, are stiff and unmanageable. It is necessary to render them pliable before further use, and for this purpose they are removed to the fulling-room. Here they are moistened with water, and then passed through a machine invented for this purpose by Mr. Royer, and patented by him through the Scientific Press Agency. The action of this machine resembles the manual operation practiced by Indians and in countries, as Russia, where labor is cheap. Inside of a circle of iron bars is a shaft. The hide is doubled up and attached to this shaft at one end while the other is left unattached. The shaft revolves in one direction until the hide is wound up on it, then it is reversed until the hide gets wound up in the other direction, when it is reversed again, and so on. Thus the hide is thoroughly rubbed and doubled continually until it becomes soft and pliable, without having its texture injured in any way. After the hide has been treated thus for a time, it is removed and "stuffed" by rubbing it with a mixture of tallow and tar, and again passed through the machine. Again it is stuffed and treated a third time, and it has then reached the proper degree of softness and pliability.

Cutting the Belts.

The leather is now stretched crosswise on a bench, and then cut crosswise into strips of the proper width. Very often, elsewhere, these strips are cut lengthwise—that is, from the tail to the neck of the animal; but this is a faulty method. The animal's skin is thicker and tougher towards the rump than at the neck, and although longer strips are obtained in this direction, yet the strips vary, and long splices must be made to cover up the weaker parts. By cutting crosswise, a superior and more uniform belt is obtained.

After cutting the belts, they are stretched, dried, and again stretched, making, in all, three times in which they are subjected to this operation.

Splicing the Pieces.

The next step is to cut or scaff the ends where they are to be spliced. This is done by a simple machine which cuts off a slice of the required size, leaving a wedge-shaped end for splicing. Two strips are then taken, their scaffed ends (previously roughened a little with a knife) moistened with a cement and laid one on the other, and then put under a press for three or four minutes until they are united. In this way pieces are joined until a belt of perhaps a hundred feet is obtained, which is coiled up and allowed to remain until the cement is dried and the pieces quite firmly united. Then the splices are carefully riveted and the belts trimmed.

Double belts are made by cementing one such belt on another and riveting every two or three inches.

The parts of the hide, such as the belly, etc., which are too weak for belting, are cut into strings for lacing.

Remarks.

The desirable qualities of good belt leather are principally great longitudinal strength and pliability. Lime and oak bark are the cheapest agents for its manufacture, but not the best, for they diminish these qualities and give one which is not required; namely: the capacity to remain firm when fairly soaked in water. This is desirable for the sole of a boot or shoe, but a belt is expected to stand only accidental moisture and not to be spoiled by a thorough soaking.

The leather from Russia, Poland, and some of the adjoining countries, is well known for its unequalled hardness and durability. This results from its preparation. It is manufactured without lime or chemicals; fish-oil alone is used. It is tanned mechanically. At this establishment the same results are striven for, and the only deviation is the use of improved machines instead of manual labor. Th is the only factory in the country where leather is prepared in this way, and its increasing popularity is shown by the fac that the proprietor has been obliged to double the former capacity of his works.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,

423 Washington street.......... ....San Francisc (Having had 33 years' experience in Europe and America, supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to **331** Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

J. VAN O. HORNER,
DENTIST,
Cor. J and Third Streets, Sacramento.
☞ All work warranted. 7v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
in Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.
DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. R. R. ROBERTS,
The Great Magnetizer,
Has opened his permanent office at No. 229 Kearny street, San Francisco, where he treats, successfully, all curable Chronic Diseases by Animal Magnetism and the Swedish Movement Cure. 2v20-1y

---

DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

References.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

---

DR. MABON,
ORTHOPÆDIST,
(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the

MOST EFFICACIOUS INSTRUMENT

Yet invented for the cure of

RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment.

Office, No. 128 Kearny Street, near Sutter,
SAN FRANCISCO. 11v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 Clay Street, bet. Kearny and Montgomery, San Francisco. 11v20-3m

---

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street. (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

☞ Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted. 11v20-3m

---

H. G. STILLEY,
PLANE MAKER.
Planes of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 Belden Place (near Bush street), below Kearny, San Francisco. 11v20-3m

---

W. C. & JOHN DENN. M. BURKE,
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line promptly attended to.
Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v20-6m

---

EVENING DRAWING SCHOOL
—BY—
N. P. LANGLAND,
(A Practical Stair Builder), for teaching STAIR BUILDING and HAND RAILING, at No. 1215 Mission Street.
☞School, Mondays, Wednesdays and Fridays, from 7 to 9½ P. M. 3v20-3m

---

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

---

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

---

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

Metallurgy and Ores.

S. W. HOWLAND. J. W. THURMAN.
S. W. HOWLAND & CO.,
Crushers and Samplers
—OF—
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

☞All work done at the shortest notice. All orders promptly attended to.
References—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co., Assayers. 7v20qy

---

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street. San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES. Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

---

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
☞Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE.......................................Manager.
J. A. MARS......................................Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

SILVER AND LEAD ORES
Of every description purchased or worked at
The Oreana Smelting and Refining Works,
JOSEPH MOSHEIMER,
Oreana, Humboldt County, Nevada.
Office in San Francisco, 328 Montgomery street. 6v20

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

---

Our Home Physician.

AGENTS WANTED.—"OUR HOME PHYSICIAN."—New, complete, simple, reliable. The Pacific Medical and Surgical Journal says: "It is the best book on 'Popular Medicine' we know of." The Overland Monthly says: "The more generally this volume is introduced into families, the better it will be for them and the worse for quacks." Apply for circular fairly representing its character, at WESTERN PUBLISHING AGENCY, 411 Kearny street San Francisco. 6v20-3m

---

Oil Cake Meal.
THE BEST FEED KNOWN
For Live Stock.

We desire to call attention to OIL CAKE MEAL, which we are now manufacturing. No description of feed so greatly promotes the health of animals as Oil Cake Meal, and we urgently request all engaged in the dairy business, raising and fattening stock, or wool-growing, to give it a trial, feeling confident that they will find it of very great value. By those who have used it thoroughly, ONE pound is pronounced to be equal to two pounds of Corn Meal; and in the U. S. Government Report of the Department of Agriculture for 1865 it stands in the following relation to other feeds as to the percentage of flesh produced from a hundred pounds of feed, viz: Indian Corn Meal, 11 pr ct.; Barley Meal, 13 pr ct.; Oat Meal, 18 pr ct.; Oil Cake Meal, 22 2-100 pr ct. For life-sustaining properties for all stock exposed to sudden changes of weather, or over-driving it has no equal.

FOR MILCH COWS it is particularly valuable, increasing the quantity of milk and improving its quality to a far greater extent than any other feed known. A suitable quantity for them at the commencement is one quart in the morning and one quart at night, either alone or mixed with any other food; generally mixed with the mash of bran, slops, roots, or cut feed of any kind. It will improve it to soak it for six or eight hours, the effect being to increase its bulk two or three times. The quantity can be increased gradually, according to the effect produced—ordinarily not exceeding three or four quarts per day.

FOR BEEF CATTLE it has fattening properties which cannot be found in any other feed—the beef always being more tender and juicy and of much finer quality than when fattened on any other feed; and no feed known will so quickly prepare animals for market as Oil Cake Meal.

FOR HORSES, a small quantity given daily promotes their health, and is especially valuable for them when chilled or injured from over-driving. It is one of the best remedies known for Horses subject to the Heaves or Rheumatism, and greatly increases the cleanliness, evenness and glossiness of the hair.

FOR SHEEP, there is no article of feed known that produces such fine mutton, or so promotes the growth of wool. A small quantity given to chilled Cattle or Sheep will keep them alive and greatly increase their warmth and vitality.

At present price ($28 per ton) it is the cheapest feed in market. It is now selling in New York at $42 per ton, gold; at $50 per ton in England, where it has been proven for a long time to be in every respect the most profitable feed known for stock of all kinds—one ton being fully equal to three tons of bran.

The increasing demand for this Meal from those on this coast by whom it has been thoroughly tested has induced us to increase our facilities for its manufacture, and we are now fully prepared to furnish it in quantities as may be desired. For sale by the Grain and Feed Dealers, and at the Manufactory, King street, near Third. All orders will receive prompt attention. Address—

Pacific Oil and Lead Works,
Nos. 3 and 5 Front street, San Francisco.
7v20-1am3m

SPECIAL NOTICE.

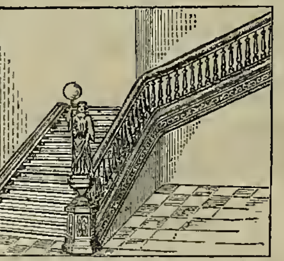
TO DEALERS AND CONSUMERS
—OF THE—
H & L
AXLE GREASE

Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possible meet the market of our Chicago friends, we have made a great reduction in prices, and from our long experience we will satisfy you that there is none BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,
144 Natoma Street.
Depot, 320 Jackson Street.

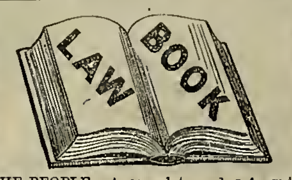
N. B.—We are prepared to furnish Bulk Packages to contractors on equally liberal terms.

HIBBERD, SANBORN & CO.,
STAIR BUILDERS.



South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Agents Wanted for Chamberlin's New



FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

Patent Brokers.

WIESTER & CO.,

PATENT BROKERS,

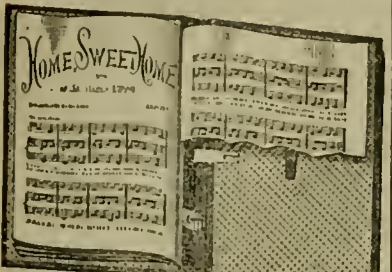
314 BUSH STREET,

SAN FRANCISCO.

Patents Bought and Sold on Commission.

For the benefit of those who live at a distance from he city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

BURGESS' PATENT PAPER FILE.



This is' a recent patent, and one of no ordinary merit. It is light and complete, yet costs but little. In all file-holders before presented to the public, the papers are very liable to tear, or else the method of inserting them requires too much time and trouble. This device is easily adjusted, is not liable to tear the paper, nor let it loose. This patent is also used in combination with covers for forming music folios. Musicians who have seen it, speak in the highest terms of its value. No person can fully appreciate the Paper File or Music Folio without seeing one.

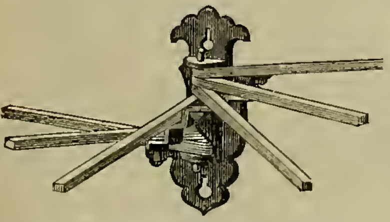
THE RANDALL RAKE.

Here is an article that we take pleasure in recommending This patent has been for some time on this coast, but for want of means has been allowed to remain comparatively quiet. It will require from four thousand to six thousand dollars to handle this invention successfully on the Pacific Coast, and we would advise any one with this amount of capital to look into the merits of this patent before embarking in other business. We cannot see why it will not eventually supersede all other horse rakes. It does its work completely and is easily operated. It is so constructed that the teeth play on an iron rod independently of each other, and therefore accommodate themselves to any surface. The inclination of the teeth to the surface prevents them from raking up sand and dust with the hay, and causes them to glide easily over the ground. The driver has a spring seat to sit upon, and a simple action of the foot is all that is necessary to drop the hay. A complete model can be seen at our office, or references can be had to parties who have them in use on their farms.

LIGHT.

A Lamp that makes its own gas and burns it. No chimneys are required. It is equal to the best coal gas, and costs fifty per cent. less. Agents get the lamps at manufacturer's prices. This new light can be seen at our office, 314 Bush street, San Francisco. The Right for the State of Oregon will be sold cheap.

HOTCHKISS' CLOTHES DRYER.



This Invention is for house use. It can be fastened to the wall with two screws, and removed without taking them out. When not in use the arms can be folded closely against the wall. Each arm has an iron brace to support it. This is really a "good thing in a family." County or State rights for this will be sold very low. Full particulars given on application.

A NEW SEED SOWER,

That can be attached to the Randall Rake at a cost of a few dollars, and is guaranteed to sow as well, if not better, than any other Sower in use.

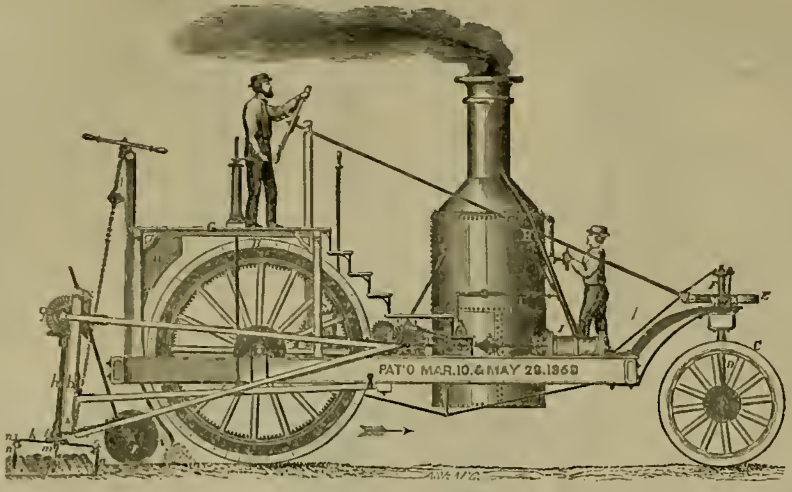
A neat and convenient CUPBOARD LATCH, tha answers equally well for single or double doors. It i suitable for Wardrobes, Wash-stands, Cupboards, etc.

A LOCAL AGENT wanted in every town on the P cific coast to sell patent goods

WIESTER & CO.,

11v20 314 Bush Street, San Francisco.

The Standish Patent California Steam Plow.



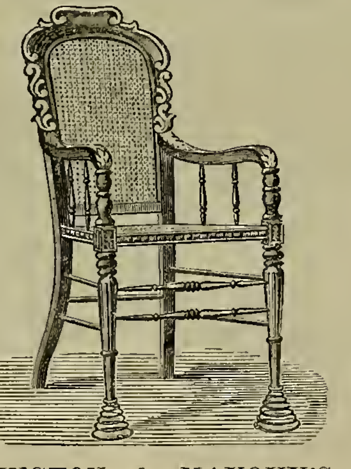
Capacity, from FIFTEEN to THIRTY Acres per day. The success of this invention for plowing large fields, is stablished beyond a doubt. Individuals, clubs, or companies desiring a more rapid and economical means of ultivating their farms, are invited to address, for the present, the inventor, PHILANDER H. STANDISH, care of Chas. F. Coffin, South Boston, Mass. He will soon return with a plow of improved construction.

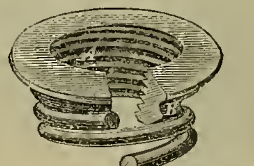
LOCAL AGENTS WANTED.

One reliable business man wanted in each and every town on the Pacific Coast to sell Patent Articles. We deal in none but first-class Patents, and each agent receives the exclusive right to sell in his town. Address

WIESTER & CO.,
314 Bush street, San Francisco.

PATENT CHAIR SPRING.





PURINGTON & MAYOUX'S PATENT, NOV. 30, 1869.

This is the best Chair Spring yet invented, and will undoubtedly supersede all other devices of the kind, as it is SIMPLER, CHEAPER, AND MORE DURABLE. As a simple article of comfort and ease, it has no superior, and only needs to be tried to commend itself to universal and lasting favor. The Springs seen attached to the front legs of the chair in the engraving enables the person sitting in the seat, with very little effort, to give themselves

A Gentle and Easy Rocking Motion.

And also to rest themselves by change of position, by a very slight movement. It renders a common chair, at a trifling expense, equal or superior, in many respects, to a rocking chair.

The advantage of this Spring over all others consists in the manner of attaching it to the chair by the simple turning of a nut, which nut is also securely, easily and quickly adjusted to the Spring in a manner impossible for it to become inadvertently detached. The engravings show the parts both detached and as adjusted to the chair.

The nut is made of metal, and is provided with a screw thread, so that it can be screwed to the leg of an ordinary chair; and instead of weakening and splitting the leg, as in the case where a hole is bored and a screw inserted to hold and attach the nut, this method strengthens it The nut can also be very quickly and easily put on or removed.

The ease and convenience in applying the spring to the nut is readily seen. The top of the nut is provided with a collar or shoulder, and also an incline groove around the outer surface, so that the smaller end of the pan can be screwed to the nut; and its top coil being brought firmly against the shoulder, all oscillation from side to side is prevented. When the nuts are taken off, the chair is uninjured in its original form.

THIS IS A CALIFORNIA INVENTION,

And a superior article is now being manufactured. For particulars apply to

A. MAYOUX, Marysville,

Or inquire of PAUL N. ROTH, No. 809 Montgomery street, San Francisco. 9v20-1amq4

Real Estate for Sale.

Valuable Ranch For Sale

NEAR HEALDSBURG.—In the fine valley of Russian River three and one-half miles south of Healdsburg, on the west side of the river, is now offered for sale a splendid farm of 260 acres of land (minus eight by twelve rods occupied by a good school house), 100 of which is of the richest of Russian River bottom, eighty acres of which is now in small grain, not surpassed by any in the State, five acres in bearing orchard of the choicest selections, fifteen acres plowed for corn, and the remaining 160 acres is rich, yet rolling timbered land, five acres vineyard of choice selection. The Dwelling has ten rooms, not yet finished, and supplied by a good spring of excellent water, and cost above $12,000. The barns and outhouses are in excellent condition. The title is "Fitch Grant," which is undisputed. The entire farm is inclosed, about half with a picket and half with a rail fence, both in good condition. The farming utensils which are offered with or in the sale of the farm, are as follows: Five plows, two harrows, two cultivators, one Buckeye reaper; also twenty head of hogs. There are 200 redwood trees within about five miles of the premises, and wood enough to supply all the demands of the place. It is well known by all parties who have resided for any length of time on this coast, that the climate of Russian River Valley is lovely, healthy and not surpassed by that of any other place in the United States.

The reason for selling is, that the owner is getting too old to cultivate a farm, and wishes to close up his business and live more retired. The place is a rare bargain at tha price asked for it.

For further particulars, apply to McLean & Hardy, Real Estate Agents, No. 338 Montgomery street, southeast corner of California street, San Francisco. 11v20

Valuable Stock Ranch For Sale

IN ALAMEDA COUNTY.

The attention of miners, "new-comers," or others, who wish to buy desirable real estate, is called to

675 ACRES

— OF —

Excellent Pasture, Grain, Garden

— AND —

ORCHARD LAND

FOR SALE AT A BARGAIN.

TERMS EASY.

This Ranch comprises hill and valley, is supplied with an abundance of good living water, is well fenced, buildings good, and is stocked with implements and animals. It is one of the best DAIRY RANCHES in the State, and is near the Railroad. Inquire of

JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

Real Estate For Sale

In a romantic and desirable locality near the Railroad, in Alameda County. ONE HUNDRED AND TWENTY ACRES, in a body, of level, rich and superior soil, fit to produce everything. One of the finest gardens and nursery sites in the State. Rarely equaled as a homestead. For sale for $15,000—less than one-half its real value. Miners or city residents will find this a good opportunity to buy land cheap. A good cottage, with substantial outbuildings and fences, are upon the place, Call on

JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

A Fine Country Residence

AND EXCELLENT FARM

Containing two hundred and eighty-five acres—seventy-five acres hill and two hundred and ten acres valley land—within one mile of the railroad, near Haywards, in Alameda County, for sale at a bargain, by the Administrator of the Estate. The house is a fine and substantial one, erected at a cost of $10,000, and magnificently located. An excellent orchard of six acres well-fenced fields, good barns, etc. Price, $35,000. For particulars, inquire soon of

JAS. F. CROSETT,
9v20-tf 304 Montgomery street, San Francisco.

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in tin cans only, with full directions. Take no other. Giant Cement and Miners' Rubber Cement are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

$1. Postage Paid. $1.

A CHEAP AND HANDY BOOK

—FOR—

Mechanics, Inventors and Students.

SCIENTIFIC PRESS

NEW EDITION

—OF—

507 MECHANICAL MOVEMENTS.

PUBLISHED BY

DEWEY & CO.

LIST OF CONTENTS.

Æolipile.

Balance, Compensation: Barometer; Blower, Fan; Brake, Friction.

Cams; Capstans; Centrolinead; Clutches; Chasers; Clamps, bench and screw; Cock, four-way; Column, oscillating; Compasses, proportion; Counters of revolutions; Coupling, union; Crank—substitute for the, variable; Cranks, bell and compound; Cyclograph.

Differential Movements; Drag-link; Drill—Fiddle and Persian; Drills, Cramp; Drop; Drum and Rope; Driver, Pile; Dynamometers.

Eccentrics; Ejectors, Bilge; Ellipsograph. Engine, Disk; Engines—Rotary, Steam, Valve Gear for; Epicyclic Trains; Escapements.

Fountain, Hiero's; Fusees.

Gasometers; Gauge, Bisecting; Gauges, Pressure; Gear, Steering; Gearing—Bevel, Brush, Capstan, Conical, Crown, Eccentric, Elliptical, Face, Friction, Internal, Irregular, Multiple, Mutilated, Scroll, Sector, Spur, Step, Stud, Sun and Planet; Gearing—Variable, Worm; Governors; Guides; Gyroscope.

Hammers—Atmospheric, Bell, Compressed Air, Trip, Steam; Helicograph; Hook—Boat-detaching, Releasing; Hooks, Centrifugal Check; Hyperbolas, Instrument for Drawing.

Intermittent ovements.

Jack—Hydrostatic, Lifting; Joint—Ball and Socket, Bayonet, Universal.

Ladder—Folding, Self-Adjusting; Lazy-tongs; Level, Self-recording; Lever—Bell-crank or Elbow, Knee; Lewis; Link, Detachable Chain.

Machine—Bohnenberger's, Drilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; eter—Gas (wet and dry), Water; ill—Barker's, Crushing, Tread, Wind; Miscellaneous ovements; otion— Alternating Traverse, Rocking, Self-reversing, Shuttle; Motions—Feed, Link, Parallel, Pump, Traverse, Variable Traverse.

Pantograph; Parabolas, Instrument for Drawing; Paradox, Mechanical; Pendulum, Conical; Pendulums, Compensation; Pinion—Lantern, Mutilated, Slotted, Two-toothed; Power, Horse; Presses, Hydrostatic; Propeller, Screw; Pulley—Expanding, Friction: Pulleys—Anti-friction Bearing for, Chain; Pump—Air, Balance, Bellows, Chain, Diaphragm, Steam-siphon; Pumps—Double-acting, Force, Lift, Rotary; Punching Machine.

Rack—Mangle, Mutilated; Racks and Pinions; Ram, Montgolfier's Water; Ratchets and Pawls: Regulator—Gas, Watch, Reversing Motion, Self; Revolver; Rollers, Oblique; Rolls—Anti-friction, Drawing, Feed; Rulers, Parallel.

Saw—Endless Band, Gig, Pendulum; Screw, Archimedes, Differential, Double Reversed, Micrometer; Screws—Endless, Right-and-left Hand; Sectors; See-saw; Shears; Stamps; Stand, Mirror; Stop—for Hoisting Apparatus, for Lantern Wheels, for Ratchet Wheels, for Spur Gear; Stops for Winding Watches.

Test, Friction; Throttle, Spinning; Toggle-joint; Tongs, Lifting; Trap, Steam: Treadles.

Water, Machines for Raising: Weir, Self-acting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Paddle, Water; Windlass—Chinese, Friction; Windmills; Wipers.

This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.

A liberal discount made to the trade. Single copies, $1—sent postage free. Address orders,

DEWEY & CO.,
Patent Agents, San Francisco.

Illustrate your Inventions

IN THE SCIENTIFIC PRESS,

An illustrated journal of Mining, Farming, Mechanic Arts and Industries on the Pacific Coast It costs no more for a superior engraving by our experienced artists than is usually charged for a less perfect picture. If you wish to introduce a new invention properly before the public, the first steps in so doing are important ones. A full description and correct representation in the PRESS will go further and prove more quickly effective than any other means.

The fact that an illustration is admitted into our columns, guarantees the invention important consideration in the minds of thousands of the most intelligent readers—at home and abroad—who would not notice it so favorably or so thoroughly, if at all, when presented through an unreliable medium or indifferent source.

The model of an invention sent to us is sufficient for making a good engraving, Sometimes a photographic view is sufficient; but it is always best accompanied with drawings or a copy of the patent. A first-class illustration has proved to be one of the best and cheapest means of obtaining purchasers for a good machine or a valuable patent.

Cuts ordered for illustration are the property of the inventor who pays for them, and can generally be used for circulars, pamphlets, books, or other newspapers. The engravings to be seen in each issue of the SCIENTIFIC PRESS are a fair sample of the work of the artists who can always be found in our office.

DEWEY & CO.,
Publishers Scientific Press, American and Foreign Patent Agents, San Francisco.

SOMERSVILLE, CAL., August 25th, 186.

MESSRS. DEWEY & CO.—Dear Sirs: Allow me to return you my thanks for the very able manner in which you have conducted the business entrusted to your care. You will please forward the document (British Patent) by Bamber's Express to this place. Yours, respectfully,
GEO. HAWXHURST.

Kustel's Treatise on Concentration of All Kinds of Ores,

Including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally. Illustrated with 120 Diagrams on 7 Plates.

CONTENTS:

I.—INTRODUCTION.

1. The Dressing.—Dressing of Ores; Principles of Dressing; Division of Dressing.

2. The Separation.—Separation of Gangue from Ore in the Mine; Dressing of Ores outside the Mine; Separation by Hammers; The Ragging; The Spalling; The Cobbing; Separation by Hand; The Picking.

3. Cleansing and Sizing Contrivances.—Washing and Sizing; Stationary Apparatus; The Sluice; The Kiln; The Step Sluice; Movable Machines; The Hand Riddle; The Rocker; The Circular Hand Riddle; Swinging and Jarring Riddles; The Jarring Riddle.

4. Rotary Sizers.—The Trommel or Drum; Cylindric Trommel: Prismatic Trommel; Conical Trommel; Combined Trommel; The Sifting Wheel; Sizes of Grains for Jigging.

II.—REDUCTION.

1. Reduction of Ores.—Reduction of Ores to a Proper Size; Breaking under Heavy Stamps; Reduction by Rock Breakers; Hanscom's Crusher; Blake's Quartz Breaker; Reduction by Stamps.

2. Description of Batteries.—The Foundation; Mortar Blocks; Frames; Iron Frames; Howland's Rotary Battery; The Straight Iron Battery; Bryant's Battery; Wright's Iron Battery.

3. Details of a Battery.—The Mortar; Stem or Lifter; Shoe or Pestle; Socket or Head; Tappet; California Tappet; Cams—Wooden Cams; Iron Cams.

4. Speed, Curve and Order of Lifts.—Limit of Speed in Crushing; Construction of the Cam Curve; Order of Successive Stamp Lifts; Hanging-up of Stamps.

5. The Discharge of Batteries.—The Discharge in Dry Crushing—with Grates; without Grates; with Sieves; Dust Chambers; The Discharge in Wet Crushing—the Grates and Screens.

6. Feeding of Batteries.—Hand-Feeding; Stationary Hoppers; Movable Hoppers; Quantity of Water for Crushing; Remarks on Speed and Weight of Stamps.

7. Reduction by Rolling Mills.—Construction of Rollers; The Frame; Feeding of Rollers; Remarks.

8. Grinding.—The Arastra or Tehama; The Edge or Chili Mill; Ball Mills; Lundgren's Pulverizer: Cylinder Mills; Ferrand Mill; Hopkins' Grinder; Horizontal Mills; Iron Pan Grinders.

9. Pans with Plane Mullers.—The Common Pan Grinders; Tub Grinder; Bartolo's Grinder; Knox's Pan; Varney's Pan; Wheeler's Pan; Union Grinder; Moore's Quartz Grinder; Gaston's Grinder.

10. Pans with Conical Mullers—Hepburn & Peterson's Pan; Belden's Pan; Baux & Guiod's Grinder.

11. Pans with Tractory-Conical Mullers.—Excelsior Pan; Wheeler & Randall's Pan; Excelsior Continuous Grinders.

12. Pans with Perpendicular Mullers.—The Centrifugal Ore Grinder; Varney's Quartz Grinder.

III.—CONCENTRATION.

Concentration of Reduced Ore.—Division.

A. Concentration of Ore Grains (Jigging Stuff).—The Principle; The Jigging.

2. Movable Jiggers.—The Movable Jigger.

3. Stationary Jiggers.—Hydraulic Jigger; Petherick's Separator; Stationary Jigger.

4. Continual Jiggers.—Percussion Jigger, Setz Herd); Continual Cylinder Jigger; Continual Jigger; Hydraulic Continual.

5. Rotary Machines.—The Rotating Cylinder (Strom-setz Maschine); Rotating Wheel (Setz-Rad); The Dolly Tub; Auferman's Dry Jigger.

B. Concentration of Ore Sands and Slimes.

6. Assorting of Sands.—The Labyrinth; Borlace's Slime Separator; Ph. Hofmann's Separator; Rittinger's Funnel or Pointed Box; Rittinger's Spitz-Lutte.

7. Feeding of Concentrator.—Feeding-Boxes; Stationary Feed-Box; Rotating Feeder.

8. Stationary Concentrators.—Hand Buddle; Sleeping Table; Rack; Sweeping Tables; Round Buddle; Concave Buddle; Blanket Tables.

9. Percussion Tables.—Percussion Tables; German Percussion Table; Continual Percussion Table; Hunter's Continual Percussion Table; Varney's Percussion Buddle.

10. Oscillating and Shaking Tables.—Borlace's Concentrator; Hendy's Concentrator; Hungerford's Concentrator; Barron's Concentrator.

11. Steady Moving Concentrators.—Concave Rotary Buddle; Convex Rotary Buddle; Burton's Table; Self-Discharging Blankets; Horizontal-Moving Blanket.

IV.—SPECIAL CONCENTRATION.

1. Concentration of Gold Ores.—Concentration of Gold Ores; Amalgam of Gold Quartz; Amalgamation and Grinding; Combined Concentration and Amalgamation; Treatment of Concentrated Stuff.

2. Concentration of Silver Ores; Concentration Works; Cost of Concentration; Concentration of Tailings.

3. Concentration of Lead and other Ores.—Concentration of Lead, Copper and other Ores; Value of Ores for Concentration.

V.—CHLORINATION.

Extraction of Gold from Sulphurets or Arsenicials by Chlorination; Assay of Gold Sulphurets by Chlorination; Chlorination Process for Sulphurets; Loss of Gold in Roasting; Single Roasting Furnaces; Double Furnaces; Mechanical Furnaces; The Roasting Operation; Roasting with Salt.

Chlorination.—Damping of the Roasted Ore; Sifting; Production of Chlorine Gas; Lixiviation; The Precipitating Vat; The Precipitation; Cost of the Chlorination Process per ton of Ore; Remarks.

Other Methods of Dissolving and Precitating the Gold from Sulphurets.—Chlorination at Reichenstein; Chlorination at Schemnitz; Calvert's Method for Auriferous Quartz; Extraction of Gold, Silver and Copper.

PRICE, - - - - - $7.50 per copy.

Sent by mail, and sold wholcsale and retail by DEWEY & CO., publishers, office SCIENTIFIC PRESS, San Francisco.

Free Information for Inventors and Patentees.

Our Patent Office Circular, relating to U. S. and Foreign Patents, Caveats, Patent Laws, Rights of Inventors, Valuable Hints, Illustrated Mechanical Movements, etc., comprises 48 pamphlet pages, embracing the following

List of Contents:

Advancing Cases; Advantages, Important; Assignments, Forms, Cost, etc.; Caveats of what they Consist, Form of, Cost, how Filed effectively; Cost of Obtaining Patents; Confidential Advice; Copies of Patents Assignments, etc.; Copyrights; Dangers of Delay; Designs, Patents for; Engravings and Illustrations; Engine, Condensing-Beam—Illustrated; Extension of Patents; Foreign Patents—all Countries; Forign Inventors; Hints to Inventors; Government Fees, List of; Home Counsel; How to Obtain Patents—Steps Necessary; Hydrostatic Press—Illustrated; Interferences; Influence at Washington; Laws (U. S.) and Decisions Relating to Patents; Lathe, Engine—Illustrated; Letters Patent—of what they Consist; Library, Reports, Law Books; Locomotive Engine—Illustrated; Medicines or Compounds, Patent for; Mechanical Movements—Illustrated; Mining and Scientific Press Office; Processes, Patents for; Record of Pacific Coast Patents; Re-issues; Rejections—Cause and Remedy; Reports of Patent Office; Rights and Privileges of Inventors and Patentees; Saving of Time; Self-evident Facts; Selling Patent Rights; Springs, Various Kinds—Illustrated; Stamp Battery, Quartz—Illustrated; Telegraph, Patent Business by; Unsuccessful Applicants; Who can Obtain Letters Patents; What Claims can be Patented; Worthless Patents, Candid Reasoning.

This pamphlet will be furnished free on receipt of postage stamp. Confidential advice given, and every legitimate branch of Patent Soliciting business promptly and faithfully executed by

DEWEY & CO.,
U. S. and Foreign Patent Agents, Scientific Press Office, 414 Clay street, San Francisco.

A Word for Home Inventors.

OAKLAND, CAL., December 1, 1869.

MESSRS. DEWEY & CO.—Gentlemen: Permit us through your paper to return our earnest thanks for the prompt and successful manner in which you have conducted the various matters of business with the Patent Office committed to your care, more especially in securing for us our last valuable patent in the face of so many difficulties. Were it an ordinary case, in which you had simply secured us a patent, and for which services you had received a suitable equivalent, we should hardly consider you entitled to our thanks, however much we might feel gratified with your professional ability, uniform courtesy, or success. But this seems to be an exceptional case, and entitled to peculiar consideration. Without entering here into a detailed account of the legal complications and various discouraging circumstances you were obliged to contend with, suffice it to say, that your almost unhoped for success, securing, as you did, a full patent, despite all these obstacles, in so short a time, was scarcely less surprising than gratifying to us; and we feel it a pleasant duty to offer you this merited testimonial of our appreciation for the valuable services rendered, and to return you our sincere thanks for the same.

In closing, we would say to the public that this is entirely voluntary on our part, as Messrs. Dewey & Co. neither asked it at our hands, nor knew that we intended giving it. It is simply a free-will offering to professional skill and reliability, and a word of friendly counsel to others on this coast who may be possessed of valuable inventions on which they wish to secure patents. To all such our earnest advice is to place them at once in the hands of Dewey & Co., instead of being driven to it by a sad experience like our own.

Yours truly,
HUBERT BURGESS,
JAMES STRATTON.

SCIENTIFIC PRESS.—After January 1, 1870, the Mining and Scientific Press will resume its original title of Scientific Press, under which it was established in 1860, and will continue to be devoted to the improvement of the three great branches of industry—Mining, Farming, and Mechanic Arts—whose interests are intimately associated on this coast and are popularly and reliably represented by the Press. The subscription price is reduced to $4 per annum. Other charges will be at the lowest rates. This paper has been enlarged and improved in every department, and is now one of the best on this coast. Published by Dewey & Co., U. S. and Foreign Patent Agents, 414 Clay street, San Francisco.—*Tulare Times.*

"THE SCIENTIFIC PRESS" is the name now adopted by the publishers of the Mining and Scientific Press for their journal. It has been for many years, and still is, the leading mining journal of the United States. Every number contains a resume of the entire mining news of California, Nevada, Montana, Idaho, Colorado, and other mining States and Territories. Also, designs of new and useful inventions, with full descriptions. Its editorials are able, dignified, and comprehensive. It is just the paper that our mining friends require Terms, $4, coin, per annum. Address, Dewey & Co., 414 Clay street, San Francisco.—*Virginia City (Montana) Times, Feb.* 16.

Valuable Books on Mining, Mineralogy, Geology, Metallurgy, Etc.

ANTISELL.—The Manufacture of Photogenic or Hydro-Carbon Oils, from Coal and other Bituminous Substances, capable of supplying Burning Fluids. By Thomas Antisell, M. D. 1 vol. 8vo..	3 00
AARON (CHAS. H.)—Treatment of Rebellious Silver Ores. 8 pp.; pamphlet. S. F., 1869. Postage free..........	25
BROWN (H. T.)—507 Mechanical Movements. Dewey & Co's Scientific Press Edition, S. F., 1869. The most complete publication of illustrated mechanical powers with replete descriptions. 134 pp. Cloth bound; postage free..........	1 00
BARSTOW—Sulphurets; What they are, How Concentrated, How Assayed, and How Worked; With a Chapter on the Blow-pipe Assay of Minerals: 1 vol 12mo. cloth..........	1 00
BLAKE, W. P.—Annotated Catalogue of California Minerals. 8vo..........	50
BLAKE, (W. P.)—Report on the Precious Metals at the Paris Ex, 1869. (To be had through Members of Congress.)	
BROWNE, ROSS—Mineral Resources of the Pacific States. San Francisco, 1868..........	4 00
BOURNE (John)—Handbook of the Steam Engine, illustrated. 2 vol. 12mo, cloth..........	2 25
CONGDON.—Mining Laws and Forms of California and Nevada, and the Mining Ordinances of Mexico. 184 pp. 8vo; flexible cloth; 1864..........	2 50
CRONISE (W. H. V.)—Natural Wealth of California..........	6 00
DANA'S Manual of Geology. Numerous Illustrations. 8vo. half morocco. Philadelphia, 1867.	6 75
DANA'S Text-Book of Geology. Illustrated. 12mo, cloth. Philadelphia. (School Edition) 1864...	2 25
DANA'S System of Mineralogy. New Edition. 8vo. cloth..........	10 00
DANA'S Manual of Mineralogy. Revised edition, 1868..........	10 00
ELDERHORST'S Blowpipe.—Analysis and Determinative Mineralogy. Third edition, revised. 8vo. cloth. Philadelphia, 1866..........	2 50
FEUCHTWANGER — Treatise on Gems.	6 00
GOODYEAR'S Translation. A Treatise on the Assaying of Copper, Silver, Lead, Gold and Mercury, from the German of Th. Bodeman and Bruno Kerl. 1 vol. 12mo. cloth..........	3 00
HITTEL'S (JOHN S)—Resources of California; comprising Agriculture, Mining, Geography, Climate, Commerce, etc., etc; the Past and Future Development of the State. 12m., cloth.	1 50
HOSKOLD'S Practical Treatise on Mining Land and Railway Surveying, Engineering, Etc. 1 vol. 8vo. cloth..........	16 00
KUSTEL.—Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Novada; also, a description of the General Metallurgy of Silver Ores. By Guido Kustel, Mining Engineer. Illustrated by accurate engraving. 1 vol. 8vo. cloth..........	5 00
KUSTEL.—A Treatise on Concentration of all Kinds of Ores: Including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores Generally. By Guido Kustel, Mining Engineer and Metallurgist. Illustrated with 120 diagrams on 7 plates. 1 vol. 8vo. cloth..........	7 50
LAYRES (A.)—Elements of Composition (for schools or self instruction). 166 pp, Cloth.....	1 00
LAMBORN.—Rudimental Treatise on the Metallurgy of Copper. 1 vol. 12mo. limp cloth. Illustrated..........	1 00
MITCHELL'S Manual of Practical Assaying. 1 vol. 8vo. cloth..........	10 50
MAKINS.—A Manual of Metallurgy, more particularly of the Precious Metals, including the Methods of Assaying them. By G. H. Makins. 1 vol. 12mo. cloth. Illustrated by upwards of 50 engravings..........	3 50
OVERMAN (Fred.)—A Treatise on Metallurgy; comprising Mining, and General and Particular Metallurgical Operations. 1 vol. 8vo. cloth.	7 50
PHILLIPS (J. ARTHUR) — Mining and Metallurgy of Gold and Silver. New edition.) 8vo. Cloth..........	15 00
PERCY (John).—Metallurgy; the Art of Extracting Metals from their Ores, and adapting them to various Purposes of Manufacture. Iron and Steel. 1 vol. 8vo. cloth.	13 50
ROWLANDSON (THOS.)—Treatise on Earthquake Dangers, Causes and Palliatives. 96 pp.; pamphlet. S. F., 1869. Postage free..........	50
SCOFFERN'S Useful Metals and their Alloys. 1 vol. cloth..........	5 50
SIMONIN, L.—Underground Life; or, Mines and Miners. Edited by H. W. Barstow, F. R. S. 160 wood engravings, 20 maps (colored), and 10 plates of metals and minerals in chromo-lithography.....	18 00
URE'S Dictionary of Arts, Manufactures, and Mines. 2,300 Engravings. From last London edition. 3 vols. 8vo. cloth. New York..........	16 50
WHEELER & RANDALL'S Quartz Operator's Handbook. Flexible cloth, 12mo. San Francisco 1865..........	1 00
WHITNEY.—A Geological Survey of California. Report of Field Work from 1860 to 1864. By J. D. Whitney. Per. vol quarto..........	6 00
YALE'S Mining Claims and Water Rights. 8vo..........	7 50

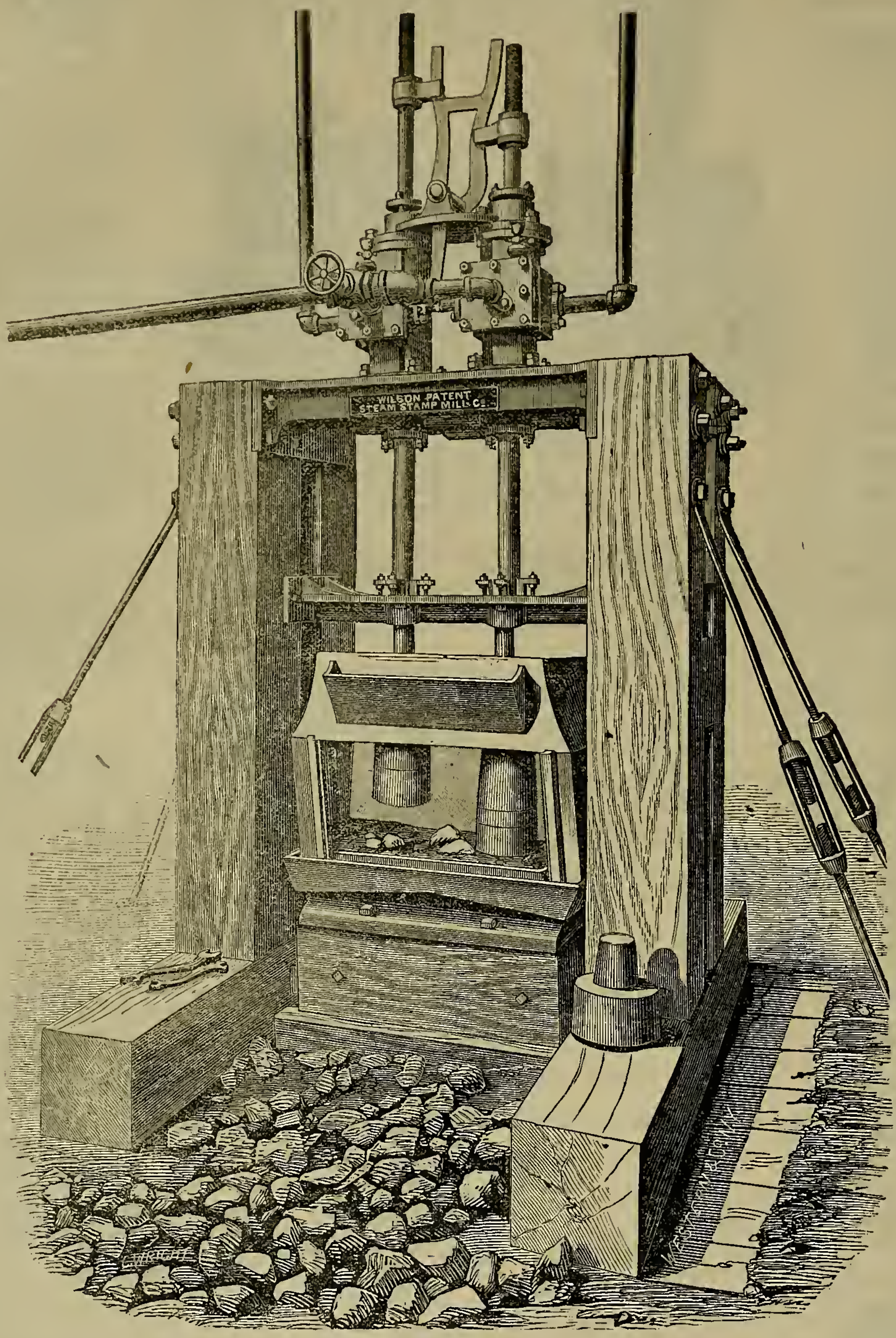
Any of the above Books will be furnished by return mail or express, on receipt of price, in coin, postage added. Any other books desired will also be furnished at the lowest San Francisco retail prices. Address,

DEWEY & Co.,
Scientific Press Office, San Francisco.

SCIENTIFIC PRESS.—This paper is one of the most valuable published on the Pacific coast for miners, mechanics and farmers. It contains each week illustrations of new machinery, descriptions of new inventions and discoveries, information of scientific developments and mechanical progress, with valuable articles in relation to agricultural and farming interests. All claims of patents issued to inventors on this coast are published in this paper. We can recommend it to our citizens and hope Mr. Murray may meet with success in obtaining subscribers among them.—*Sonora Democrat*

SCIENTIFIC PRESS.—The Mining and Scientific Press, which has been a faithful exponent of the scientific, mechanical and industrial interests of our western coast, entered upon its twentieth volume on the first of January, and at the same time adopted the shorter and equally comprehensive title of Scientific Press. This journal has, for some time past, maintained a department specially devoted to agricultural matters, and has filled it with useful and interesting information.—*Contra Costa Gazette, Jan.*, 1870

WILSON'S STEAM STAMP MILL.



The above cut illustrates substantially the WILSON STEAM STAMP MILL. The great demand with which this Mill is meeting, the interest it has created, and the great desire of the mining public to know the particulars of this wonderful Mill, has induced the inventor to again illustrate it in the medium where it will receive the greatest circulation among those interested in the success of mining enterprises on this coast.

The Wilson Mill has now been in operation for two years in several of the Eastern States and Territories, and proved to be the most durable, efficient and economical Stamp Mill ever used. It takes steam direct, thereby dispensing with an engine or any intermediate power between it and the boiler. It does the work of about twenty stamps, crushing from twenty to forty tons per day. Is equally adapted for wet or dry crushing. It takes but a few days to put it in operation, as it is complete when it leaves the shop. Its whole weight is about 6,000 pounds. It is simple, and easily understood. Can be run by any one. Takes but little room, is not noisy, and requires from two to two and a half cords of wood for twenty-four hours. A twenty-horse boiler is more than sufficient to run it. These Mills will soon be in operation in several counties of this State and Nevada, as the manufacturer is engaged in making Mills for several mining companies in California and Nevada. One of these Mills can be seen in operation at the Pacific Iron Works, First street, San Francisco. All those intending to erect Stamp Mills should not fail to investigate the merits of the Wilson Steam Stamp Mill, for thousands of dollars can be saved in first cost, as well as an immense saving in the expense of crushing. For further particulars address,

FURMAN R. WILSON, San Francisco.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

WM. H. MURRAY, California and Nevada.
S. H. HERRING—California.
THOMAS POYZER—California.
JOHN PENNYCOOK, JR.—Contra Costa, Solano and Napa.

Resident Agents.

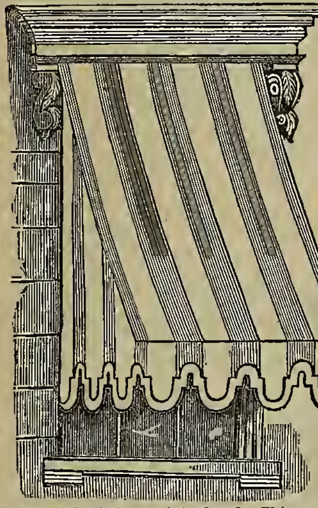
CENTERVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—Thos. Starr.
CARSON CITY, Nev.—John G. Fox.
TREASURE CITY, Nev.—J. L. Robertson.
SHERMANTOWN, NEV.—P. C. Renfrew.
SILVER CITY, Idaho—J. Caples.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orabood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHEYENNE, D. T.—Robert Beers.
OMAHA, N. T.—Barkalow & Brothers.
PHILADELPHIA, PA.—Fitler, Quigg & Co.
LONDON—George Street, 30 Cornhill, E. C.
HUDSON & MENET, 41 Park Row, New York.
A. C. KNOX, City Soliciting and Collecting Agent.

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.

COMFORT AND ELEGANCE COMBINED.



KEEPS COOL AND SHADY

Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco. 11v20-3m

---

H. S. CROCKER & CO.,

Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM

PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

Carmen Island Salt Works

MANUFACTURE AND OFFER FOR SALE

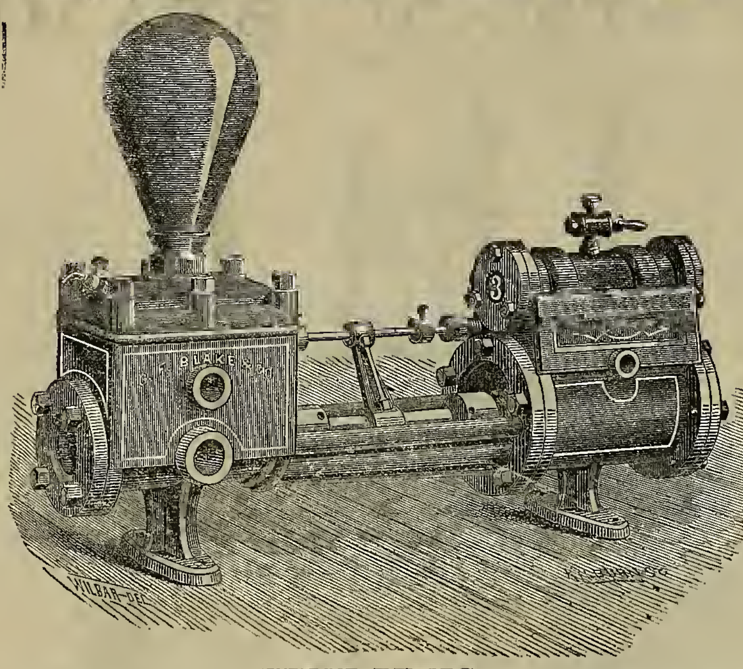
TABLE, DAIRY, COARSE-FINE,
CARMEN ISLAND ROCK,
AND LIVERPOOL COARSE AND FINE
SALT.

Dealers and Packers supplied in quantities to suit, at the lowest market prices.

MILL, 249 STEWART STREET.

HOLLADAY & BRENHAM, Agents,
11v20-3m 325 Front Street, San Francisco.

BLAKE'S PATENT STEAM PUMP.



THESE PUMPS

Have been tested, and found to be indisputably without an equal wherever tried. They are constructed in the most simple style, and built in the most thorough manner—specially calculated for SIMPLICITY, DURABILITY and POWER.

Some of the advantages of the Blake Pump may be summed up as follows:

IT IS POSITIVE UNDER ANY PRESSURE. *May be run as slow or fast as may be desired.* Will discharge more water than any others of the same dimensions Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility. Will start at ANY point of the stroke, and will discharge all the water of condensation.

The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having NO DEAD POINTS, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used

On Railroads and Steamboats; in Hotels; for Mining and Fire Purposes; in Breweries, Tanneries, Sugar Houses, Factories, Mills, Laundries,

And as BOILER FEEDERS, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the

Cheapest and Best Pump that Can be Used.

It is offered to the public as the most perfect independent Steam Pump ever invented. TWELVE DIFFERENT SIZES are made, capable of throwing from 1,000 to 180,000 gallons an hour, and adapted to any class of work that might be required. For sale by

BERRY & PLACE,
112 and 114 California Street, San Francisco.

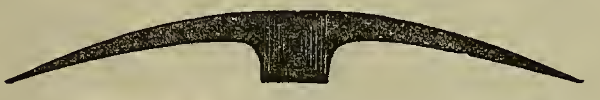
☞ Every pump will be warranted to perform the work required of it by the purchaser, or it may be returned and the money will be cheerfully refunded

Awarded a SILVER MEDAL at last Exhibition of Mechanics' Institute, San Francisco; as being the Best Steam Pump on Exhibition.

This was no empty honor, as four of the principal Steam Pumps of the country were on Exhibition as competitors for the prize beside "The Blake," neither of which received any higher recognition than a diploma or certificate of merit.—*See Official Report of Awards.*

JOHN WRIGHT & CO.,

DEALERS IN PICKS AND PICK HANDLES.



Sole Agents for Washoe Tool Company.

Nos. 13 and 15 Fremont Street, at Nelson & Doble's, San Francisco.

LIST OF PRICES OF PICKS:

No. 1	Round Eye Surface,	4 lbs	$16	No. 16	Drifting	4 lbs	16
" 2	" "	4½ "	16	" 17	"	4½ "	18
" 3	" "	6 "	16	" 18	"	5 "	18
" 4	" "	6½ "	18	" 19	"	5½ "	20
" 5	" "	6 "	20	" 20	"	6 "	22
" 6	" "	6½ "	22	" 21	Poll	4 "	18
" 7	" "	7 "	24	" 22	"	4½ "	18
" 8	Flat Eye Surface	4 "	16	" 23	"	5 "	20
" 9	" "	4½ "	16	" 24	"	5½ "	20
" 10	" "	5 "	16	" 25	"	6 "	22
" 11	" "	6½ "	18	" 26	"	6½ "	24
" 12	" "	6 "	20	" 27	"	7 "	30
" 13	" "	6½ "	22	" 28	Coal	2 "	16
" 14	" "	7 "	24	" 29	"	2½ "	15
" 15	Drifting	3½ "	16	" 30	"	3 "	16

No. 31 Coal .... 2½ lbs 16

Also, PICK EYES, ready for the steel, for the Blacksmiths, which will be sold cheap.

I wish to call especial attention to

MY NEW ADZE EYE PICK,

Which was made under my own supervision while in New York.

For Beauty, Strength and Durability they are unequaled.

JOHN WRIGHT.

WE HAVE A LARGE STOCK OF

Extra Number One White Hickory Drifting Pick Handles,

WHICH WE OFFER CHEAP.

CALL AND EXAMINE FOR YOURSELVES.

8v20-qlam3w

DR. ABORN,

Oculist, Aurist,
AND
CATARRH, THROAT
AND
Lung Physician.

No. 22 KEARNY STREET,
SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox, Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.
San Francisco (Cal.), Jan. 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street, San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.
San Jose (Cal.), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

TO WHOM IT MAY CONCERN.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.

WILLIAM BEARDSLEE,
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.

VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 26, 1869 7v20-3m

STEAM

FIRE-PROOF

SAFES

SANBORN'S PATENT.

Perfectly Dry in Use.

ACTUALLY FIRE-PROOF.

GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

☞ Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by

ROSS, DEMPSTER & CO.,
106, 107 and 109 California street,
5v20-3m San Francisco.

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. OLD GOODS of all kinds re-plated for hotels, restaurants, etc.

☞ The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. A full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

THE FIREMAN'S FUND

INSURANCE COMPANY.

OFFICE,

S. W. Corner California and Sansome Streets,
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL	$500,000 00
SURPLUS	267,115 63
TOTAL ASSETS	$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.

13v20-3m

SAN ANTONIO

PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of

STONE WARE,

Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also

Chemical Ware, of Sorts Made to Order.

We manufacture to order

Terra Cotta Equal to the Best French.

Samples on hand.

FIRE BRICK.

A No. 1 article made to order, warranted superior to any imported.

Flower Pots and Ornamental Vases

Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELINO CLAY and FIRE SAND, all of extra quality, for sale.

☞ Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.

8v20-tf

I. O. O. F.

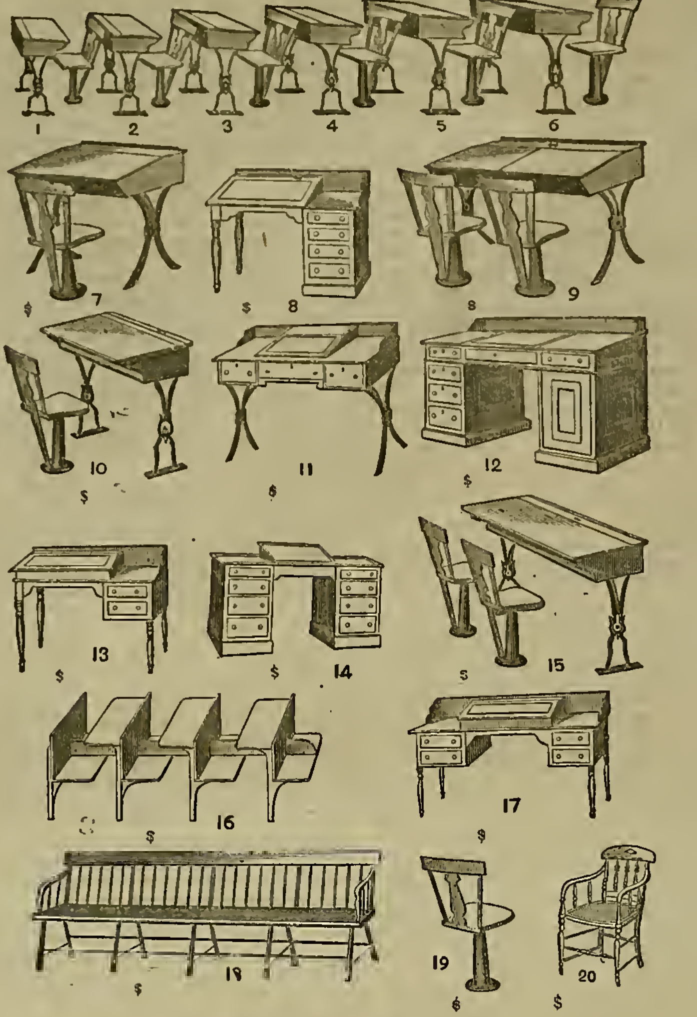
THE NEW AGE,

A WEEKLY JOURNAL OF SIXTEEN PAGES.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 60 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

PACIFIC SCHOOL INSTITUTE.



PRICES:

No. 1	$ 6 00	No. 8	$20 00	No. 15	$ 9 00
No. 2	6 25	No. 9	12 00	No. 16—per set of three, Rankin's Patent	21 00
No. 3	6 50	No. 10	7 00	No. 17	25 00
No. 4	6 75	No. 11	16 00	No. 18—per foot	80
No. 5	6 75	No. 12	48 00	No. 19	2 25
No. 6	7 00	No. 13	14 00	No. 20	6 00
No. 7	8 00	No. 14	45 00		

BABBITONIAN PENMANSHIP,

Copy Books, Pencils, Pen-Holders, Paper-Cutters, Maps,

CHARTS, GLOBES, AND INK-WELLS.

A Large Map of California and Nevada, four feet by five,

IS NOW READY FOR DELIVERY.

This Institute is prepared to furnish Schools and Seminaries with the most approved School Furniture, Apparatus, Stationery, and all other SCHOOL SUPPLIES. Having ample facilities for manufacturing and importing most of the articles used in Schools, Teachers, County Superintendents and Trustees will find their orders promptly filled with articles that will give entire satisfaction. Office Furniture of every variety will be supplied. The numbers refer to each cut.

WARREN HOLT,

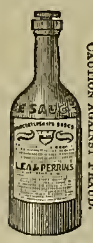
No. 411 Kearny Street, between Pine and California, San Francisco.

8v20-q1am2

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.



CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good SAUCE The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

---

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf **414 Front street, San Francisco.**

USE

DR. S. GIRARD SMITH'S

ARAMIRACULAS

—FOR—

RHEUMATISM, GOUT AND NEURALGIA.

CURES GUARANTEED.

Has cured Thousands. Has never been known
One bottle will relieve you.

OFFI . 621 KEARRY STREET.

Agents Wanted in every City and Town.—Terms Liberal.

DR. S. GIRARD SMITH, 621 *Kearny street.*—Dear Sir: It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
New Orleans.

11v20-3m

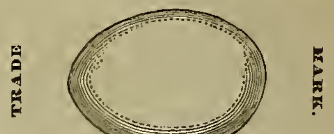
OMETHING NEW

—FOR—

MINERS AND FAMILIES.

EAKINS'

EGG SUBSTITUTE.



One Can equal to three dozen Eggs,

And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.

Price, 35 Cents per Can.

MANUFACTURED BY ADAMS & CO.,

423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

---

MITCHELL & BELL
Carpet Dealers
606 Clay St.

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞ Can compete in prices with any other dealer. 11v20-3m

---

FRANCO-ITALIAN MANUFACTORY.

NEW CALIFORNIA

Chocolate and Coffee Steam Mills.

DESCALZO, LASTRETO & CO.,

526 WASHINGTON STREET.

MANUFACTURERS OF

Hygienic Chocolate of Every Variety,

Ne Plus Ultra Ground Coffee,

And sole manufacturers in California of the world renowned Coffee,

"CAFE DES GOURMETS,"

CORCELET PROCESS. 9v20-q

Reading for the Hour.

Eruption of a Volcano in Iceland.

Iceland has been visited many times with ruinous eruptions of its volcanoes, but that of Skaptar Jöknl in 1783 was the most frightful one of which there is record, for not only was it terrific in its immediate effects, but its direful results were felt long after throughout the whole of the island.

This eruption occurred in June. About the commencement of the month, repeated vibrations of the earth, which daily increased in force, gave warning to the people in the neighborhood of the wrath to come. On the ninth, columns of smoke arose, and rolling down towards the south darkened the land. The thunder muttered and growled ever in deeper and louder tones, jets of fire flashed through the smoke, and ashes were vomited forth. The heat melted snow and ice, and thereby the river Skapta was swollen to an unprecedented size. On the eleventh, the climax was reached, and the lava floods came pouring down the mountain side, rushing over hill and valley to plunge into the stream, where a hideous conflict raged between the fire and the water, till the latter was overcome and the molten fiery mass filled the channel and overran its banks. Ever reinforced from the glowing crater's mouth, the billows rushed on over the low country, poured into a lake, which it soon filled, divided into two streams and rushed ever on, in one direction overflowing ancient lava fields, in the other reëntering the Skapta, for fifty miles carrying death and desolation in its train. Another stream poured down to the river Hverfisfliot, fought and overcame the waters here, and in like manner rushed on for forty miles.

All through the fearful days of June and July, the lava poured out, and rocks and ashes were spread over the land. But finally they grew less and less, and at the end of August the mountain ceased to belch forth in its extreme violence. But the end was not yet. For a whole year the ashes and cinders spread over the land in a black cloud and covered the fertile fields with a destructive mantle. Vapors darkened the day, and the sulphurous fumes poisoned the waters and the land, so that the rivers and lakes were tainted with decaying fish and the herds of cattle perished in huge numbers. Starvation and disease came on the people. Their heads and limbs were swollen by the distemper, their gums loosened, their skin covered with foul sores, and blood oozed from their mouths and ears till death released them. Nearly 10,000 men and 230,000 domestic animals perished through this fearful eruption.

The farmer wonders how the resident of the city can live away from the green fields and the wild flowers, the birds and the pure air of the country; and the city man wonders how the farmer can live away from the conveniences and luxuries of the city, and both pity each other and congratulate themselves, and it is most fortunate that our nature is such that this is possible, else were we a most unfortunate set of beings?

A new coal deposit is announced as having been found in Stanislaus county. This exceedingly valuable article exists in a vein ten miles long and one and a half inches thick (at a depth of eight feet), according to the reports. We congratulate the finder and the county; but had we been the discoverers, we should have stretched our eyes until we could see at least two inches of it. Perhaps the length makes up for this.

A Royal Rascal let off.—Prince Pierre Bonaparte, who murdered Victor Noir, has been let off, in consideration of his high-toned family, with a fine of $5,000, which go to console Noir's family, and payment of costs of the suit.

How Waste Matter is Utilized.

In England a couple of *savans* have been attracting notice to the manner in which science has enabled man to make useful many things formerly, and now to a great extent, thrown away. *Chamber's Journal* gives a summary of what is at present very generally done.

Beautiful perfumes are produced from substances not merely trivial, but in some cases fetid and repulsive. Fusel oil, putrid cheese, gas-tar, and the drainage of cow-houses are thus transformed. Blue dyes are made from scraps of tin, old woolen rags, and the parings of horses' hoofs. Old iron hoops are employed in ink-making; bones as a source of phosphorus for tipping Congreve matches; the dregs of port wine for making Seidlitz powders; the washings of coal-tar for producing a flavoring condiment for *blanc mange*. Old woolen rags are the foundation of the prosperity of Dewsbury and Batly in Yorkshire, these musty, fusty, dusty, frouzy fragments being ground up into shoddy and mungo. Other relics of old woolen garments are made to yield flock for wall paper, padding for mattrasses, and Prussian blue for the color-makers. Chemicals are employed to destroy the cotton fibers in old worn-out balzarines, orleans, coburgs, and other mixed fabrics of ladies' dresses, and to liberate the woolen or worsted fibers for a new career of usefulness. Woolen rags, when even the shoddy-maker will have nothing to do with them, are choice materials for the farmer as manure. That bones are used for knife-handles we know very well; but it appears they are also used for bone-black by color and varnish-makers, for size by dyers and cloth finishers, and for manure by farmers. Horns and hoofs are a very magazine for useful products in the hands of the scientific chemist. Whalebone cuttings yield prussian blue; dogs' fat is (shamefully) made into sham cod-liver oil; wood-scourers' waste and washings reappear as beautiful stearine candles; bullocks' blood is used in refining sugar, in making animal charcoal, and in Turkey-red dyeing; ox-gall or bile is used by wool-scourers and by color-makers; fishes' eyes are used for buds for artificial flowers; bladders and intestines are made into air-tight coverings and into musical strings; and the odds and ends of leather and parchment-dressing are grist to the glue-maker; calves' and sheeps' feet yield an oil which is doctored up most fragrantly by the perfumer; stinking fish is always welcome as manure to the farmer; and a brown dye is extracted from those small bedroom acquaintances whom few of us like to talk about, and none like to see or to feel. At least fifty thousand tons of cotton-waste, the residue and sweeping of the mills, are annually utilized by being worked up into coarse sheeting, bed-covers, *papier mache*, and the commonest kinds of printing-paper. Seaweed is used as a material for paper, as a lining material for ceilings and walls, and as a source whence the chemist can obtain iodine. Various kinds of seed, when the oil has been squeezed out of them, are useful cattle-fatteners as oil-cake. Grape husks yield a beautiful black for choice kinds of ink; raisin stalks constitute a capital clarifying agent for vinegar; bran or corn-refuse is valuable in tanning, calico-printing, and tin-plate making; brewers' and distillers' grains are fattening food for cattle. Bread-raspings are in France sometimes used as a substitute for coffee, and as a tooth-powder; tan-pit refuse is valuable for the gardener's hot-house; damaged potatoes and rice and grain are made to yield starch; ground horse-chesnuts are not unknown to the makers of cheap maccaroni and vermicelli; cork-cuttings and scraps are eagerly sought for stuffing and for buoyant purposes; pea shells are used as a food for milch cows, and spirit may be distilled from them; sawdust is now applied in a prodigious number of ways, for making paper, distilling oxalic acid, smoking fish, cleaning jewelry, filling scent-bags, stuffing dolls, etc.; tobacco-ashes are made into tooth-powder; the coal-tar from gas-works is made to yield sulphate of ammonia, sal ammoniac, printers' ink, lampblack, disinfectants, naphtha, benzole, paraffin, and the magnificent series of aniline colors for dyeing and calico-printing; the sediments in wine casks is made into cream of tartar; old kicked-off horse-shoe nails yield the best of all iron for musket-barrels. As for the shops in which gold-workers, jewelers, and goldbeaters work, not only is the very dust on the floor precious, but a refiner will gladly give a new waistcoat or apron for an old one, for the sake of the auriferous particles thereby obtained.

Adoration of a Tooth and a Cloak.

The most solemn of Mussulman ceremonies, which is celebrated yearly on the 15th of Ramazan, took place on Saturday last, when the Sultan, the whole of the Ministers and all the great dignitaries of Church and State, proceeded to inspect and worship the personal relics of the Prophet. These venerated remains amount to seven, exclusive of several minor articles, such as arms, praying carpets, turbans, etc., either appertaining to him or to his immediate successors, the first four califs, Ebou, Bekr, Omer, Osman and Ali, generally distinguished as the "four friends." Of these seven articles, five are preserved in a chamber or chapel at the upper Seraglio, opening into a gallery northwest of the throne room, and fronting the beautiful octagonal pavilion called Erivan Kiosk, erected in honor of the capture of that place. Unless under accidental circumstances this chamber is not accessible to Christians, no matter what their rank. Indeed, no Moslems are ever admitted within its precincts, excepting the Sultan and palace Imans, and the guardians who keep watch, two by two, night and day.

On the 15th of Ramazan, however, the Sultan, attended by his court and the grand dignitaries of the Empire, enters to do homage. The whole of the relics are then uncovered and exposed with extraordinary pomp and solemnity. The remaining two personal relics consist of a tooth and a second mantle belonging to the Prophet. The one is preserved in the mausoleum of Sultan Mohammed II., and is shown to the public on the 27th Ramazan, the night of power or destiny. The second is at present in the possession of the second astrologer to the court, who resides in the immediate vicinity of Sultan Mohammed's mosque. The possessor of this latter relic, whose ancestors are said to have inherited and preserved it in direct succession from one of the Prophet's disciples, is honored with the title of sheikh of the holy mantle. It is exposed to public view during the last fifteen nights of Ramazan, and the owner reaps a rich annual harvest from the numerous presents brought to him by the multitude of devout persons, especially women, who throng to his house from sunset until midnight, during the last half of the festival.—*Levant Times.*

The Habits of Frogs and Toads.—There is a curious circumstance, which I should be glad to find any one able to explain, relative to the habits of frogs and toads in feeding. Most persons are aware that they live on insects, and that frogs in particular are great devourers of earthworms. Now, if you go out on a dewy evening, or still more, after dark, with a candle into a grass plot (in the heat of summer, especially after a shower), you will be likely to see many frogs and toads sitting still (if undisturbed,) and taking no notice of the numerous worms lying out, as their manner is, many of them quite close to their enemies. If you then catch a worm and throw it gently before a frog or toad, taking care not to frighten him, you will most likely see him make a set at it, like a dog at game, and come forward and devour it, though, perhaps, other worms lying around were even nearer to him.

Within ten minutes I have fed a frog in this manner with no less than three, and even four, of the largest sized earthworms, though all the time it took no notice of those uncaught lying before its eyes. The toad is slower in its motions, and (after earthworms, at least,) much less voracious than the frog. Each of them makes a most curious figure pinioning the worm with his fore feet to keep it straight and prevent it curling around the devourer's head. But how comes it that they do not—at least never that I say—make any attempt to seize the uncaught worms? Have they some instinct or reason which teaches them that the worms which are lying out have always, as is well known, their tails in their holes, into which they start back at the slightest alarm? The phenomenon is certainly curious, and the experiment is easily tried.—*Whately.*

An English gentleman, who is looking at California investments, desired to invest in a shave and a shampoo, for which he paid $1.25. He was offered land at that price per acre; and he complains that in San Francisco he has to pay the price of an acre of land for a shampoo.—*San Francisco Alta.*

The weight of the Great Pyramid, according to Sir John Herschel's calculations, is 12,760,000,000 pounds. According to Perring, the present quantity of masonry is 6,316,000 tons, or 82,110,000 cubic feet.

Fossil Birds in the United States.—Prof. O. C. Marsh says recent explorations have shown that fossil remains of birds are not wanting in the later formations of the United States, especially in the cretaceous and tertiary. Five specimens from the greensand of New Jersey are described in the *American Journal of Science and Arts*, by Prof. Marsh, who says that "if the interpretation given be correct, they prove the existence, in this country, even before the close of the Mesozoic, of an interesting and varied group of aquatic birds."

There is nothing that helps a man in his conduct through life more than a knowledge of his own characteristic weakness, which, guarded against, becomes his strength, as there is nothing tends more to the success of a man's talents than his knowing the limits of his faculties, which are thus concentrated on some practical object. One man can do but one thing well. Universal pretensions end in nothing.—*Ex.*

The Empress' prize of 10,000 francs is to be given, according to the report of the committee of the French Geographical Society, to M. de Lesseps, as the person who has accomplished the work most useful to the commercial relations of France by cutting the canal through the Isthmus of Suez.

While we have been rejoicing in pleasant days, and luxuriating on such vegetables as are now filling the markets, snow-storms have been raging at the East and tempests sweeping over the land.

SCIENTIFIC PRESS. Devoted to Mining, Farming and Mechanic Arts. Published weekly by Dewey & Co., San Francisco, at $4 a year.

For variety of interesting matter this journal compares favorably with any of our exchanges.

Coming as it does from the Pacific coast, and being made up almost entirety of original articles, it possesses an interest and a freshness peculiar to itself, and that is particularly attractive to us.

It gives us a sort of birds-eye view of the improvements and progress in the leading industrial pursuits on the western coast.

We should think every one who had spent a few years in California would consider this paper a necessity; and any one wishing to know of the industrial and scientific progress there will do well to subscribe for it.—*Journal of Agriculture, St. Louis, Mo.*

To Miners, Millmen and Metallurgists. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

Layres' Elements of Composition.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

Absolute Divorces legally obtained in New York, Indiana, Illinois and other States, for persons from any State or country, legal everywhere; desertion, drunkenness, non-support, etc., sufficient cause; no publicity; no charge until divorce obtained. Advice free. Business established fifteen years.
Address, M. HOUSE, Attorney,
14v20-3m No. 78 Nassau street, New York City.

Co-Operative Union Store.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block San Francisco. 24w

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Thomas O'Neil. Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Members of the Microscopical Union are requested to examine E. Muller's varied assortment of microscopes at 205 Montgomery street. *

F. Gruber, Naturalist, No. 626 California street, between Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

New Mining Notices.

Alameda Coal Mining Company, San Francisco and Alameda Counties, State of California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the sixteenth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
F. T. McMahon	43	26	$7 80
Louis Teres	102	25	7 50
Louis Teres	103	25	7 50
I. Veillier	254	10	3 00
I. Veillier	255	10	3 00
I. Veillier	256	10	3 00
I. Veillier	279	50	15 00
I. Veillier	289	78	23 40
I. Veillier	299	6	1 80

And in accordance with law and an order of the Board of Trustees, made on the sixteenth day of February, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by Maurice Dore & Co., on the twenty-second day of April, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

M. PHILLIPS, Secretary.

Office, 409 Battery street, San Francisco. apr2

Mining Notices--Continued.

Alban Gold and Silver Mining Company.—

Location of Works: Virginia City, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of March, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, or to Geo. Bordwell, Esq., President of said Company, at his office, No. 432 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Monday, the twenty-fifth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fourteenth day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. B. SMITH, Secretary.

Office, 432 Montgomery street, San Francisco. m26

Cordillera Gold and Silver Mining Company, Morelos Mining District, State of Chihuahua, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company No. 321 Washington street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.

Office, 321 Washington street, San Francisco, Cal.

Eagle Quicksilver Mining Company.—Location of Works: Eagle Mining District, Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of March, 1870, an assessment of twenty dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 26 Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the sixteenth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.

Office, Room 26 Hayward's Building, 419 California street, San Francisco. mar19

Green Monster Copper, Gold and Silver Mining Company, Inyo Mining District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of March, 1870, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold or silver coin, to the Secretary, at his office, No. 16 Montgomery Block, San Francisco.

Any stock upon which said assessment shall remain unpaid on Saturday, the sixteenth day of April, 1870, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on Monday, the second day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

I. N. THORNE, Secretary.

Office, No. 16 Montgomery Block, San Francisco. m12

Glenwood Mill and Mining Company.—

Location of Works: Greenwood, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of February, 1870, an assessment of twenty-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the seventh day of March, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-eighth day of March, 1870. to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary,

Office, 418 California street, San Francisco. feb52

Postponement.—The day for deeming stock delinquent on the above assessment is hereby postponed until the sixth day of April, 1870, and the sale thereof until Wednesday, the twenty seventh day or April, 1870. By order of the Board of Trustees.

mar12 O. D. SQUIRE, Secretary.

Scientific Press.—This paper, devoted to the interests of the miners, farmers and mechanics, has just entered its twentieth volume and donned a new head, and also a slight alteration in name. It is a good substantial sheet of sixteen pages, beautifully printed and illustrated. As a journal of scientific and industrial progress, we would recommend it to all. Dewey & Co., San Francisco. Subscription, $4 per year.—*Yolo Mail.*

Kincaid Flat Mining Company, Tuolumne County. California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth day of March, 1870, an assessment of two dollars ($2.50) and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 220 Clay street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fifth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 23d day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.

Office, 220 Clay street, San Francisco. mar12

Latawana Mining Company.—Near Hamilton City, White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of March, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, or at 526 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the tenth (10th) day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. mar26

North San Francisco Homestead and Railroad Association:—Location of Property: City and County of San Francisco, State of California.

Notice.—There are delinquent upon the followed described stock, on account of assessment levied on the ninth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B F Moulton	281	1	$7 50
John A Zoller	60 226	5	37 50
Prosper Huerne	98, 99 100	6⅔	50 00
Jno G Klumpke	143, 145 288	52	390 00
R Bayerque	146	80	225 00
Geo H Ensign	179 344	457⅓	3430 00
J B Richardson	248	10	75 00
M O'Neill	296	2	15 00
J G Shepherd	354	1200	9000 00
J W Hendrie	351	547	4102 50

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the fourteenth day of April, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessments thereon, together with costs of advertising and expenses of sale.

EDWARD C. LOVELL, Secretary.

Office, 415 Montgomery street, San Francisco. mar26

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Letham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice.—There are delinquent on the following described stock, on account of assessment (No. 1) levied on the eighth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
I I Herr	unissued	2000	$50 00
R P Johnson	unissued	2000	50 00
H O Kibbe	unissued	2000	bal. 30 00
Thos G Taylor	unissued	2000	50 00

And in accordance with law and an order of the Board of Trustees, made on the eighth day of February, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room No. 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the fifth day of April, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, ogether with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.

Office, Room 5 No. 302 Montgomery street, San Francisco, California. mar19

Pacific Pneumatic Gas Co.—Notice.—

A meeting of the stockholders of the Pacific Pneumatic Gas Company will be held at the office of the Pacific Iron Works, in San Francisco, on the First day of May, 1870, at 1 o'clock P. M., to consider the proposition to reduce the capital stock of said Company to the sum of two hundred and fifty thousand dollars ($250,000).

IRA P. RANKIN,
J. J. FELT,
J. W. STOW,
A. P. BRAYTON, } Trustees.

mar26

Yosemite Mining Company, Humboldt County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventh day of March, 1870, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to James T. Maclean, Superintendent, at the mine.

Any stock upon which said assessment shall remain unpaid on the seventh day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the twenty-third day of April, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary pro tem.

Office, 220 Clay street, San Francisco. mar12

California File Manuf'g Co.

437 Brannan Street, bet. Third and Fourth.

W. Wusthoff, L. Kramer, M. Harris, J. Burke.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

To Owners of Horses.

WATSON'S EUREKA SYSTEM.

A GREAT IMPROVEMENT IN SHOEING. Lame, tender or flat-footed horses put in good condition to travel over any cobble stone pavement in the City, in from one to four months. In nine cases out of ten, of what is called Lame Shoulder, Chest Founder and Corns, it is no more or less than the result of bad shoeing, therefore, this system, which is based on scientific principles and practice, remedies the above, and is particularly adapted to all horses working on hard or rough roads, as it keeps the feet sound in all seasons. Quarter crack in any stage cured. No bar shoes used after one or two months. Charges same as other shops. Watson's Eureka Shoeing Shop, Main street, between Mission and Howard. 14v20

New Advertisements.

DR. J. P. GILLESPIE, D. D. S.,

DENTIST.

Office, 313 Bush Street, near Montgomery.

Is a regular graduate, with twenty years experience in practice. 14v20-3m

F. SCHOENER,

METAL SPINNER.

All kinds of Metal spun to order. Give me a call at No. 10 Stevenson Street, fourth story Pioneer Mills. 14v20-3m

DEWEY & CO.

San Francisco.

Scientific Press

U. S. & Foreign

PATENT AGENCY.

ICE! ICE!

At Lower Prices than Ever Before Sold.

SUMMIT VALLEY ICE CO.,

No. 261 First Street, near Folsom.

Office at the Miners' Foundry.

J. L. MOULTHROP, - - - - - - - AGENT.

☞Office open at all hours of the day. 14v20-1m

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2.500 secured for $6.

HOWARD & HOWE,

General Agents for the Pacific Coast.

No. 338 Montgomery street, corner California, Room 7.

☞Agents Wanted.☜ 14v20-3m

Caution.—All persons are hereby cautioned against using, or sending to others to be used, Governors for Steam Engines operated by direct action of the springs upon their arms, as such application of the springs is my invention, secured to me by Letters Patent of the United States, issued Jan. 12th, 1869.

G. T. PRACY.

San Francisco, March 24th, 1870. 14v20-1m

PREMIUMS FOR CLUBS

FOR THE

Scientific Press.

The Publishers will offer for the present, the following list of

L. Prang's Beautiful and Valuable Chromos

As premiums to persons who will get up lists of subscribers for the Press in any locality.

For a club of five new subscribers, with $20, we will send one of the following

$5 PREMIUMS:

GROUP OF CHICKENS (After Tait)—Size, 10 by 12⅛ inches	$5 00
GROUP OF DUCKLINGS (After Tait) 10 by 12⅛	5 00
GROUP OF QUAILS (After Tait) 10 by 12⅛	5 00
THE POULTRY YARD (After Lemmens) 10⅛ by 13	5 00
THE BAREFOOT BOY (After Eastman Johnson) 9¾ by 13	5 00
WILD FRUIT (After Geo. C. Lambdin) 9¾ by 13	5 00
HARVEST (After B. B. G. Stone) 14¼ by 8⅛	5 00
SPRING TIME (After A. J. van Wyngaerdt) 14¼ by 8⅛	5 00
POINTER AND QUAIL (After Tait) 10 by 12	5 00
SPANIEL AND WOODCOCK (After Tait) 10 by 12	5 00
PLAYING MOTHER (After J. G. Brown) 9¾ by 12⅞	5 00
MORNING (After Rosa Bonheur) 12 by 17¾	5 00
EVENING (After Rosa Bonheur) 12 by 17¾	5 00

For an order of 10 new subscribers and $10, the sender will receive two of either of the above $5 premiums.

$2 PREMIUMS.

For an order for three new subscribers and $12, we will send either of the following:

PIPER AND NUT-CRACKERS (After Landseer)—Size 10 by 12⅞ inches	$2 00
VICTORY; or, The Remedy Worse than the Disease, 10 by 12⅛	2 00
AWAKENING (A Litter of Puppies) 8⅝ by 11⅞	2 00
THE TWINS, No. 1 (Lambs and Sheep) 10 by 11¾	2 00
THE TWINS, No. 2 (Lambs and Sheep) 10 by 11¾	2 00
SCOTCH TERRIERS AND PUPPIES, 8⅝ by 10⅞	2 00
NOT CAUGHT YET (After E. Landseer) 8 by 12	2 00
JUST CAUGHT (After Herring) 8 by 12⅛	2 00
THE FRIGHTENED DUCKLINGS, 10 by 12¾	2 00

$1 PREMIUMS.

For an order for two new subscriptions and $8, or for one subscription paid two years in advance, we will send either of the following Chromos, all of which are fine specimens of the art of oil color printing:

AUTUMN LEAVES—Maple—Size, 10½ by 14 inches	$1 00
AUTUMN LEAVES—Oak, 10½ by 14	1 00
THE WINTER WREN, 6½ by 8½	1 00
THE RUBY-CROWNED WREN, 6½ by 8½	1 00
THE SAVANNAH SPARROW, 6½ by 8½	1 00
THE BLUE THROATED BLUE WARBLER, 6½ by 8½	1 00
PIPER AND NUT-CRACKERS (After Landseer) 6¾ by 7⅞	1 00
MAY FLOWERS, 7⅜ by 9⅞	1 00
APPLE-BLOSSOMS, 7⅜ by 9⅞	1 00
VICTORY, 6½ by 7⅞	1 00

All these premiums will be sent prepaid so as to reach the owner within three weeks from the time the order for subscriptions are received at this office.

Prang's American Chromos excel all others. They are as lasting as real oil paintings, and retain the delight of the eye of their possessors during long acquaintance equally well.

Samples of these pictures may be seen at the gallery of Snow & Roos, No. 21 Kearny street.

Let the friends of the Press exert themselves a little in our favor, and secure one or more of these durable pictures as a pleasant reminder of their efforts in extending the cause of Scientific and Industrial Progress.

DEWEY & CO.,
Publishers and Patent Agents.

San Francisco, April 1, 1870.

Railroads and Steamers.

FAVORITE VALLEJO ROUTE.

Shortest and most direct Route between SAN FRANCISCO, SACRAMENTO, MARYSVILLE, CALISTOGA, and all points North and East. Fifty-two Miles saved in distance, and Three Hours in time, between San Francisco and Sacramento, and Eighty Miles less than any other line between Marysville and Sacramento.

Arrival and Departure of Trains.

Leave San Francisco (New World), 8 A. M., 3.30 P. M.; Sunday, 9 A. M. Arrive in San Francisco, 11.45 A. M., 7 P. M.; Sunday, 5.15 P. M.

Leave Sacramento, 7.15 A. M., 2.45 P. M.; do., Marysville Accommodation, 11 A. M., 6.15 P. M.; Sunday, 1.30 P. M. Arrive in Sacramento, 12 15 P. M., 7.50 P. M.; do., Marysville Accom., 8.15 A. M., 4 P. M.; Sunday, 1 P. M.

Leave Marysville, 6 A. M., 1 P. M; Sunday, 10.30 A. M. Arrive in Marysville, 2 P. M., 9 P. M.; Sunday, 3.45 P. M.

Leave Calistoga, 7.45 A. M., 2 P. M.; Sunday, 1.30 P. M. Arrive in Calistoga, 12.50 P. M., 7.15 P. M.; Sunday, 1 P. M.

D. O. HASKIN, General Manager.
R. S. MATTISON, Superintendent.

Vallejo, March, 1870. 12v25-1y

Pacific Mail Steamship Company.—For New York, via Panama.

PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

April 2..............................CONSTITUTION,
Connecting with Alaska.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

April 1—GREAT REPUBLIC, Capt. Cavarly.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.

13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation COMPANY,

Steamer CAPITAL	CAPT. E. A. POOLE
" CHRYSOPOLIS	CAPT. A. FOSTER.
" YOSEMITE	— —
" CORNELIA	CAPT. W. BROMLEY
" JULIA	CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

13v12 **B. M. HARTSHORNE, President**

"Salus populi suprema lex."
"Sub hoc signo vinces."

Farm Wagons For Sale.

We have contracted for the manufacture in this city and vicinity of a large number of Two-horse Farm Wagons—light, medium size and heavy, made either with Iron Axles or Thimble Skeins, which we will sell as low as Eastern-made Wagons are sold for here, and guarantee both the work and materials. Orders from the country from persons who have facilities for disposing of them are respectfully solicited, and any reasonable number promptly furnished. Price Lists sent on application.

MEEKER, JAMES & CO.,
Corner California and Davis sts.

March 26, 1870, 14v20-1am3m

To Solicitors.

AGENTS WANTED.

One or two active and reliable Agents can obtain permanent and profitable employment by addressing or calling at this office.

OCCIDENTAL Insurance Company,

OF SAN FRANCISCO.]

Cash Capital, - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 20v17

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, March 24; 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ⅌ 100 ℔s.; Bar, 1@1½c ⅌ ℔; Sheet, polished, 3c ⅌ ℔; common, 1½@1¾c ⅌ ℔; Plate, 1½c ⅌ ℔; Pipe, 1½c ⅌ ℔; Galvanized, 2½c ⅌ ℔.		
Scotch and Eng. Pig Iron, ⅌ ton	$33 00	@$35 00
White Pig, ⅌ ton	28 00	@ 30 00
Refined Bar, bad assortment, ⅌ ℔	— 03	@ — —
Refined Bar, good assortment, ⅌ ℔	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
Copper.—Duty: Sheathing, 3½c ⅌ ℔; Pig and Bar, 2½c ⅌ ℔.		
Sheathing, ⅌ ℔	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
Tin Plates.—Duty: 25 ⅌ cent. ad valorem.		
Plates, Charcoal, IX, ⅌ box	12 00	@ — —
Plates, 1 C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ⅌ ℔	— —	@ — 42
Steel.—English Cast Steel, ⅌ ℔	— —	@ — 15
Quicksilver.—⅌ ℔	— 55	@ — 60
Lead.—Pig, ⅌ ℔	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ⅌ ℔	— 10½	@ — 11
Borax	— —	@ — 45

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

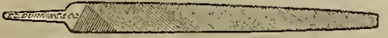
GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,
SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,
SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.

2v17-3m **T. G. DURNING & CO**

Phœnix Iron Works.

JONATHAN KITTREDGE, Proprietor,

Nos. 18 and 20 Fremont street, near Market, San Francisco.

MANUFACTURER OF

Fire-Proof Doors and Shutters,

Wrought Iron Girders, and all kinds of Housesmith Work; Bridge, Prison,

FORGING AND MACHINE WORK,

FIRE AND BURGLAR-PROOF SAFES,

BANK VAULTS,

Improved Monitor Safes,

Constructed of Welded Steel and Iron, fastened with conical steel bolts.

Safes Let by the Month.

Manufacturer of the

Duplex and Excelsior Combination Bank Locks.

Agent for the ISHAM KEY REGISTER BANK LOCK.

1v17-tf

R. SAVAGE. R. E. DORAN.

SAVAGE & CO.,

Empire Iron Foundry,

No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices. 9v20-3m

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

THE RISDON
Iron and Locomotive Works.

INCORPORATED....APRIL 30, 1868.
CAPITAL....$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

JOHN N. RISDON....President.
JOSEPH MOORE....Vice President and Superintendent.
LEWIS R. MEAD....Secretary.

24v17-qy

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 Sacramento City

SACRAMENTO BOILER WORKS,

I Street, between Front and Second,
SACRAMENTO.

All kinds of Marine and Stationary Boilers, Wrought Iron Tanks, Girders, Bridges, Gasometers, and all kinds of Sheet Iron Work, etc. All work warranted. Millmen and Grain Threshers are cautioned to look to the safety of their boilers. Repairing promptly attended to at the lowest possible terms. Refers to Huntington, Hopkins & Co. and H. Adams, Esq.

J. V. HALL, Practical Boiler Maker,
6v20-3mnuf Proprietor, Sacramento.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch. ☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL.
9v13-1y

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,
SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

San Francisco Wire Works,

No. 665 Mission Street, near Third.
SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,

Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

MACHINERY
— AT —
GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

PARIS
Scouring and Blanket Cleaning
ESTABLISHMENT.

Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling.* Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

☞ ☞ ☞ ☞ ☞ ☞ ☞ ☜ ☜ ☜ ☜ ☜ ☜ ☜

TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. O. ALLEN & CO., Augusta, Maine. 5v20-3m

Ayer's
Hair Vigor,

For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a

HAIR DRESSING,

nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.

Prepared by Dr. J. C. Ayer & Co.,

Practical and Analytical Chemists,

LOWELL, MASS.

PRICE $1.00.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, Wholesale Agents. 26v18-1y

SUTRO TUNNEL COMPANY.

CAPITAL STOCK, - - - $12,000,000.

DIVIDED INTO 1,200,000 SHARES OF

TEN DOLLARS EACH,

FULL PAID STOCK.

OFFICERS OF THE COMPANY.

President....SAMUEL MERRITT.
Vice-President....MICHAEL REESE.
Treasurer....J. SELIGMAN & CO.
Secretary and General Agent....W. K. VAN ALEN.

Board of Trustees—Samuel Merritt, Michael Reese, Abraham Seligman, John B. Felton, Joseph Aron, Wm. H. Sharp, Henry Barroilhet.

THE SUTRO TUNNEL COMPANY.

Rights and Privileges.

The "SUTRO TUNNEL COMPANY," under a special Act of Congress of the United States, has the following rights and privileges:

1st—The Company owns a tract of mineral land adjacent to the Comstock Lode, in the State of Nevada, being the very heart and center of the richest silver region in the world, SEVEN MILES IN LENGTH BY FOUR THOUSAND FEET IN WIDTH, EMBRACING FIVE THOUSAND AND TWENTY ACRES.

2d—Also a Town Site at the mouth of the Tunnel, containing one thousand two hundred and eighty acres.

3d—The exclusive ownership of ALL mines discovered by the Tunnel.

4th—A royalty forever of TWO DOLLARS on each and every ton of ore extracted from any part of the Comstock Lode, and

5th—The right of appropriation of all the water carried off through the Tunnel.

Construction of the Tunnel.

In order to develop and render valuable every portion of this grant, the Company has commenced the construction of the Tunnel, which has already progressed five hundred feet, and is now being pushed day and night, at the rate of fifty feet per week.

The Tunnel is provided with a double-track railroad, and, with a ramified system of branches, to be constructed in every direction, will form a great highway under this argentiferous mountain range, furnishing extraordinary facilities for developing mines, cheap transportation, ventilation and drainage. It will eventually penetrate into the very heart of Mount Davidson, the center of this great silver region, under the summit of which it will pass at a perpendicular depth of three thousand four hundred and seventy-three feet.

Abandonment of the Mines.

The abandonment of the mines on the Comstock Lode, under the present expensive system of mining, is but a question of time; the completion of the Tunnel will give them a new lease of life, and will be the inauguration of a new era in mining. Instead of fifty steam engines, now necessary to pump the water and hoist the ore, none at all will be required. The water will run off through the Tunnel of its own accord; the ore will drop down by the laws of gravitation, and be transported over a short, straight, level railroad to the water power of Carson river, at less expense than it now costs to hoist it; fresh air will ascend to all parts of the mines, and through the connecting shafts, as through chimneys two thousand feet in height. In short, the simple laws of nature will be made to perform more effectually, at no cost at all, what is now accomplished by artificial means at an annual expense of millions of dollars

Reduced Cost of Mining.

The cost of mining and transportation will be so much reduced, and facilities for concentration at the mouth of the Tunnel created, as will make available many millions of tons of low-grade ore, which otherwise will forever remain buried in the bowels of the earth. It will permit the most extensive exploration on those portions of the Comstock Lode which have hitherto been unproductive.

Development of New Mines.

The development of new mines in this argentiferous belt is not a matter of speculation; it is one so well established by repeated examinations of the Company's grant, and by analogy with other mineral districts, that no doubt as to its immense value can be entertained.

The great silver deposits of the world are confined to isolated and limited localities, where either one great mother vein forms the nucleus of a system of parallel or cross veins and deposits, or where the latter occur by themselves, as has amply been illustrated by the explorations of centuries in the mines of Schemnitz, in Hungary, those of Clausthal, in the Harz, Friedberg, in Saxony, Cornwall, in England, Charnacillo, in Chile, Potosi, in Bolivia, Guanajuata and Zacatecas in Mexico—the three latter having for over three hundred years poured out their treasures, and yielded two thousand eight hundred millions of dollars, being more than one-half the silver ever produced in the world.

Sources of Revenue.

The whole country, from the mouth of the Tunnel, being of an argentiferous character, valuable developments may be made at any time during its progress. One single mine opened up may furnish the means for completion of the whole Tunnel.

The sale of town lots and mill sites on the Company's land will also yield considerable income; also that derived from the sale of water furnished by the Tunnel.

A very important revenue will be obtained from the contributions by the mines on the Comstock Lode, made compulsory by the Act of Congress already referred to, which makes the titles to these mines subject to the condition (expressed in all patents) that they shall pay to the Tunnel Company two dollars per ton, forever, on every ton of ore extracted from any portion of the mines. At the present rate of production of one thousand tons per day, this will yield to the Tunnel Company a daily income of two thousand dollars, exclusive of the charges for transportation of men, ore, rock, timbers, etc., estimated to amount to a similar sum.

Some idea of the income of the Tunnel Company from this source may be formed when it is considered that the increased facilities furnished by the Tunnel after its completion may triple the number of tons produced by these mines.

Benefits to the Country.

The influence which the successful completion of his great work will exercise upon all our mining interests can hardly be estimated. By securing the future productiveness of the most important mines in the world for a hundred years to come, by establishing their value at a greater depth than has yet been reached on any mine in the world, and by introducing a rational, permanent and economical system of mining, an unequalled impetus to, and confidence in all mining operations will be given, which must result in immense benefits to the whole nation, and especially to everybody interested in the welfare of the Pacific Coast.

An opportunity is now offered to all to become interested in this important and magnificent undertaking, under the following resolution:

"Resolved by the Board of Trustees, That twenty thousand shares of the full paid stock be sold at the office of the Company," where further particulars and printed circulars may be obtained.

W. K. VAN ALEN,
Secretary and General Agent,
626 Montgomery street
Opp. Montgomery Block,

3v20-3m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, March 19, 1870.

IRON.

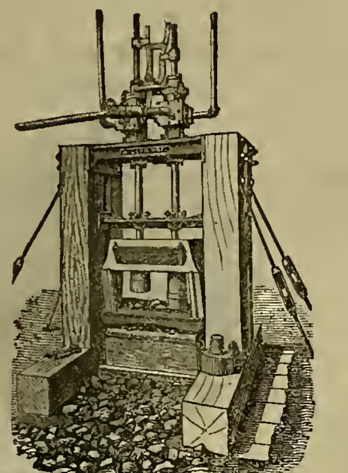
Pig, Scotch, No. 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No. 2..............	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common............................	87 50	@	92 50
Refined...........................	95 00	@	— —
Rods..............................	100 00	@	155 00
Horse-shoe........................	115 00	@	— —
Hoop..............................	125 00	@	180 00
Scroll............................	110 00	@	145 00
Nail-rods, per lb.................	— 8¼	@	— 9¼
Spring............................	— 9¼	@	— —
Tire..............................	— 9¾	@	— —

STEEL.

Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast..................	— 23	@	— —
Sheet, second quality.............	— 20	@	— —
Sheet, third quality..............	— 18	@	— —
Saw-plates, circular..............	— 27	@	— —
Double-shear, warranted...........	— 23	@	— —
Single-shear......................	— 19	@	— —
Montague & Co. (cast bars)........	— 18	@	— —
Machinery, round..................	— 16	@	— —
German, best......................	— 16	@	— —
German, goat......................	— 13½	@	— —
German, eagle.....................	— 12	@	— —
Blister, warranted................	— 16	@	— —
Blister, common...................	— 15	@	— —
Jessop & Sons', common............	— 17	@	— —
Double-refined....................	— 26½	@	— —
Stone-ax shapes...................	— 26½	@	— —

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

☞ The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

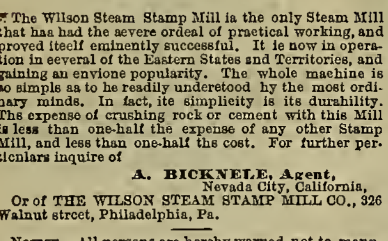
A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

CROSS' COMBINED
Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal

Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, Sacramento COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

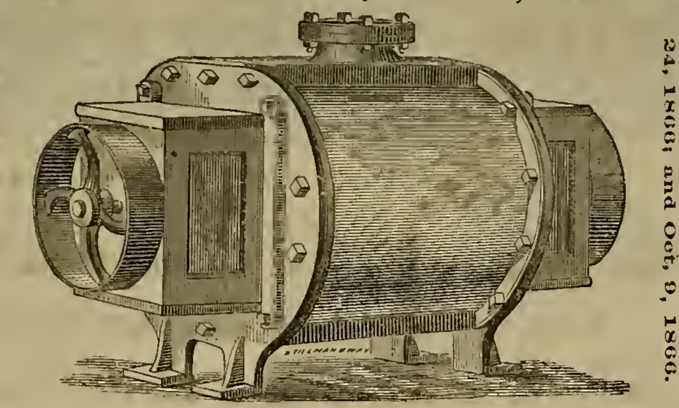
---

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

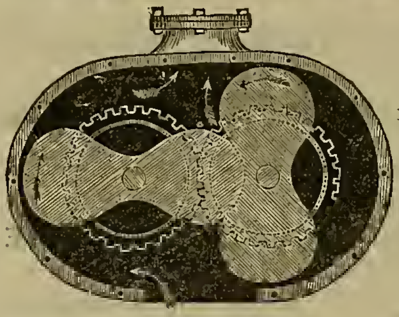
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED
FOR
Smelting,
Foundry,
Mining
and
Steamships.



REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
Now in use.

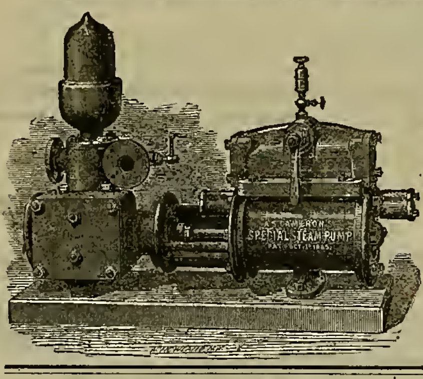
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
MARINE
ENGINES.
SURFACE
CONDENSERS
DAVID STODDART,
4 BEALE STREET.

VARNEY'S
PATENT AMALGAMATOR,

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, **229** Fremont street,
1v1 San Francisco.

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River,
State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

A gentleman who knows says emphatically that the Scientific Press will not commend anything unless known to be good; and that money will not buy its endorsement of an unworthy object. That is high praise, but he did say it.—*The Pastor, Mayfield, March 15.*

To Sufferers from Rheumatism.

NOTICE OF REMOVAL.

MR. J. W. MAC,

Master of All Rheumatic Complaints, Weak and Painful Loins or Joints, Neuralgia and Tender Feet,

Is compelled, from his great success for the past five months in this city, to remove to more central and extensive premises,

128 KEARNY STREET,

Where he can be applied to daily for his wonderful (and may be termed magic) PLASTERS. No useless drugging. A discovery made by himself in New Zealand, and first personally tested by himself, having been a great sufferer. The innumerable testimonials awarded him for his marvelous cures since his arrival in this city, and his former services in New Zealand, Tasmania, and Sydney, New South Wales, are open for the strictest inquiry, and may be seen at the office of the "Daily Call," or at his rooms, Nos. 34, 35 and 36,

No. 128 Kearny Street, bet. Sutter and Post.

☞Office Hours, from 10 a.m. to 4 p.m., and from 7 to 9 p.m. 12v20-1m

FROM **$65** The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED **WEED** Machines work *easier, simpler, faster* and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO **$500**

Notice to Miners,
Well-Borers and Water Companies

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
3v18 ly Stove Store, No. 1 Clay Street, below Davis

R.H. McDONALD & Co.
DRUGGISTS
SAN FRANCISCO CAL.
ESTABLISHED 1849

WHOLESALE DEALERS IN

DRUGS, CHEMICALS,

Patent Medicines,

DRUGGISTS' SUNDRIES,

TILDEN & CO'S

SOLID AND FLUID EXTRACTS,

Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.

THE GREAT MEDICAL DISCOVERY!

Dr. J. Walker's California

VINEGAR BITTERS.

More than 500,000 Persons

Bear testimony to their wonderful Curative Effects.

WHAT ARE THEY!

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN, TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ Send for a Circular. ☜

They are not a vile

FANCY DRINK,

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, free from all alcoholic stimulants. They are the GREAT BLOOD-PURIFIER and LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition. No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

R. H. McDONALD & CO.,

Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞SOLD BY ALL DRUGGISTS AND DEALERS.

DEWEY & Co.

American and Foreign

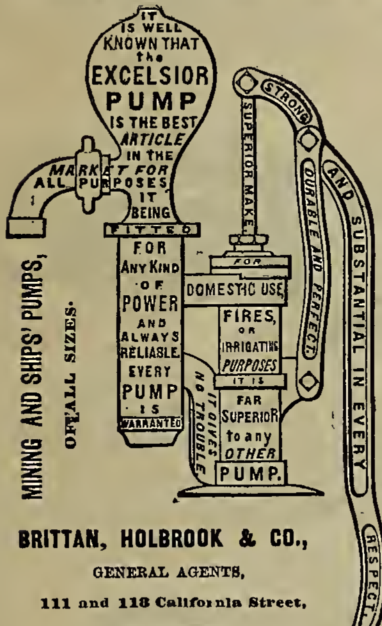
Patent Agents.

Scientific Press Office, 414 Clay Street,

SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.


IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES, IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
FOR DOMESTIC USE, FIRES, OR IRRIGATING PURPOSES IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE
SUPERIOR MAKE.
STRONG DURABLE AND PERFECT.
AND SUBSTANTIAL IN EVERY RESPECT.
MINING AND SHIPS' PUMPS, OF ALL SIZES.

BRITTAN, HOLBROOK & CO.,
GENERAL AGENTS,
111 and 113 California Street,
SAN FRANCISCO.

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Honrs at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Alhum	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

The Scientific Press,

Devoted to Scientific and Mechanical Progress, Mining, Farming and Mechanic Arts, contains more valuable Reading Matter than any other weekly journal west of the Rocky Mountains. It is the best printed and only finely-illustrated paper on the Coast. Its articles are able, timely and reliable, and written in a more interesting and easily comprehensive style than scientific papers in general. Now in its twentieth volume, it is printed on superior paper, containing sixteen pages, equal in size to the first-class journals of the Atlantic States and Europe. All our best citizens are interested in the new discoveries in the development and progress of the three great industrial pursuits named above, which are closely allied on this coast, and are jointly represented in the Press, rendering it a popular and influential journal with all industrial readers. Subscriptions reduced to $4 a year, Jan. 1, 1870.

To Inventors on the Pacific Coast.

Our U. S. and Foreign Patent Agency presents many and important advantages as a Home Agency over all others by reasons of long establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or a description in the Scientific Press. We transact every branch of Patent business, and obtain Patents in *all civilized countries*. The large majority of U. S. and Foreign Patents granted to inventors on the Pacific Coast have been obtained through our Agency. We can give the best and most *reliable* advice as to the patentability of new inventions. Advice and Circulars free. Our prices are as low as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior.

Engraving on Wood, of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also, engraving on metals.

DEWEY & CO.

SOLID INDEMNITY.

THE HARTFORD

FIRE INSURANCE COMPANY,

— OF —

HARTFORD, CONNECTICUT.

Cash Capital, - - - - - - - One Million Dollars.

Assets, - - - Two and One-half Million Dollars.

INCORPORATED, 1810.

SIXTY YEARS OF HONORABLE SUCCESS.

Total Losses Paid, - - - Over Ten Million Dollars.

All business transactions conducted on Principles of Commercial Honor.

DEVOTED SOLELY TO FIRE INSURANCE.

LOSSES PAID IN CALIFORNIA:

ONE QUARTER OF A MILLION OF DOLLARS.

All Losses Promptly Paid in Gold Coin.

PACIFIC DEPARTMENT:

HEYWOOD & FLINT, Managers,

313 California Street, San Francisco.

For AGENCIES, apply as nbove. 10v20-qlaml

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.
9v20-qy16p

THE CALIFORNIA

Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:
JAMES T. DEAN............President.
JAMES MILBURN............Secretary.
RODGERS, MEYER & CO............Treasurers.

Company's office, 121 Post Street, San Francisco.
12v20-3m

LOST.

Between Market street and the corner of Clay and Montgomery streets, a linen tracing of mechanical drawings representing an amalgamating pan. The finder will be rewarded with one year's subscription to the SCIENTIFIC PRESS—the most valuable illustrated weekly on the Pacific coast—by leaving the drawings at 414 Clay street.

DEWEY & CO.,
U. S. & Foreign Patent Agents.

Owing to the absence of the State Architect, we are unable to obtain the proper drawings for illustrating the State Capitol as soon as expected. Our subscribers in the Legislature will receive copies containing the view when published by sending us their address.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other.

J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore.

GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.

GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe speoial ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology. and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v16-1y16p

---

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbit Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
— ALSO AGENTS FOR —
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY.
54 K Street, Sacramento.
7v20-ng

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,
Manufacturer of LEATHER BELTING AND LACING, Made of Fulled Rawhide, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

---

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
— AND —
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
— ALSO —
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

PIANOS
From the following celebrated Makers:
CHICKERING & SONS,
MARSCHALL & MITTAUER,
J. W. VOSE.
— ALSO —
Mason & Hamlin's Cabinet Organs,
— AND THE —
METROPOLITAN ORGANS.
KOHLER, CHASE & CO., Wholesale and Retail Agents corner Sansome and Clay streets, San Francisco. 11v20

Scientific Press.—Dewey & Co. are the publishers of this sterling paper. It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican*

SCIENTIFIC PRESS.
AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

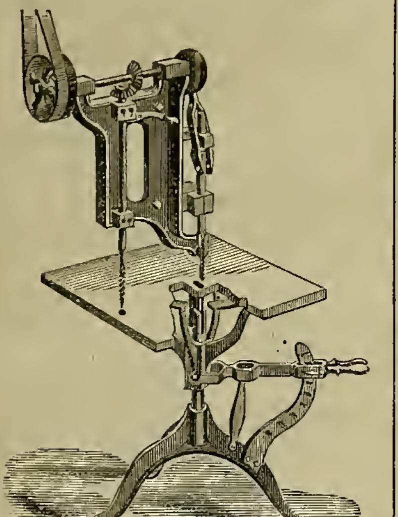
San Francisco, Saturday, April 9, 1870.

VOLUME XX.
Number 15.

Improved Scroll Saw.

We gave in our issue of January 8th an illustration of an improved device for sawing scroll-work invented by a very clever mechanic of this city. This week we present our readers with another device by the same inventor, which is at once ingenious, effective and simple. The various parts of the machine can be readily understood from the engraving with need of but a brief description.

The manner of driving the band-saw and its upper connection with the shaft are sufficiently shown in the cut. This saw is short and is not fastened at the lower end, but simply inserted in a groove in a metal bar, which is attached to the bottom of the table. As shown in the illustration, the saw does not touch this bar, for the table is lowered, as is hereafter described. To the left of the saw is seen an auger, which is geared on to the driving shaft, and which can be thrown out of gear by lowering the handle of a lever attached near the upper end.



The table is fastened on a circular rim, which is supported by four arms cast on a block which slides up and down on a guide standing on three legs. By means of a lever attached to this block and pivoted on a bar connected with one of the legs, the table can be raised and lowered, while, by means of a spring near the handle of the lever, which catches in holes made in the arm, shown in the right hand lower corner of the cut, it can be held firmly at any requisite height.

Now when it is desired to saw out any pattern, this is placed on the table in the proper position under the auger, and by raising the table the preliminary hole is bored. The table is then lowered and the pattern moved, so that on re-raising it the saw works in the auger-hole, and by this motion the lower end of the saw comes into the groove for it in the bar below the table.

It is thus possible to saw out patterns with great ease and rapidity and with a great saving of labor in handling the article. The whole device is exceedingly simple; and there is not much danger of getting the several parts injured by working. It is invented by a practical mechanic, who has already devised quite a number of such machines. For further particulars address T. Stehins, 15 Fremont street, San Francisco.

* * *

Sale of an Owen's River Mine.—We received a call, a few days since, from Captain James Barrat, mining engineer, London, England. Captain B. has visited this State several times as agent for English capitalists, and is now here again in the same interest. We are pleased to state that his present visit has culminated in the purchase of a very extensive mining property, known as the Eclipse mine, and located at Independence, Owen's Valley, near Owen's Lake. The purchaser is in the interest of a mining association in London, known as the Eclipse Gold Mining Company, "limited."

We had occasion, several times, to refer to this mine, four or five years ago, while it was being developed by means of a small mill, under the supervision of Captain Joseph Eudy, of Grass Valley, and we are pleased to learn that Captain Eudy has been associated with Captain Barratt in the management of the property under its new proprietorship. Messrs. Balfour & Guthrie, of this city, will act as agents for the company in San Francisco. The most improved and substantial machinery will be at once placed in operation at the mine, which we understand comprises a heavy gold-bearing ledge, of well-developed value. We hope the new company will meet with the highest measure of success, and take rank with the best on the coast.

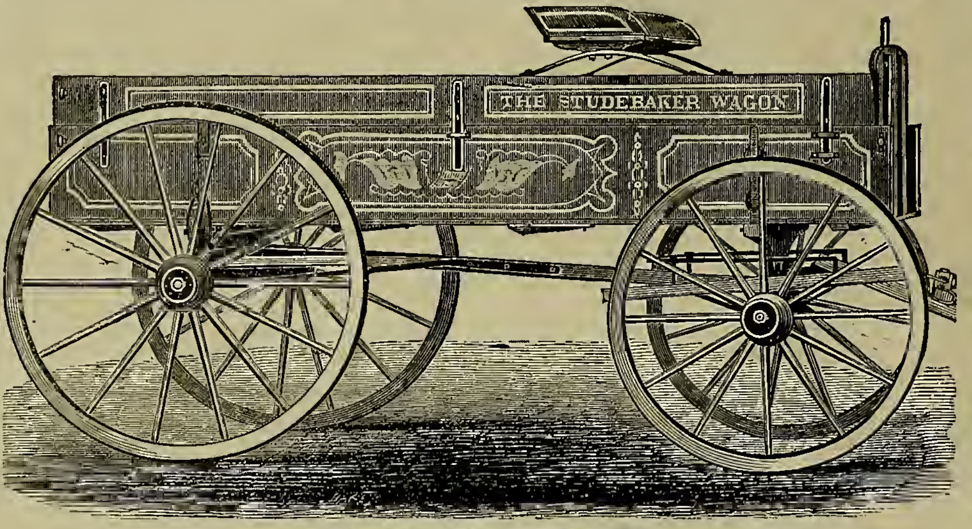
* * *

Owners of horses are referred to Watson's Eureka system of horse-shoeing in advertising columns. Mr. Watson claims that by this mode of cutting the foot and fitting the shoe, he is enabled to restore the foot to its original shape and healthy condition,

Farm Wagons.

The Pacific Railroad, "our great national highway," is bringing every day some new article for our market from the East. Among the later importations is one which is of more immediate interest to farmers and teamsters. We have all heard more or less of the noted Indiana wagons. One kind, the "Studebaker," has been brought to the coast by Messrs. Copeland & Defrees, of Sacramento.

The importation of these wagons has caused considérable talk among farmers and manufacturers here, and has created a lively competition on the coast; and for the benefit of those who are not acquainted with the details of this make, we publish an illustration in our present issue.



THE STUDEBAKER PATENT FARM WAGON.

The Studebaker wagon is manufactured at South Bend, Indiana, and the makers claim that it may well be considered one of the best, if not the best, of wagons. The agents claim, namely: the advantages of careful make by experienced mechanics and good material,—the best of Indiana timber,—which has been thoroughly seasoned under cover. They use the "slope-shoulder spoke," which is, they say, used in no other wagon. Moreover, they call especial attention to the fact that all the parts are so made that any part of one wagon, of the same size, will fit all the rest; and thus any piece which has been injured can easily be replaced; as they always keep on hand extra pieces.

Our farmers will now have the opportunity of deciding for themselves as to the qualities of different makes of wagons. The pioneer agents for this coast for the Studebaker wagon are Messrs. Copeland & Defrees, K street, between Seventh and Eighth, Sacramento, and to them any communications may be addressed for further information.

* * *

The Earthquakes in Germany are again coming into active operations. At Gross Gerau, in Hesse Darmstadt, between the 20th and 28th of February, ten distinct shocks were felt.

Our Foundries.

Work at the foundries is rather dull again. About a month ago the prospects seemed brighter, and orders began to come in; but this was only temporary. Still, as things improve, a better condition must come, only we must expect a gradual and not a sudden change.

The greater part of the work done now is in repairing and job-work. The Union Works are engaged on the steamers Lincoln and California, and on machinery for the Meadow Valley Mining Company. The Pacific Foundry is overhauling the steamers Santa Cruz and Clinton, making castings for Duncan's building on California street, and building Wilson's steam stamp mill, which is now being tested. Several orders for new mills have been received. The Fulton Foundry is engaged on an engine and boiler for the tannery at Benicia, machinery for the Giant Powder Company, castings for a malt-house at North Beach and for the San Francisco Chemical Works, besides various other small items. At the Vulcan, the boiler and machinery of the U. S. revenue steamer Wyanda has been thoroughly overhauled and repaired. Four new patent brick machines, with power, have been built for Mr. Blumenberg, for San Rafael. Two new cylinders, 16-inch bore and 5-foot stroke, complete, are being built for the Colorado Navigation Company. All the castings are made here for the lighthouse at Cape Mendocino; the base-plate is 20 feet 5 inches in diameter. The large anchor, the largest of the kind ever made, of the Lloyd & Stewart pattern, is finished; it weighs 1,674 pounds. For the blasting of Blossom Rock, eight tanks of heavy boiler plate, varying from 2¼ to 3½ feet in diameter, and from 5 to 8 feet long, have just been sent off. The house-front for Barrouillet's new building on Montgomery street is being made, and various job-work is being done. For different purposes, these works are turning out daily from five to six tons of castings. The Golden State Iron Works will be in operation shortly. Some of the best of the workmen have joined with the proprietors in a coöperative company, and the works are to be managed hereafter on the coöperative plan. The company has been incorporated, and the names of the trustees, etc., can be found in our list of incorporations.

* * *

Boston is to have another great musical festival. Two hundred instrumentalists and two thousand singers will take part.

Communications.

Mills and Mines of Colorado.—No. X.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

Down towards the plains and fine mills from Empire and Georgetown is Mill City, a locality of few buildings, and having really a deserted appearance. As to the mill part, it being at the time 7° below zero, I did not take time to investigate. There are, I understand, several in the vicinity, none, however, in a prosperous condition.

Fall River.

Four miles further on, is Fall river, where comfortable quarters were obtained for the night. This is more of a mill locality than the above-mentioned place. A good hot fire being more comfortable than the state of weather outside, I concluded that those of whom I made inquiry would certainly tell the truth. From what I gathered of this locality, there are a number of mills in the vicinity, some of which are running, and, although not as dividend-paying institutions, yet hopeful, considering the condition of Colorado ores and their present system of working; it takes a great deal of hope to run most of the mines. Her ores are much more expensive to treat than those of California or Nevada. Her gold ores are not worked to exceed 30 per cent., and in some mills, with certain kinds, not to that amount. All her silver ores must be roasted to gain a high percentage, and thoroughly roasted at that. All ore is heavily loaded with either sulphur, lead, copper, antimony or iron, and too often all together.

Prices.

The only cheap item is labor, which they have reduced to $3 per day in currency. As I found prices for general articles, they were from 25 to 50 per cent. above even California rates, and yet Colorado is so much nearer to Chicago. But Colorado is a mining country, and all *mining* countries are able to pay the biggest kind of prices—and drag along slowly in consequence. This heavy pressure of prices ruins everybody, even those who obtain them, as it holds back progress with a curb-bit power. Considering the advantages Colorado has in location, as far as regards proximity to unbounded capital, a few days' ride from New York, and with St. Louis iron works brought within thirty-five miles by rail, as it will be in a few months, of the most active and valuable portion of her mining territory, I thought Colorado—before seeing it—a very inviting country; but, all things considered, I was rather disappointed. Some Coloradians may think I look at only one side of the question, but I endeavor to divest myself of all prejudice and look *facts* square in the face, and talk them out. There is, however, an atmosphere here that tends to prejudice—that feels uncomfortable for a stranger. One can hardly tell what it is, though he can feel it. It is not that frank, free, outspoken manner that exists among men of the same pursuit on this coast. "No Admittance" may convey the idea. I met, however, several very pleasant exceptions to what I consider the general rule.

Cold Weather.

But I am digressing. The next morning opened as cold as the day previous, and very windy. Meeting one of those enduring miners, who always takes "short cuts," whether he scales mountains or not, and he being bound to Central, "'cross the range," a jaunt of five miles to save five, I concluded to accompany him; so bundling up in a *pair* of California blankets we started. It was very cold—several degrees below zero—and the wind, seemingly, about 40° lower yet. In time, we gained the summit, which is about 10,000 feet high. We here found it blowing a gale, with snow and cold to rather an alarming degree. It was the roughest time I ever experienced.

The Rocky Mountains of Colorado are not miniature hills; they loom up in bold and solid heights, and, as in this instance, are at times the scenes of terrific storms. The whole mining region is above the average height of California. To give a more exact idea, the mountains range from 8,000 to 15,000 feet above the level of the sea.

Nevada, Central City and Black Hawk, as we look down upon them, with their innumerable smoke-stacks and buildings, have the appearance of a chaotic mass—a bee-hive of industry. I must not, however, enlarge on them in this letter, which is already sufficiently long. The weather of which I have spoken must be taken as an exceptional cold-snap, though about Empire and Georgetown it is cold enough during the winter to suit almost anyone, whethor from the State of Maine or from Texas.

* * *

California Marbles.

[Written for the Scientific Press.]

Although California contains an abundance of marble of great beauty and variety, most of that used in San Francisco is imported from Italy or New York. This fact may be attributed to the want of good roads and of cheap transportation. There are many localities in this State where quarries of marble are known to exist, but, with few exceptions, they remain undeveloped. A large belt of limestone traverses the State from north to south, between the foothills and the Sierras. This belt abounds in white or grayish, and, in numerous places, in beautifully variegated marble. The following list presents some of the localities where this article is found:

SHASTA COUNTY.—On McCloud river is a quite extensive quarry of gray and white marble of a good quality, and susceptible of a fine polish.

BUTTE COUNTY.—At Butte creek, about forty miles from Oroville, exist gray and white marbles of a good quality and in considerable quantity.

SOLANO COUNTY.—In the Pelevo Hills, a short distance north of the city of Suisun, is a handsome marble of various shades of brown and yellow beautifully blended in bands and threads, and susceptible of a high polish, which would make very fine ornamental work. This is about the only locality where this variety of marble has been found in this State.

NEVADA COUNTY.—About eight miles northeast of Nevada city, on South Yuba river, is an extensive quarry of marble of a dark variegated color.

PLACER COUNTY.—There is a quarry of nearly white marble on the Appleton ranch, about seven miles from Colfax, and about two miles from the railroad. In the mountains bordering on the Bear river, about two miles to the east of the town of Colfax, is a fine quarry of marble, which differs from all others found on this coast, being a dark gray with jet black venation, which, when polished, is very beautiful. The mantles in the new Bank of California are made of this marble.

EL DORADO COUNTY.—At Indian Diggings there is a large quarry of marble coarsely marked with gray and black, and some of which is almost white. It is very beautiful, and is susceptible of a high polish, which it retains well for years. A large number of monuments have been made of this marble.

AMADOR COUNTY.—In the vicinity of Fiddletown exists a quarry of marble of a pale-gray color and excellent quality in quite extensive amounts.

TUOLUMNE COUNTY.—On the road between Murphy's and Columbia, on the south fork of Stanislaus river, near Abbey's Ferry, about seventy miles from Stockton, there is marble nearly white, with pale-gray pencilings. The quality of the marble is fine, and has improved with the depth of the workings. Some of the handsomest monuments in the State are made of this marble; that erected to the memory of the late Senator Broderick, in the Lone Mountain Cemetery, at San Francisco, is a beautiful specimen. Blocks twenty feet square, without flaw or blemish, may be obtained from this quarry. On the south side of the road, between Gold Springs and Columbia, there are bodies of marble of almost a jetty blackness, perhaps colored by manganese. On Maletot Gulch, about one mile northeast of Columbia, there is a deposit of marble which, perhaps through the action of salts of iron, has been mottled with red, brown, yellow, blue and green spots, which would be beautiful for ornamental work. At Mormon Gulch, about three miles to the west of this, are masses of marble of very fine texture veined with pale green, perhaps by the action of chlorine.

All these marbles are of good quality and susceptible of a high polish, and will, in time, undoubtedly form a valuable commodity. There are numerous other localities in this State where marble is found, but has not been as yet developed, and which, perhaps, when examined, will be found to afford a still greater variety.

C. D. V.

The Gold Fields of Victoria.—No. 3.

[Written for the Scientific Press.]

It may not be known generally that when gold was discovered in California the present flourishing colony of Victoria had not been christened; that the great city of Melbourne was merely a village, with sheep grazing where to-day stand buildings which for magnificence would do credit to any city in any part of the world; that the chief pursuits of the colonists were tending sheep and herding cattle; that some of the colonists left these pursuits for the newly discovered gold fields of California—among these a Mr. Hargreaves, who, upon his arrival at the mines here, was so much struck by the similarity of formation and general appearance of the country to his own, that he told his companions of his confidence in his ability to find gold at home, and expressed a determination to return immediately. He returned and did discover gold, and although his claim to priority has been disputed, he is entitled to great credit for his sagacity.

Gold was practically discovered in 1851. The mines were rich, and population flocked from all quarters, and the colony, which in 1850 had been christened "Victoria," grew with a rapidity equalled only by California.

Early Predictions and their Non-fulfillment.

Mr. R. Brough Smyth, in his "Gold Fields and Mineral Districts of Victoria," published in 1869, says: "When the first important discovery of gold was made in Victoria, we were told by the highest authorities that the shallow alluvium would soon be exhausted, and when that time arrived we would be burthened with a dissolute population, who would bring ruin upon the country. When the quartz veins were opened and the riches they contain were ascertained, we were told that vein mining is never profitable beyond a depth of sixty or seventy feet, and that we should invest no capital in adventures which, the history of gold-mining has told us are never profitable. When the rich deep leads were traced under the basalt at Ballarat we were warned against being over sanguine, as the occurrence of such deposits was merely local. Fortunately for the colony these prophecies have not been fulfilled. We can point to several towns depending wholly on the mines for their support and inhabited by miners, where order and regular industry are conspicuous, where substantial and well conducted institutions for the relief of suffering and the spread of knowledge have been *originated and are supported by the miners*, and where municipal laws are more cheerfully obeyed than in any town in England. The shallow alluviums are not yet completely exhausted. Our quartz veins, notwithstanding the expense incident to the procuring of the vein-stuff from depths exceeding 700 feet, maintain their character, and may, because of their value and their great, horizontal and vertical extent, hereafter exceed in importance even the deep leads. The deep leads are not confined to the district of Ballarat, but extend over an area so extensive that it is impossible to say when the last of them will be opened."

Mining Statistics.

From the same authority, we quote the following statistics: Up to Dec. 31, 1868, 5,811,669 tons of quartz had been crushed, which yielded an average of 11½ dwt. ($11.50) per ton of 2,240 pounds. The number of gold mining companies (quartz and alluvial) registered in the several courts was 2,471; the number of shares, 7,431,205; the nominal capital, £24,431,205 ($122,156,025). The estimated value of all the claims in the Colony is, according to the information conveyed by the share lists and estimations, £8,869,504 ($44,347,520), more than one-third the nominal value. It is estimated that not more than ten per cent of the nominal capital has been paid up.

The length of water races constructed by the miners is 2,434 miles. They cost $1,551,350, or at the rate of about $637⅓ a mile. The total amount of revenue derived directly from the gold fields, in the shape of fees for gold licenses, miners' rights, business licenses, rents, etc., from 1851 to 1868 inclusive, is $26,057,329.77.

Gold Production.

The gross amount of gold exported, from the discovery in 1850 to Dec. 31, 1868, was 36,835,691¾ oz.; at $20 per oz., $736,713,835.

Taking the mean number of miners employed exclusively in getting gold during the 18 years and dividing the gold as here estimated, we find the average per man is £1,699 8s 3d, or £98 10s 4d ($492½) per annum. These figures are no true test of the success of individuals, but they show that gold mining is in the main a *profitable pursuit.*

The report of the Minister of Mines to Parliament shows the quantity of gold got respectively from alluvium and quartz during the first nine months of 1869 to be as follows: From alluvium, 701,829 ozs. 17 dwt; from quartz, 448,043 ozs. 1 dwt.; total, 1,149,873 ozs. He refers to the decline in the returns as distinctly traceable to two severe droughts, which impeded the years' operations. The tables of quartz crushing exhibit the usual diversity of yield, ranging from a few dwts. to upwards of 10 ozs. a ton.

The total number of miners employed on the 30th of September was given as 68,684, against 69,890 employed on the 30th of June, showing a decrease of 1,206, while there was an increase of 541 *quartz* miners.

At Ballarat, during the quarter ending Sept. 30th, there was a depression in mining matters, the returns of gold obtained and dividends paid show a falling off. The amount of gold was 53,139 ozs., the dividends $346,305—*over* 30 *per cent. on the produce.*

Dividends.

"The *Mining Record and Public Companies' Gazette* for June, 1869, showed that 67 quartz companies were dividend-paying against 69 which were non-dividend-paying, many of the latter being in a progressive state, while others had suspended dividends. The stock of many, of both classes, were quoted much above par, some of them hundreds per cent. One, the Clunes Clunes, at £475 for £1 paid.

The energetic company, "Bendigo," paid some $140,000 in dividends in one year, besides erecting machinery during the same period, and they have made only one sixpenny call! Latterly prospects dull. The nominal capital of this company is £120,000; shares, £5 each; amount paid up at 6d=£600=$3,000.

The Port Phillip and Colonial Co,

Was one of the earliest companies formed for quartz mining. This company own or work under lease five "reefs"—four of them ranging from 3 to 30 feet in width and one up to 150 feet. Their reduction works comprise 80 stamps of from 6 cwt. to 8 cwt., with a capacity to reduce and manipulate about 200 tons a day. They commenced operations in March, 1857, from which date to March, 1869, they reduced 470,839 tons of ore, which yielded an average of 10 dwts. 18 grs. per ton. The yield for 1857 averaged 1 oz. 12 dwt., from which it has steadily declined, and is now 6 dwts. or less per ton. This is one of the few companies formed in England for Australia, and it has, we believe, paid dividends all through, and the stock has always commanded a premium until after the payment of the dividend for the last six months of 1869, which, if we remember rightly, was only at the rate of 6 per cent., when the stock fell to ¼ below par. The capital is nominally $500,000. How much of that has been paid up is not stated.

The company have recently erected a new mill with 24 stamps of 8 cwt., which will increase their capacity for reduction to nearly 300 tons a day. Late reports of the company show the cost of extracting the ore to be about $2.50 a ton and of extracting the gold therefrom $1 to $1.25—total, say $3.50 a ton. This, we think, includes all charges, for wear and tear of machinery, dead work, etc.

The affairs of this company being conducted with the view to great economy, and the veins being large in size, the cost of extracting the ore may afford a fair criterion of the cost of extracting ore from other veins of similar size, while the statement as to their ability to make a profit from quartz yielding less than $2 a ton may be questioned or need explanation. M.

A POWERFUL MACHINE.—A combined shear, punch and upsetter, now manufactured in Connecticut, weighs only 350 pounds; but, operated by one man, will cut through cold iron ½ by 2¼ inches, with perfect ease, leaving a smooth face. Worked as a punch, it pierces cold iron with a smooth, clean hole, of any desired shape, without splitting the iron. By its aid wagon tires can be upset with one motion of the lever.

Mechanical Progress.

Another Advantage in Favor of Steel.

Engineering for March 11th,—after alluding to Mr. Bessemer's experiments which proved that in addition to the already admitted advantages of steel over iron, it had that of being acted upon uniformly over its whole surface, by sea-water and dilute acids, whereas iron was by the same treatment furrowed in such a manner as to be covered with points of weakness,—proceeds to detail some experiments recently made at the iron-works near St. Etienne, in France, upon the relative *quantity* of the corrosive action of sea-water upon iron and steel:

"Samples of plates were cut to exactly similar dimensions, and carefully weighed. These samples were plates of best wrought iron, of hard Bessemer steel, and of the softest kinds of Bessemer steel. These were immersed in sea-water. The plate was connected with one of the galvanometer wires, and the other, which carried a piece of platinum at the end, was immersed in the sea-water without touching the plate. This established a complete galvanic battery, of which the plate was the only variable element. The amount of electric force which was measurable by the galvanometer was, therefore, in direct proportion to the quantity of chemical action which took place between the sea-water and the plate. The experiments confirmed the fact that the corrosion of the softest kinds of steel containing more than one-third per cent. of carbon is more intense than that of wrought iron; but the corrosion of the softest kinds of steel containing from one-third per cent. of carbon downwards is *less* than that of wrought iron. In fact the amount of corrosion of different kinds of steel seems to follow the exact proportion of the percentage of carbon contained in the metal."

The Cut-off Valve of the Rider Engine.

We copy the following description from the *Journal of the Franklin Institute:* "On the *back* of the main valve, where the cut-off valve is fitted, the steam ports are *oblique*, and at opposite angles to each other. The cut-off valve is a sector of a cylinder, with its ends cut off obliquely in opposite directions; so that the extremities or acting ends respectively conform to the lines of a right and left hand screw of high pitch, corresponding to the obliquity or angle of the steam ports in the back of the main slide valve. This cut-off valve is fitted into a semi-cylindrical recess in the back of the main slide valve, and between the spiral openings. It is operated lengthways by a separate eccentric, to which it is attached in the usual manner, excepting that it has a swivel joint to permit its partial rotation. A portion of the valve stem is made square, and at this place is fitted a sector, engaging a rack on the lower portion of the governor spindle, so that as the governor rises or falls, the cut-off valve will partly rotate. Thus the cut-off valve is moved lengthways by the eccentric, and at the same time has imparted to it, by the governor, an adjusting motion on its axis."

A New Rail and Spike.—A tubular rail is the subject of a recent patent. The cavity is elliptical in shape, and the tread surfaces (it is reversible) are flat. It is placed upon a longitudinal sill which rests upon sleepers. A spike, patented by the same inventor, is in two parts. One of these, which is driven first, has transverse barbs in its face. The other is driven behind it, and forces the barbs to "take" or "bite," making it impossible to draw the first until the second is drawn. The accidental loosening of the latter is prevented by a depression which springs upon a corresponding elevation in the back of the first.

Grinding Tools.—"Plane irons should be ground to a bevel of about thirty-five degrees,—chisels and gouges to thirty. Turning chisels may sometimes run to an angle of forty-five. Molding tools, such as are used for ivory and for very hard wood, are made at from fifty to sixty degrees. Tools for working iron and steel are beveled at an inclination to the edge of from sixty to seventy degrees, and for cutting gun and similar metal range from eighty to ninety."

Photographing in Colors.

Wilhelm Grune writes the London *Photographic News* of some experiments made by him with chloride of silver. We quote: "My manner of proceeding is to employ a silver plate—prepared by means of the wet collodion process—and to place this in a solution of chloride of iron or chloride of copper, or in a mixture of permanganate of potash and hydrochloric acid. The silver quickly changes into white chloride of silver, which, after washing in water and drying, may easily be colored violet by diffused light. This is subsequently placed under colored glass and exposed in the sunlight, when the colors will be found to be reproduced with accuracy. I employ a camera used in the production of collodion positives, and, in lieu of the negative, place therein a highly colored transparent picture upon a black ground—such as a bunch of flowers, etc.—so that all light which enters the lens passes through the colored plate. With the different collodions and pyrogallic acid developers in general use plates may, in this manner, be obtained, which, after fixing and drying, show colors, which, if weak, are still very distinct, and which are visible either by transmitted or reflected light. By using collodion containing but a fourth part of the usual iodizing solution, and over-exposing the same, the results are even more marked. Pure bromide collodion also furnishes some very interesting results. By developing with an acid iron solution very definite colors may be obtained, the red and blue being especially striking."

President Barnard's Exposition Report.—We take the following from a notice of this valuable work in the *American Journal of Science and Arts* for March: "The concluding four chapters are occupied with the 'exact sciences' considered in their mechanical and practical relations. We read with wonder of the success with which measurements are carried to an exactness well nigh rivalling, to all intents, the mathematical itself,—of rods ascertained to a millionth of an inch in length, and of balances that perform to a twenty-millionth part of their burden. We are delighted to trace anew the progress by which the human eye has become enabled, through the perfection of object-glasses enormous in dimension, on the one hand, or of minute sizes on the other, to penetrate into the universe outwardly, and into the bosom of Nature inwardly. We are let into the surprising secret by which mechanism is made to render numerical computations with greater exactitude and with immeasurably greater promptness than the mental faculties of the computer himself could realize. We are instructed how to make sound itself a thing of visible undulations, and how to apply a measuring scale to their continuance. * * The report forms a resort where the engineer may obtain reassurance, the mechanic experience, the inventor impulse guidance and correction, and the man of intellect or of letters choice entertainment."

Automatic Boiler Feeder.—The feeder of M. Macabies consists,—says a late number of *Les Mondes*,—of two balloons (soda water reservoirs) suspended to the two ends of a walking-beam; so that as one rises the other falls; but so supported below by a similar and parallel walking-beam that each balloon, whether up or down, continues upright. Their action consists in *alternately* receiving a charge of water from the reservoir and a charge of steam, which discharges the water into the boiler. Whichever balloon is charged with water descends, and the other one charged with steam mounts. This oscillation opens one set of valves and shuts another, reversing all the connections and letting the steam-filled balloon now receive water, and the water-filled balloon now receive steam and deliver up its water. All these connections are established through the central pillar on which the walking-beam rides. And the pipe, which lets the water descend into the boiler and the steam ascend from it, has its mouth or lower end just beneath the normal water level in the boiler, so that the apparatus stops when the boiler *begins* to be too full.

The "Monarch."—This English iron-clad vessel, which brought home the remains of George Peabody, has in each of her two turrets two rifled guns weighing 25 tons each, with a bore of 12 inches, throwing conical chilled shot weighing 600 pounds. "The range is tremendous, and far exceeds that of any other ordnance now in use."

Scientific Progress.

Force and Will.

This was the theme of the address of Dr. B. A. Gould, the retiring President of the American Association, at the meeting in Salem, last August. As the address presents an ever interesting subject in a new form, we give a condensed abstract of it. After remarking that we must define force as that which is expended in producing or resisting motion, he quotes the following from Dr. Barnard:

"Organic changes are physical effects, and may be received without hesitation as the representative equivalent of physical forces expended. But sensation, will, emotion, passion, thought, are in no conceivable sense physical." * * Thought cannot be physical force, because it admits of no measure. * * A thing unsusceptible of measure cannot be a quantity, and a thing that is not even a quantity cannot be a force."

Dr. G. now proposes to ascend a grade higher, and consider that which guides and compels force, as force guides matter. He says: "There is an elegant experiment, in which the tension of a spring is made to produce heat by percussion, thus developing the current from a thermo-electric battery, which by successive modifications of its force exhibits heat, chemical action, magnetic attraction, and finally bends another spring; the same original force successively appearing in all these various manifestations until it is reëstablished in its primitive form. In such an experiment the imperfections of the apparatus would of course entail some loss at each successive step, and thus preclude the practical recovery of an available force equal to that expended in the original flexure of the spring. Could such an apparatus be constructed with theoretical perfection, it would represent an eternal circuit of force; and, like the frictionless pendulum in a vacuum, it would exhibit a perpetual motion, after the needful impulse had once been applied. In this inert apparatus no force whatever would have been embodied, yet qualities would have been implanted by design, which would compel an indestructible force, applied to it, to play the part of an unwilling Proteus. The inference seems unavoidable that force may be guided and controlled, compelled to exert itself in this or that shape, without the outlay of any other force for the purpose. If we assume muscular force to be co-equal with the expenditure of tissue, measurable alike by its transferred results and by the decomposition of this tissue, where and what is that power which lets loose or withholds this force, and whose action is attended by a conscious effort? It is the will,—a something which directs and controls force without expending it. * * In the same category with this agency, or energy, or influence, the vital principle would seem to belong,—directing forces while it neither expends nor consumes them. If in organic development force is consumed, disorganization without decomposition ought to evolve it. No comparison can be drawn between vitality and those molecular forces which build the crystal. Crystalline forms arise when the molecular attractions enjoy the freest scope, and their construction must be attended by an evolution of force, which ought to be recognizable by physical tests. Not only in that individuality which life confers and in the impossibility of insulating or transferring vitality, but also in its hereditary character and its apparent susceptibility of indefinite increase or diminution, the vital energy violates our fundamental conceptions of force. The indestructibilty of both matter and force implies a fixed coefficient of force for matter in equilibrium; but how great is the contrast offered in this respect by such energies as life and will! It is this class of energies which, controlling the forces of matter, guides and governs their modifications and transformations. It is this, moreover, which, inseparable from mind, is exerted by all conscious organism. The mystic play of co-equal, but to our senses, so dissimilar forces, and the equally recondite mutual action of the eye, the brain and the nerve, alike demand agencies transcending all our science, yet implicitly obeying physical laws. The highest manifestation of these agencies is in will. Thus the dictum of faith, that the universe exists only by virtue of the continued will of its Creator, represents a palpable scientific fact."

The "Nascent" State.

This term, applied to the condition of a substance at the moment it is separated from any combination, is pronounced by H. St. Claire Deville a "fiction" which is "useless, and consequently hurtful to science," inasmuch as it must necessarily be indefinite. We quote a few detached paragraphs from a paper by him which is translated for the *Journal of the Franklin Institute:* "A simple body is only characterized by the compounds which it is capable of furnishing, and not, as formerly, by certain invariable and specific properties. The great discoverers in modern science since Mitscherlich have proved that a simple body may present many allotropic states according to the phraseology of Berzelius. The number of these states is unlimited. Thus we call phosphorus a simple body, which, by combining with oxygen, forms phosphoric acid; but when you study phosphorus itself you see that it possesses various states; a certain number of properties constitute Schrotter's red phosphorus; another group constitute white phosphorus. If you take sulphur, of which so many states were observed before those of phosphorus, you recognize in the multiplicity of these different properties several sulphurs—the most convincing argument that could be furnished to the advocates of unity in the composition of matter. What do we mean by the *nascent state* of any body? Can we define this expression exactly? I think not. A body, the moment it comes out of combination, is free or is not free; it cannot be at the same time combined and uncombined, simple and compound; it cannot be *in the process* of birth. We only suppose a nascent state to lend to matter a system of properties arbitrarily assigned so as to explain facts which are not otherwise clear. * * In a preceding work I have shown that what we know of the difference of physical states of the same order no longer permits us to suppose the existence of sulphuric acid and of potash in the solution of sulphate of potash any more than it is to-day possible to confuse red phosphorus with white phosphorus, octohedral or prismatic sulphur and insoluble sulphur. Similar reasoning founded on the disengagement of heat produced by the contact of water with hydrochloric and nitric acid, and on the heat of contraction of these materials at the moment of mixing scarcely allows us to judge of the state of the acids in similar solutions. Since this state is unknown it is not reasonable to assume that it can change in contact with a fourth substance, so as to take, for an indefinitely short time, an equally unknown form, the nascent state."

Another Alloy of Ammonium.—We gave, in our last, Dr. Gallatin's demonstration that ammonium really existed in the alloy with mercury. He describes also, for the first time, an alloy of this metal with bismuth. A piece of sodium was dropped upon melted bismuth, and upon this alloy chloride of ammonium was dusted. Water was added in a fine quick stream. The bismuth swelled, appeared pasty, and congealed. Hydrogen escaped from the water, and an ammoniacal odor was perceived. The mass was then dried. If placed near the ear a crackling sound was heard,—and this for some days afterwards. This was shown to be due to the escape of ammonium from the bismuth.

Telegraphic Warning of Approaching Storms.—A bill passed both Houses of Congress in February, providing that meteorological observations be taken at the various military stations on the Atlantic coast, and in the interior of the continent, and that notice of the approach and force of storms be given, by telegraph, on the lakes and on the coast. While the bill was pending, letters were sent to the House of Representatives by several distinguished scientists, expressing their approval of the proposal, and suggesting the advantages which might be expected to result.

Affinity Between Birds and the Dinosaurian Reptiles.—Prof. Huxley has found further evidence of this affinity in the structure of the pelvic bones, and in other parts of the skeleton. In the course of a discussion upon the subject, Sir Roderick Murchison remarked that the progress of science was tending to break down the lines of demarcation between groups supposed to be distinct, rather than to authorize the creation of fresh divisions.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Items.—*Miner*, March 26th: Mr. McCarty, of the Good Hope mine, has leased the Pioneer mill with privilege of purchase. As work goes on, the lode seems to widen, and is now over eight feet thick. ....The jigging works of the Schenectady Co. are turning out regularly some very fine washed sulphurets....It is rumored that the Morning Star mine will soon be started up again.

Good Hope.—*Chronicle*, 26th: Last December the mine was sold to a Philadelphia Co., and on Monday last Supt. McCarty put men to work clearing out the tunnel. On the next day, upon removing some timbers that had been displaced by a cave, a fourteen-foot ledge of good ore was discovered.

AMADOR COUNTY.

Butte Ditch Extension.—*Ledger*, April 2d: This enterprise is at last fairly under way. It will be a bright day for us when it is completed, and the manner in which the work is being laid out shows that we shall not have to wait many months before reaping the benefit of an abundant supply of water on as rich mining ground as we have ever seen.

Kennedy Mine.—The difficulty was finally settled last Thursday, by deeding the property to the creditors, subject to a mortgage and two liens.

Clinton.—In the vicinity of this quiet little camp, considerable placer mining is being done. Fred Taber exhibited a specimen weighing an ounce, taken from one of the claims a few days ago.

BUTTE COUNTY.

Paulinville.—Cor. of Oroville *Record*, April 2d: The Armstrong Bros., in Irish ravine, have got an engine on their ledge.

EL DORADO COUNTY.

Grizzly Flat.—*Democrat*, April 2d: Melton & Morey cleaned up last week, from a run of 10 days of their five-stamp mill, $600.

Gold Dust.—There has been shipped from this place during the past week, through Wells, Fargo & Co., $10,950.

Georgetown.—Cor. of same: There is some excitement here over the discovery of very rich quartz seams by Sornherger, Lsne, Danes and Urey, on Hungry point, one mile southwest from town. Something near $400 has been taken out in a few days with a hand mortar. There seems to be new life springing up in quartz. Almost every miner is prospecting. At Georgia slide and Jones' hill the quartz mines are still paying well, and claims are opened that will last for years. At Volcanoville there is considerable prospecting going on. All we need at Georgetown is capital. Everything is favorable for cheap working. The Woodside mine is still filled with water, and the owners, being not able to erect machinery, have concluded to sell. Preparations are made to resume work on the Taylor mine. Some very rich ore is said to be in sight.

KLAMATH COUNTY.

Quartz.—Yreka *Union*, April 2d: Daggett & Reid, of the Black Bear quartz mine, on Salmon river, were in town last week. They report all things prosperous about Sawyer's Bar, and say that the Black Bear is running on as good rock as ever. Their new mine, the Klamath, also gives promise of equaling the Black Bear.

LOS ANGELES COUNTY.

Soledad.—*News*, March 26th: Yesterday, J. A. Hayward & Co. received 193 ounces of gold bullion, worth upwards of $3,200, the product of 22 days' run of the Eureka mill.

NEVADA COUNTY.

Mining Patent.—Grass Valley *Union*, March 30th: The patent from the United States to the Empire Co., conveying title to the lode and surface ground claimed, was received on Monday.

Struck the Ledge.—Same of April 3d: Some time ago the Mutual Co., at Graniteville, came to what looked like the end of the "Jim" ledge. Sinking, however, was continued, and a few days ago the ledge was struck again, and is now in the shaft not only large but rich.

Rough & Ready.—Macauley & Roberts, after a run of four days, cleaned up 11½ ounces of gold....Frank Torpey & Co. (on the McCharles ranch) have raised a shaft from the inner end of their tunnel and through the gravel. The tunnel is in 700 feet, and the Co. have been three years in running it. The flume is 20 by 20 inches....Landis, Black & Co. have commenced piping on their claims on Goshen Hill. They use Craig's globe nozzles, and have 4,800 feet of 11-inch iron pipe. They use 200 inches of water....McCall & Co., on Osceola ravine, are drifting in gravel which pays them $10 per day to the hand. ....The Sazerac Co., adjoining Webster & Co. on the west, cleaned up $120.50 after seven days' drifting by two men....Reynolds & Co. are sinking a shaft four hundred yards southwest of Webster & Co., and will put on machinery as soon as water is reached.

North Star.—*National*, March 31: We learn that this Co., at the French lead, are taking out excellent ore. In drifting in one of the levels and taking up the ledge, over $1,000 was taken out of about 400 pounds of ore.

Stopped.—*Gazette*, 31st: We learn that the Nevada Consolidated Co., at Burrington Hill, have been compelled to stop running for the present, in order to cut down the bed-rock. The lead pitches deeper into the hill than anticipated. They are bringing up a cut four or five feet deeper.

Resumed.—A. Downie commenced work to-day in the claims of Archibald Nevins, at Lost Hill.

Mulberry Ledge.—*Transcript*, April 1st: This is a new discovery, on Gold Flat. The ledge is close to and parallel with the Schoolboy. About five tons of rock have been taken out of the shaft, the ledge of which is eighteen inches thick, and the gold plainly visible all through the quartz. It is put down as $50 rock by competent judges. Preparations are being made to put the Schoolboy claims in working order, and a thorough test will be made by a crushing from this ledge, which is over three feet thick.

PLACER COUNTY.

Indian Mound Ledge.—*Herald*, April 2d: This mine, lately discovered, is in the edge of Ophir, on the south side of Auburn ravine, and belongs to Choat, Staples & Co. The claim extends 400 feet on the main ledge. The shaft is now down 20 feet. Some 60 tons of quartz milled at four crushings, $800; one of the crushings yielded $7. Two others, $15.50, and one $18 per ton. The ledge is from two to three feet thick, and the quartz easily taken out. The gold is free, no sulphurets having yet been struck. The owners have purchased the St. Lawrence quartz mill and water right, and the Hathaway mine connected with it. This claim has been traveled over nearly every day for 20 years, and at last an old settler struck his pick into it. At the rate the shaft has yielded there are really $60,000 in this 400 feet within 20 feet of the surface.

Important Sale.—The entire property belonging to the American River Water & Mining Co., consisting of dam, ditches, etc., commonly known as the North Fork ditch, has been sold to the Auburn & Bear River Water & Mining Co.

PLUMAS COUNTY.

Struck Gravel.—Quincy *National*, March 26th: The American Co., at Washington hill, have struck gravel in their tunnel which prospects well. This tunnel has been a number of years in progress.

STANISLAUS COUNTY.

Silver Mines.—Tuolumne City *News*, April 1st: From a friend we have learned of the discovery of rich silver mines in the Coast Range, not far from Orestimber, in this county by Mr. Newsnm. The discovery has created considerable excitement in the neighborhood.

SAN DIEGO COUNTY.

The special correspondent of the San Diego *Union*, March 31st, says the Washington looks better for permanency than at any previous time. The Lincoln is two feet wide at the depth of 25 feet, and as rich as at the surface. They have 20 tons out which will pay from $50 to $100 per ton. A tunnel 1,000 feet long would cut seven ledges, including the Washington. On the 22d, Chas. Hensley discovered, ten miles from Julian City, a two-foot ledge, well defined, bearing ore of great richness, every piece being thickly studded with gold. It is called the Stonewall Jackson. A fifty-foot shaft is being sunk upon it. Ten hours after the discovery there were 500 people on the ground; a meeting was held, and a district formed, called the Hensley.

The special correspondent of the *Alta* writes that several claims promise well, but that the owners are generally unwilling to make arrangements with capital to develop them, but demand a cash price which is absurdly high for property the extent and value of which is as yet so indefinite. Several San Francisco parties have thus been deterred from making investment.

The New Mines.—A Los Angeles telegram of April 3d says: Fuller reports from the San Diego mines show that quartz mining will be a success. Very rich paying quartz is being taken out of the Hayden and other ledges in Julian. A large amount of rock—two to three hundred tons—has taken out, that will yield an average of $75 to $125 to the ton.

SHASTA COUNTY.

Highland.—*Courier*, April 2d: We are informed that a 13-hour run on the Highland mill, French Gulch, yielded 50 ounces of amalgam, and another of 10 hours 40 ounces.

Janesville.—Criss & Reese run eight days and cleaned up $246; Murray, 11 days, and cleaned up $210.50.

SIERRA COUNTY.

Items.—*Messenger*, April 2d: It is reported that rich ore has been struck in the Hog Cañon mine, owned by P. A. Lamping....The Oak Flat quartz mine has been leased and the mill started....A large quantity of good-looking rock has been taken from Ned Leonard's ledge, and milling will be commenced before long....We learn that the Kanaka mill is still running on excellent rock, of which there seems a goodly supply.

SISKIYOU COUNTY.

Quartz.—Yreka *Union*, April 1st: Uncle Johnny Camphell discovered a vein of quartz a mile southeast of Mugginsville, last week. The rock is well sprinkled with free gold.

Humbug.—Jones, Barton & Co. started up their new mill on Monday last, and have 80 tons of rock ready to crush, which will run as high as $25 to the ton.

Ætna.—Judge McConaughy is superintending the clean-up. From all that is known, the company has made a fine run.

Hard at Work.—Sheppard set his mill at work at Oro Fino last week, and the indications are good.

TRINITY COUNTY.

The Champion Miners.—*Journal*, April 3d: Two boys, aged seven and eleven years, sons of Mr. Gilzean, of Cañon City, have struck a very rich claim. The little fellows have their claim rigged in genuine mining style, work industriously, and take out from eight to ten dollars a day.

North Fork.—Wm. Ritterbush found a very rich deposit in the hill opposite the town two or three weeks ago, but kept it quiet. We are informed that astonishing prospects are obtained. R. J. Holmes has been opening a new claim, and this week struck it rich. Three days' drifting by two men washed up seven ounces. Our informant says he saw three dollars got upon a shovel.

Lower Trinity.—Thompson, Bontecou & Co. are digging a ditch from Hawkins' gulch to Davis' point, that will afford water for several companies. This section is known to be good....Three days' washing by Thompson & White, at Horseshoe Bend, with what water they could catch during the rain, paid $100....Thomas Price has struck a good claim in the bar at Alex. Tinley's place.

Arizona.

Big Bug.—Prescott *Miner*, March 19th: The news from this district is first rate. A clean-up was made, one day last week, and a bar of gold worth $1,800 realized. This was the result of ten days' work with ten stamps.

Walker District.—Jackson & Co. will start the Eureka ten-stamp mill, to-day. The first rock crushed, after testing the machinery, will be from the Box Elder lode. D. J. Marr and others started for the district, Wednesday, with provisions and tools, to work the Accidental, one of the richest gold lodes in the county.

Weaver District.—An old pioneer is running an arastra, and Mexicans are at work in the placers. A very rich gold-bearing quartz lode was recently found between Peoples' Valley and Date creek. The people are said to be in a high state of excitement. Charley Gennng, Pete Smith, Fred Henry and others have taken up ranches and water-privileges in the valley. They have rich mining claims in Walnut Grove district, and it was their intention to build water-wheels and arastras.

Walnut Grove.—S. C. Rogers reports that Allen Cullumber bad struck good pay dirt in a large bar above his house.

Wickenburg.—At latest dates, the Vulture Co's 40-stamp mill was crushing. The company talk of erecting small works to operate upon the sulphurets. Work was being pushed on the tunnel of the White Picacho mine.

Yuma County.—J. S. Spann & Co. were adding more stamps to their mill, 20 miles above Fort Yuma. Other parties were building arastras on the California side of the river, near the Picacho, and Valentine & Co. were operating with their dry-washer.

Los Angeles, telegram, April 3d: The Apache Pass mine in Arizona, sold to a San Francisco Co., has been taken possession of by Mr. Arnold, now at Tucson. Work will be soon commenced.

Colorado.

Items.—Central City *Herald*, March 16th: George Barrett's mill is running on ore from the Roderic Dhu lode....Native silver is found in all parts of the Coaley mine. The vein never looked so well....E. S. Perrin is working on No. 4, East Pewabic lode, Russell gulch. He has three feet of good iron in the end of his drift...."Kill-Do" is the name of a new lode discovered by Geo. Cowie, Jr. A prospect of half a pound of the quartz yielded one-half pennyweight of gold....We hear of a number of new mining enterprises. We believe that the coming summer is going to be lively. Gilpin county will produce a third more gold this year than last....Ira Austin, on the Grace lode, Gold Dirt district, is taking out good ore. He proposes to start up the Hollister mill in May.... Charles Barton and Richard Irwin have been working the Orion lode, on Fall river. Their shaft is now 40 feet deep. The crevice is six feet wide. Select specimens assay $400.

Gambel Gulch.—J. W. Holstein has completed a ditch for conveying water from South Boulder to Gambel gulch. This will supply water for one thousand feet of the gulch, and it is proposed to begin with a hydraulic soon.

The U. P. R. Lode.—At present 20 men are engaged, producing 90 tons per week, supplying a 40-stamp mill and averaging $16 per ton. Selected quality has run as high as $40 to $45; second, $12 per ton. These were milling ores, leaving still smelting ore, for which $100 was paid at the smelting works.

Gilson Gulch.—Same of 30th: A silver brick of 770 ounces, from the Franklin works, arrived yesterday. Gilson Gulch presents more activity. Yesterday the road was full of teams loaded with quartz.

Marshall Tunnel.—*Register*, 30th: Gen. Marshall reports that his tunnel has reached a depth of over 600 feet from the mouth, and the heading is now very near the Equator lode. Carpenter, Simmous & Co. have struck, in one of the upper levels, a large vein of very rich ore.

North Clear Creek.—Walker & Rollins were able to show our reporter a good sized thing full of gold, to say nothing of what has been converted into greenbacks for a couple of months past. The pay streak extends 90 feet in width across the bed-rock, which is 20 feet below the bed of the creek.

Idaho.

Review.—*Avalanche*, March 26th: The Empire shaft is down 75 feet and shows a ledge 2½ in width. The Davis Bros. are pushing ahead the tunnel on the Peck & Porter, and have 10 or 12 feet yet to complete the contract. Lately they found the ledge broke up, but have now come upon a well defined and rich gold bearing vein, a foot in width and getting wider. There is 80 or 90 tons of fine ore on dump. The Davis Bros. are also working the Corduroy by contract. The shaft is 160 feet deep. Hoisting has been done by hand, but a whim is being erected. The second level has been run north 155 feet. Sixty feet further will take it to the Peck & Porter. The Baxter is yielding splendid ore, which will be milled as soon as spring opens. The Golden Chariot continues to yield its quota. On Wednesday we saw severals tons hoisted which displayed richer ore than ever. Work is going on as usual on the Ida Elmore.

Poorman.—There is said to be a thousand tons in sight of a vein of ruby silver, as rich as ever the Poorman was in its most prosperous days. By next week we shall know more about it.

Good Yield.—Four hundred tons of Golden Chariot ore crushed during February, yielded $35,050—nearly $90 per ton.

Montana.

The How Lode.—Virginia *Times*, March 21: The tunnel has reached it at last, and the crevice is 5 feet in width.

Boulder Valley.—Cor. of same, 23d: Miners and laborers are already in demand. The Boulder Ditch Co. will engage a strong force on Peru and Spring Bar. Stuart and Anderson will need reinforcement on the "Old Bar," and various other companies intend to employ bands enough to make the most of the abundant supply of water expected.

Green Campbell.—We learn that good ore is struck in the upper tunnel. In the lower tunnel the rock has become softer, and it is thought that the breast is not more than 15 feet from the lode. The Everett mill will soon be pounding away.

Postlethwaite Mill.—This is to be removed to the Keating lode. This lode is developed for a depth of 125 feet, showing a crevice almost 5 feet. The average yield, by working process, is $35 per ton.

Philipsburg.—Cor. of *New Northwest*, March 18th: The cold snap has retarded operations, causing delay in starting up the mill. It will require two or three days' time to put everything in working order. Miners report a rich pocket in the Comanche. Cole Saunders announces arrangements for a smelter and active operations within sixty days.

Nevada.

COPE DISTRICT.

Mountain City Mine.—Elko *Independent*, April 2d: Lately, at a depth of 70 feet, richer ore than ever has been struck. The vein stands nearly perpendicular and averages three feet in width, with well defined walls. B. F. Page, of San Francisco, made an investment in it for himself and friends, and has taken hold in good earnest in its development. The work of stoping out ore has been commenced.

Cope Bullion.—The last stage from Mountain City brought down bullion; $3,000 from the Argenta.

Bull Run.—The Porter company organization is perfected. We are informed that the tests of ore are flattering; the smallest yield (actual working test,) exceeding $225 per ton. As the ledge has been opened in three different places to a depth of 25 feet, showing a mine three feet wide, all mineral. The owners have reason to expect good results.

HUMBOLDT.

Gold Run.—*Register*, April 2d: Chambers and Martin are still experimenting upon base ores, Webb's mill.

Ed. Lovejoy is taking out ore from his extension of the Golconda, which is the best yet developed in the district.

Hurst, Burns & Agnew are developing their claim on the Shepardson with energy.

The Cumberland mine never looked so well. Work has been suspended while there is 45 feet of stope on the vein which averages nearly two feet of excellent ore, worth $150 per ton.

Mix & Co., of San Francisco, talk of erecting a furnace here, which is just the thing we need, as ninety-nine out of every hundred tons of the ores of this district are refractory and contain a large percentage of galena, but will yield good returns by smelting process.

Galena. — Cor. of same: The Buena Vista mine, on the mountain back of town, the father of the district, is progressing slowly. Upwards of $12,000 have been expended. The Butte mine, one mile below town, is well situated, easily worked, and ore from $300 to $500 per ton. The Avalanche mine is in a dormant state at present. Its owners contemplate opening it up as soon as work is commenced on the smelting works.

WASHOE.

Yellow Jacket.—Gold Hill *News*, April 2d: Daily yield, 300 tons, 150 of which are low grade from the lower levels. The ore body, of recent discovery, breasts out 30 feet in width, and has been raised upon one set of timbers. Assays from it run from $30 to $350 to the ton, and the best portion would mill over $50 under the stamps.

Imperial-Empire.—The bottom of the old Alpha incline was tapped by the raise from the 1,100-foot level, north drift, last Tuesday. The great body of water will all be drained out by to-morrow night. The cross-cut west from the south drift of the Imperial Empire has reached the ledge in the Holmes ground, but as the miners have been shut down since 6 o'clock evening before last, outsiders are not posted as to the developments.

Gould & Curry.—This mine is yielding nearly 100 tons of ore per day, and the ore gives an average assay of $55 per ton.

Hale & Norcross.—The shaft has not yet reached the west wall, but still continues in good looking ore. The mine is yielding 145 tons of ore per day, principally from the 6th level.

Chollar Potosi.—Daily yield, 150 tons; average assays, $45. General improvement throughout the mine, and a promising new body of ore developed at the south end of the Blue Wing section.

Belcher.—About 80 tons per day is the regular yield, all from the upper levels, most of which is reduced at the Rhode Island mill.

Overman.—Yielding 145 tons of fair grade ore per day. The ore body at the 226-foot level widens as developed southward. The 500-foot level is looking well.

Ophir.—Depth of water in the new shaft uncertain. The new shaft, in the Moscow ground, is nearly 200 feet deep, and the new steam hoisting works will shortly be ready.

Exchequer.—Work is to be commenced forthwith to open the mine and take out ore for milling.

Kentuck.—Daily yield 55 tons. Receipts for February, $29,300.82. The lower level drifts show little encouragement.

Crown Point.—The upper levels yield 70 tons of light-grade ore per day.

Virginia Consolidated.—Drift west 192 feet in from the 500-foot station of the new shaft to-day. Rock favorable, no water, and work progressing well.

Caledonia.—The shaft completed to the 200-foot level and a drift started west for the ledge, which is probably 30 or 40 feet distant, with plenty of good ore.

The miners in the Imperial-Empire shaft, who have not been allowed to come out since March 31st, were still in durance on April 4th.

WHITE PINE.

Items.—*Empire*, April 3d: **Eberhardt** working 30 men, and shipping ore to the mills at Shermantown. The ore yields from $100 to $200 per ton.... **Wabash** continues to yield a large quantity of good ore..... **Consolidated Chloride Flat.**—A large number of men busily employed in taking out ore..... **Original Hidden Treasure.** — A large force at work, and good ore taken out, a portion of which is shipped to the Big Treasure mill.... **Black Cloud** is owned in San Francisco by George Hearst and others. E. J. Ryan, Supt., last week put a force of men at work and is taking out from five to eight tons per day of fine ore. The ledge is eight feet wide. ....**Montrose** has now on the dump 100 tons of good milling ore which was taken out last spring. There is now a large body of high-grade ore in sight.... **Pogonip & Othello** have been recently sold to a Chicago company.... **Silver Wedge** has a shaft down 63 feet. The ledge is nine feet wide. Some 40 tons of ore now on the dump. The owners have "chopped" on the mills, and will either sell the ore at the dump or keep it.... **Montuk** shaft is down 60 feet. During the past week 30 tons of excellent milling ore have been taken out in sinking the shaft. The bottom of the excavation shows considerable horn silver.... **Tom Paine** is about to pass into the hands of a Chicago company.... **Mammoth** is being opened in good shape.... **Pocotillo Flat.**—Several mines in this locality are being worked with encouraging results. One shaft has attained a depth of nearly 200 feet, and gives good prospects. ....**Eleo** continues to yield a large amount of high-grade ore.... **Blackfoot** is showing a larger quantity of ore and of better quality.... **Buttercup** is being opened in good shape, and a large amount of rich chloride ores taken out.... **Idlewild** is now yielding good milling ore.... **Jennie A**, below Bullion Hill, continues to yield a large amount of first class smelting ores.

Most of the furnaces of the district are now in operation. The furnace of Hall, Bradley & Co. started up Wednesday, and on Saturday had 30,000 pounds of bullion. The product of the furnaces for the coming week will be not less than 200 tons of bullion.

Items.—*News*, 3d: The Alsop works fired up on the 1st.... The Shermantown Smelting Works are turning out bullion worth $300 per ton in silver, and contains forty-seven per cent. of copper.... Base bullion weighing 27,000 lbs. shipped on the 1st overland to New York from Alsop works. ....The Silver Park Co's 5-stamp mill has started up.... Col. Buel shipped 25 tons of metal from Eureka to Carlin a few days since. The camp at Eureka is destitute of cash, though rich in resources.... The Rappahannock ledge, in Cooper District, is from 15 to 20 feet wide, and rich.

Ely.—*Empire*, 1st: Whitney & Co. of Elko have shipped thirty-five tons of mill machinery, by mule teams, for Ely District. The machinery is for a twenty-stamp mill, and is for the Meadow Valley Milling and Mining Co. Bird's teams arrived yesterday with twenty-four tons of ore from the Pioche mine. The ore is estimated to be worth about $1,200 per ton. Bob Logan has a 25-foot ledge that works $71 to the ton.

Spring Valley.—George Ziki and Martin Boothby, in their North Star mine, are getting $500 milling ore, which needs hardly any assorting. The Page & Corwin mine is now down ninety feet, and the ore at that depth is exceedingly rich.

San Francisco Mining Stock Market.

After a long period of depressed prices and restricted sales in the mining share market, a good deal of activity has been manifested of late in this class of securities, accompanied by a sharp advance in several leading stocks and a considerable improvement in many others. This movement, which was inaugurated in the early part of March, grew out of a series of favorable developments in certain claims on the Comstock lode, occurring in the first instance in the Gould & Curry mine. The extent and progress of this improvement is indicated by the prices ruling for the stocks thus favorably affected during the past two months: thus, on the 10th day of February last, Gould & Curry stock was quoted on the market at $40 per share; Chollar-Potosi ruling at $18; Overman at $70, and Imperial at $27.

That this advance is mostly due to favorable developments made in the mines themselves, and not to mere extraneous causes, may be inferred from the fact that we have well authenticated evidence that such developments have been made, and from the further fact that the stocks of other companies in whose claims no marked improvement has occurred, have failed to participate in this upward movement—these latter being, in some cases, lower now than they were several months ago. That this appreciation of Washoe stocks will, by strengthening confidence in these properties generally, tend to the enhancement of mining values, admits of no doubt; nor is it reasonable to suppose that the present animation in the mining share market may not be due in part to speculative schemes and combinations. The presence of these agencies must always be counted upon, and the more animated the market the better their opportunities for effective action.

But, making all allowances for influences of this kind, it may safely be assumed that there is much in the condition and prospects of the mines themselves, more especially of the leading claims on the Comstock lode, to warrant this advance in the price of stocks, and even justify the belief that they will not soon recede to former low figures. The recent strike in the Gould and Curry mine would seem to point to extensive deposits of high grade ore, several other companies having recently developed valuable bodies of ore in their lower levels. This last set of facts is important, as bearing affirmatively on the question of the continuity of this great ore channel—a point that former explorations had begun to render problematic. With these revealments, the Comstock lode may be said to take a new lease re-establishing that trust which geological deductions had taught us to repose in its permanency, and awakening the hope that its productive energies will be restored to something like the days of its pristine vigor.

The most of the prominent companies located on this lode are now raising large quantities of ore, which, with present facilities for its transportation and reduction, should return a generous profit, relieving them from the necessity of imposing further assessments on the stockholders. That this will so result, is confidently expected, leading to a buoyant market, and the maintainance of steady prices. Under this improved feeling, it seems probable that new stocks of this kind may gain a foothold on the market, and the programme of the Stock Brokers be made to cover a wide range of properties equally as valuable as most of those now operated in by the Board.

The mining stock market exhibited considerable activity during the past week, but, in most instances, prices show a recession, and in the case of Gould and Curry, the leading stock for some time, the decline has been rapid and heavy. Stocks, other than those composing the Comstock list, are becoming a prominent feature of the market; sales during the past week having been large, and at improved figures. In our next issue, we expect to give our customary quarterly statement of the bullion yield, dividends, and assessments of the various claims on the Comstock lode.

From our carefully compiled record of the sales in the San Francisco Stock and Exchange Board, we give the following interesting figures for the first three months in 1867, 1868, 1869 and 1870:

MONTH.	1867.	1868.	1869.	1870.
January.....	$2,664,322	$8,698,934	$7,964,734	$3,857,789
February....	3,303,520	9,716,596	6,818,644	3,139,433
March.......	4,034,289	11,471,830	6,954,145	6,662,996
Totals.....	$11,002,131	$29,887,360	$21,737,523	$13,660,218

Chollar-Potosi—has met with less inquiry, but has been well maintained during the past week. For the week closing April 1st, 1,217 tons of ore were extracted, showing an average assay value of $52 93 per ton. All the faces in the Blue Wing stope are equally as promising as they were at the commencement of March, and the April product is not likely to fall below that of the previous month. Forty-five feet have been added to the length of the west drift from the Chollar-Potosi shaft, making total length of drift 493 feet. At present, the material in the face of the drift is principally clay. The bullion receipts for March aggregate $113,189, against $91,545 in February. A dividend of $1 per share is payable from and after the 11th inst.

Gould & Curry—exhibited a very material fall the past week, and has withal been the leading stock in the Board. During the week ending April 4th, 580 tons of ore were mined, showing an average assay value of $72 40 per ton. In the El Dorado section, the ore improves as the body is raised on. They are now up forty-four feet, and the ore coming from the extreme top is better than any taken out of the stope. The other ore sections are without change. In cross-cut No. 2, at the seventh station, the quartz is about eleven feet wide, and the largest assay obtained from samples from this section is $18 40 per ton. The north cross-cut, No. 3, is now in forty feet, and has clay with quartz mixed through it. The bullion yield for March amounts to $50,213, against $33,389 in February.

Hale & Norcross — continues in fair request at a slight decline. During the week ending April 2d, 1,158½ tons of ore were extracted; previous week, 1,025½. They have on hand at dumps 6,141¼ tons, of which 2,485 tons is low grade. A letter of the 5th inst., says they are preparing the seventh station, and that the winze from the sixth station is now down 25 feet, the average assays from that locality showing over $200 per ton. They do not yet know the width of the ore vein, as the winze descends in it, and does not touch either the east or west wall. They cannot cross-cut in the winze, as it would increase the water, which is already very troublesome. A dividend of $6 per share will be paid on and after the 9th inst.

Savage—has been well maintained. The bullion product for March foots up $23,030; in February it amounted to $7,035.——**Kentuck** has been dull of sale. For the week ending April 1st, 305½ tons of ore were extracted, showing a 65 per cent. assay yield of $4,213 53, which is equal to $13 81 per ton.——**Crown Point** has been moderately dealt in at uniform rates. For the week closing with April 3d, 456 tons were mined, the 65 per cent. assay value being $7,663 79, or $16 80 per ton.

Belcher — sold to a greater extent than the previous week, and at somewhat better rates. Dates of the 5th give the information that the stopes above the 152 level continue to yield about 70 tons per day. In the 730 level, after passing through the clay, they got into vein matter, and the indications for ore are very promising as far as they have been able to prospect.——**Imperial** has been in good request at a fair figure. On the 5th inst., the Superintendent wrote — "I have made no headway with my south-east drift since last night; the water was coming in so fast I had to brace the face and put in a set of timbers. The water from the Alpha incline came in with a rush this evening, sweeping timbers and air boxes down the incline."

Overman — has been in moderate request at an advance. The bullion returns for the month of March aggregate $72,000; in February they were $57,613.——**Sierra Nevada** also commands better prices. Yield of bullion for March, $15,600; in February, $12,300. —— **Caledonia**, which is a south extension of the Overman, shows a bullion product of $7,276 22 for March. —— **Flowery** levied an assessment of $1 per share.

Amador (Cal.)—continues to be firmly held. A dividend of $10 per share is payable since the 7th inst. —— **Eureka** (Cal.) disbursed a dividend of $7 50 per share on the 7th inst.—*Commercial Herald.*

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alameda Coal, Feb. 16, 30c.	March 30	April 22*
Alhan, Storey co., March 21, 5c	April 25	May 14*
Cordillera, Mexico, Feb. 17, 25c	March 25	April 11*
Eagle Quicksilver, March 14, $20	April 16	May 2*
Green Monster, Inyo co., March 10, $1	April 15	May 2*
Glenwood, El Dorado, Feb. 4, 25c.	April 6	April 27*
Hartwell, W. P., Feb. 19, 6c	March 26	April 21*
Hormiguera, L. Cal., March 11, $2.60	April 15	May 6
Hidden Treas. Cons., March 28, 25c	May 3	May 24
Imperial, Storey co., March 7, $10	April 11	May 3
Julia, Storey co., March 12, 60c	April 16	May 3
Kincaid Flat, March 4, $2.50	April 5	April 23*
Lady Bryan, Virginia, March 17, $2	April 18	May 19
Latawana, W. P., March 19, 15c	April 23	May 10*
Meadow Valley, Ely Dist., Mar 26, 75c	April 28	May 20
N. Bloomfield Gravel, March 28, $2.50	April 30	May 17
Nevada L. & M., Feb. 8, 2½c.	March 15	April 19*
N. S. F. Homestead, Feb. 9, $7.50,	March 23	April 14*
Ophir, Storey co., March 7, $3	April 11	May 3
Pocahontas, El Dorado, March 2, $4	April 2	April 28*
Peytona, Va. Dist., March 18, $1	April 19	May 4
Rising Star, Idaho, April 6, 60c	May 14	June 4
Sterling, Arizona, March 9, $5	April 18	May 17
San Jacinto Tin, March 4, 5c	April 4	May 4
Segregated Belcher, S. co., March 2, $2	April 6	April 29
Savage, Storey co., Feb. 7, $10	March 14	April 2
Sierra, Douglas co., March 29, $2	April 29	May 20
Silver Wave, W. P., Feb. 19, 20c	March 21	April 11
Tecumseh, Calaveras co., March 21, $5	April 21	May 5
West Point, W. P., Feb. 22, 50c	March 26	April 18
Yellow Jacket, March 15, $7	April 18	May 19
Yosemite, March 7, $1	April 7	April 23*

MEETINGS TO BE HELD.

Aurora Cons	Meeting April 11
Best & Belcher	Meeting April 30
Diamond Silver	Annual Meeting April 12
Gould & Curry	Meeting April 25
Exchequer	Meeting April 30
Overman	Meeting April 11
Oneida	Annual Meeting May 2
White Pine Smelting	Annual Meeting April 20

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable April 11, 1870
Eureka, div., $7.50	Payable April 7, 1870
Golden Rule, div., 60c	Payable March 26, 1870
Hale & Norcross, div., $5	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

New Incorporations.

The following have filed certificates of incorporation with the County Clerk, San Francisco:

Electro Magnetic Sewing Machine Co.—San Francisco. March 30. Capital stock, $1,000,000; 16,000 shares, $100 each. Trustees: George Stevens, Joseph Hendy and Wm. Barstow.

El Dorado Ditch and Water Co.—El Dorado county. March 30. Capital stock, $50,000; 500 shares, $100 each. Trustees: G. W. Ramage, M. M. Baldwin and H. H. Schafer.

Mahogany G. & S. M. Co.—Owyhee. March 28. Capital stock, $502,000; 6,020 shares, $100 each, Trustees: A. P. Minear, W. L. Greenwell, L. Bessarin, Geo. Hearst and O. H. Bogart.

Golden State Iron Works Co-operative.—San Francisco. April 6. Capital stock, $100,000; 200 shares. Trustees: Hugh F. Ross, Andrew Corigan and Charles H. Knox.

Saucelito Water Co.—Saucelito. April 6. Capital stock, $100,000; 2,000 shares, $50 each. Trustees: Jas. H. McNulty, Henry Marshall and Leonce Girard.

◆

A New Light.—We are seeking every day for better, and, at the same time, cheaper apparatus for lighting our houses. Messrs. P. J. Philips & Co., 650 Market street, have an apparatus for which they claim many advantages. It can be carried about and affixed anywhere, is very simple, and gives a bright flame. We could detect no escape of smoke or gas, the combustion being so perfect, and this is certainly a great advantage. It is easy to limit the amount of gas burned, and there is no danger of getting clogged, as it automatically cleans the passage whenever it is turned off.

◆

Newspaper Change.—The Grass Valley *National* and the Nevada *Gazette* have been purchased by an association of gentlemen, who have consolidated them under the name of *The National Gazette*,—to be published in Nevada City, and to be devoted to the Democratic party.

◆

Farmers desiring good, strong and substantial farm-wagons which will stand wear and tear, will do well to consider the advertisement of Messrs. Meeker, James & Co., before purchasing elsewhere.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

California Wheat and Flour.

It is well known that owing to the peculiar dryness of the atmosphere of California during harvest time, the wheat of this State is so dry, that in passing from hence to a region of ordinarily humid atmosphere, it will absorb a large amount of moisture, thus gaining materially in weight. This gain oftentimes amounts to a very large percentage, and forms an important item in the profit of shippers or foreign buyers. The amount of this grain can scarcely be realized by one not actually conversant with the business. The dryness of California wheat is often so excessive as to unfit it for making first quality flour, when otherwise the grain is the very acme of perfection in that product.

Much of the wheat raised in the moist climate of England contains too much natural water to make good flour, and it is difficult to expel that excess of moisture except by kiln drying, which is too expensive. To remedy this defect, California wheat is largely sought for, there, to mix with the moist English wheat, by which means both are improved, and the proper medium of moisture is thus obtained.

The wheat in this State varies largely in its amount of moisture, according as the locality of its production is subject to moist sea breezes or to winds which have lost their moisture by the dessicating action of the cooler air of mountain summits, over which they may have passed. In the matter of flour, we have been assured by those who have a practical acquaintance with the subject, that "California Extra" absorbs fifteen and sometimes even twenty pounds more of water to the 100 pounds of flour than the same quantity of Eastern or English flour will take up! Bakers using that brand thus gain a large percentage in the weight of their loaves, when employing the same amount of flour. These facts are worthy of note, and add much in securing a preference abroad for California flour over that raised in most other countries.

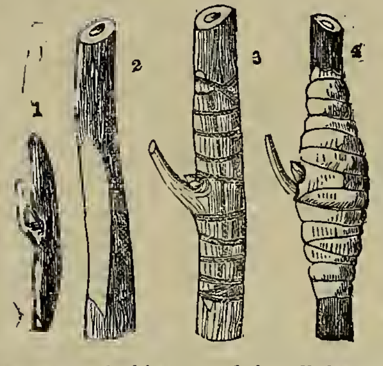
Coal Gas Not Injurious to Trees.

Dr. Poselger has shown by repeated experiments that the growth of trees and shrubs is not interfered with by any quantity of coal gas that may escape in the soil and find its way to their roots, and consequently that the illuminating gas escaping from mains does not injure the trees growing along the streets and promenades of cities, as many persons had previously supposed.

So says an Eastern exchange. We have ever been inclined to the opinion that the destruction of trees in the streets of cities has been due to the covering of the surface of the ground with hard packed cement or pavements impervious to moisture and air, rather than to the escape of gas from the pipes which are usually placed in close contiguity to the roots of such trees. The reasons for such belief are founded on the fact that coal tar and natural asphaltum have been found especially beneficial to vegetation when applied, in limited quantities, on or near the surface of the soil. As the fixed or free carbon in such substances is insoluble and undecomposable by the action of air, moisture or other substances in the soil, it follows that the benefit which accrues to the plant must be derived from the volatile portions of such carbonaceous matters—which are identical with the illuminating gas that has been charged with producing so much mischief. These volatile matters, which consist chiefly of carburetted hydrogen, are no doubt assimilated in the same manner as the plant derives its carbon from the carbonic acid of the atmosphere and soil.

Budding the Grape Vine.

Grafting, budding and pruning are arts that should be fully understood by whoever practices them. A pruner must understand why he prunes—why he cuts this limb in preference to that; the grafter and budder should also understand his art, which must be acquired by earnest study and patient practice. The importance of this fact should be especially borne in mind at this time, when it is admitted on all hands that a large proportion of the vineyards in this State are of little value by reason of the error committed at the outset, in not selecting the proper varieties; it is intimated by some that fully nine-tenths of the varieties now cultivated ought to be discarded and better ones substituted. The labor and expense involved in such a change is immense, and our vineyard-growers are looking around for all the information attainable, which may be of aid to them in this direction.



Either budding or grafting the grape vine is a much more difficult and uncertain task than performing the same operations upon most other fruit-bearing woods. Grafting is generally adopted for the grape, and in our issue of the 26th ult. we described a most excellent process devised and practiced by Mr. Briggs, of Oakland. To-day we describe and illustrate a process of *budding*, about which the English horticultural journals have had much to say of late. These journals have been replete with accounts of the remarkable success that has attended this mode of propagating, which has only lately been introduced and described. A recent number of the London *Field* gives an account, of which we give an abstract and copy its engravings. The operation may be performed upon the vine, or upon the laterals; the best time is when the wood of the stock is about half ripe. A bud is cut as shown in fig. 1; the stock, fig. 2, has a corresponding cut made to receive the bud; there is a nick at the lower end of the cut which receives the lower end of the piece containing the bud, and holds it in position. The surfaces of the bud and stock are made to fit as evenly as possible, and are bound together by bast matting, as shown in fig. 3. Afterwards a bandage of cotton-wool, extending an inch below and an inch above the wound, is placed on in such a way as to allow the bud and leaf stalk to be exposed, and is bound on firmly. The cotton is to be kept moist for several weeks. The bud does not start until the following spring, when it produces fruit as readily as the natural buds of the vine.

The practice has thus far, we believe, been confined to grapes under glass, and probably some modifications would be necessary for it to be successful with out-door grapes in the dry atmosphere of California.

It will be seen that the process here described is more of a grafting than a budding process; as a large portion of *wood* is removed with the bud. It is really an old method of grafting, in which a scion with a single bud is employed.

We give it simply as a method that is now attracting much attention in Europe; but not as one which we would pronounce preferable to the grafting process employed by Mr. Briggs.

Gypsum as a Fertilizer.

The rapid deterioration of the fertility of the soil in California, especially of our wheat lands, involving the consequent diminution of crops, has been for several years a source of much concern to our more intelligent agriculturists. It has been found that notwithstanding the richness of the virgin soil, a few years of constant culture greatly diminishes its productive powers; and the absence of the ordinary sources of fertilizing agents on this coast has heretofore led our farmers into a sort of compulsory neglect of any material effort to supply the annual waste of our lands from constant cropping. Whenever the matter has been brought up for consideration, it has been met with the almost unanswerable argument of a total lack of fertilizers, within reasonable reach and cost.

Nature, however, has not been unmindful of our needs, albeit we may have been somewhat slow in finding out her hidden resources. Some two or three years ago an inexhaustible bed of *gypsum* was discovered, within convenient shipping distance of this port, which was soon opened, and large quantities have since been brought hither for employment in the arts and for use as a fertilizing agent.

The experience of the Eastern States and of Europe has long since proven this mineral to be one of the most important fertilizing agents which has ever been introduced to the notice of the farmer, not even excepting guano, itself. It not only furnishes a direct food to certain plants, but it also acts as an economizer of other fertilizers, and is an actual *collector* of plant food from the atmosphere.

When we mix pulverized gypsum with ordinary fertilizers, such as stable manure or any other decomposing substances, it immediately collects and holds the constantly escaping ammoniacal gases, and transforms them into just the condition to render them most easily taken up and assimilated by the plant. When mixed with the soil it is always at work, day and night—not only feeding the little plant rootlets with which it may come in contact; but while it dispenses this food, it is at the same time busy in collecting additional supplies from the decomposing substances in the surrounding soil, and even from the atmosphere itself—the larger portion of which, is, in the use of ordinary fertilizers, entirely lost.

So important is this mineral fertilizer considered at the East, that in addition to the immense quantities which are supplied from our own quarries, nearly 200,000 tons are annually imported from abroad, to supply those localities which are situated at too great a distance of land travel to be economically supplied by the home product; and this demand is rapidly increasing.

The finding of an ample supply of this fertilizer, so near our own doors, may be considered one of the most important discoveries which has been made on this coast since the first finding of gold at Sutter's mill. It is of more value than many times its extent of rich gold mines; for it will be to the great agricultural industry of California what the quicksilver mines of New Almaden have been to our gold and silver mines.

We have introduced these remarks more particularly at this time, in order to call the attention of our readers to the fact that Mr. C. J. Jansen, of this city, has become the pioneer in the introduction of this fertilizer on the Pacific coast; and also as an introduction to a series of articles which we have for some time proposed to write upon the subject. What gypsum is, how it acts, and how and to what crops it should be applied, will furnish a theme for several articles in the early future, which we shall endeavor to make useful and instructive to our readers.

Cool Soil for Fruit Trees.

One of the greatest drawbacks to California-grown apples is their inferiority in keeping quality. Any given variety of apples produced on California soil is inferior, in that respect, to the same variety grown in New England. This inferiority is not due altogether to the difference in the keeping qualities of the two climates, after the apples are removed from the trees; for the proposition holds good when New England fruit is transported to a milder climate, as in the Southern States or in England.

The same difficulty is encountered by Atlantic fruit-growers, when we go south of New York. The best region for apples, pears, cherries and currants, is found in a belt of, say 150 miles in width, starting, centrally, from Boston, and sweeping thence across the country through central New York, northern Ohio, and thus on to the Mississippi. Fruit-growers in the latitude of Philadelphia, which is still north of the isothermal line of central California, recognize not only this fact, but the further difficulty of diseased trees and decreased yield, and have long been seeking, by modified culture or change of varieties, to remedy the evil.

Mr. Thomas Meehan, of Philadelphia, a prominent gardener and fruit cultivator, attributes the difficulty to the excessive warmth of the soil, in contact with the roots, in southern latitudes, rather than to the influence of the atmosphere upon the foliage or fruit, and recommends, as a means of securing a lower temperature in the soil, the seeding of orchard land with grass, or otherwise mulching the ground, to keep it cool and moist. Mr. M. found, on observation, that the soil was 20° cooler under the grass than under a clear, loose surface; the soil also being moister. The editor of the Cincinnati *Gazette*, in commenting upon this matter, says:

> We have a small orchard of about forty trees, that has been for years remarkably profitable and productive. It is situated on the gentle slope of a hill, and underdrained, and has been kept in grass for the last fifteen years. As often as once in two or three years the ground is hooked and spaded over, in the autumn or early winter, to the depth of four or five inches, around the trunks of the trees, and extending out as far as the limbs extend. Also, on the same space a good coat of manure is spread, about every other fall, sometimes slightly forking this into the soil in the spring following. The amount of fruit we have gathered from this one acre of orchard, during the past fifteen years, is fully equal to any five acres product of our neighbors' orchards.
>
> It should be borne in mind that even when the ground is forked or spaded over, owing to the manure that is frequently being added, the ground becomes quickly coated with grass, so that the surface under the trees is in grass nearly all the time, as well as that portion of the ground not directly under the tree tops.

Mr. Barry, the eminent Rochester horticulturist, while acknowledging the importance of coolness and moisture, advises the use of hay or straw as a mulch. He would not use clover as a live mulching crop, because it grows too strong and exhausts the moisture.

This matter is something certainly worthy of the thoughtful consideration of California fruit-growers, and we should be pleased to have the personal experience or opinions of some of our orchardists.

Method for Increasing the Flow of Wells.—A Lyonnese engineer, M. Donnet, proposes to increase the flow of wells by closing the mouth closely with a sheet-iron bell, through the top of which passes a tube attached to a pump. When the pump is worked, if more water is withdrawn than naturally flows into the well, the water level is lowered, there is diminution of pressure on the surface, and an increased supply will result.

Prices are tumbling at the East.

Poisonous Plants in California.

Mrs. Proctor, of Centerville, Alameda Co., a great lover of flowers, and one who has a large number of choice varieties, among which are embraced many peculiar to California, has requested our Alameda correspondent to obtain the names of four which were blooming in her garden at the time of his visit. The plants were submitted to Mr. H. G. Bloomer, one of our best botanists, to whom we are indebted for the following:

The beautiful liliaceous plant, with dark, bell-like flowers, is the *Fritillaria mutica*, or Guinea Hen Lilly—the "rice root" of the California miners.

The little blue butter-cup-shaped flower belongs to the order *Hydrophyllaceæ*, and is a *Nephomilla insignis*.

A small, pure white flower, called the "Morning Bride," is a *Gillia*, and belongs to the order *Polimoniaceæ*, or Phloxworts.

These three are all harmless and truly worthy of lavish culture and prominent place in our gardens, being already cultivated in the East.

A Poisonous Flower.

The fourth of those submitted—a bulbous plant, with a spike of white, yellow-tinged, star-shaped flowers—*is poisonous*, and belongs to the order *Melanthaceæ*. It is named *Anticlea Fremontii*. About two years ago, a child below San José was poisoned, and died from the effects of eating of some of the flowers. Concerning this order of plants, we quote from Dr. Lindley's "Vegetable Kingdom:"

"Few orders of plants are more universally poisonous than this, whose qualities are conspicuously indicated by *Colchicum* and *Versatrum albane*. The corn and seeds of the former are well known to be acrid, cathartic and diuretic; the latter is a nauseous, dangerous emetic. These qualities are due to a peculiar alkaline principle called *veratrea*, which acts with singular energy on the membrane of the nose, exciting violent sneezing, though taken in a very minute quantity. When received internally, in very small doses, it produces excessive irritation of the mucous coat of the stomach and intestines. A few grains are found fatal to the lower animals."

The first named is, however, an invaluable medium in rheumatism, and the American *Veratrum virides* is also an excellent remedy in pneumonia.

Any further advice to the lady above referred to, or to others, to destroy and avoid this plant, would be superfluous. If cultivated at all, it should be properly indicated as a poisonous and dangerous flower, if grown where children can have access to it, and only as a means of informing others, by ocular demonstration, of the true character and precise appearance of the plant.

Dangerous to Animals.

This plant is found in the meadows that are mown for hay in most of our elevated mountain valleys and ravines. It is a common thing for animals eating hay in which this plant has been gathered to become seriously affected thereby. In some cases death has ensued. It should be carefully sought out and thoroughly eradicated from meadow, pasture and garden. Many of these plants, when they do not injure the cows, render their milk poisonous, and sometimes fatal, to children.

There are quite a number of poisonous plants, indigenous to this State, in addition to the one above described, which we propose to illustrate and describe in the Scientific Press, at an early date, for the especial benefit of farmers, stock-growers and others.

The Colorado Colony, of which Horace Greeley is President, has located on the delta formed by the Cache La Poudre and the Platte Rivers, on the line of the Denver Pacific Railroad, midway between Denver and Cheyenne.

Wool Clip.—On Tejon Ranch, one of the largest grazing ranches in southern California, the wool clip is given as 400 bales from 8,000 to 10,000 sheep.

Lithograph Stone.—The only bed of this stone in the country, as far as known, exists in Van Buren county, Iowa.

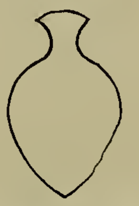
New Method of Packing Fruit for Transportation.

Mrs. Volney E. Howard, of Mission San Gabriel, sends us the following note with regard to a mode of packing fruit for distant transportation, which we would commend to the attention of our fruit growers:

I have a plan, which I know to be good, for packing fruit, so that it can be transported to the Atlantic side of the continent without injury. It is not an invention of my own, as it has been long used in Europe for the packing of grapes. I have eaten grapes in Washington City thus packed which had crossed the Atlantic and stood three months in the dealer's store, and which at the expiration of that time were perfectly fresh and nice. I advised some of my neighbors here to pack grapes after this manner for transportation to the Atlantic States; but as they are not sufficiently energetic to do so, with your permission I will make the process known through the columns of the Scientific Press.

Perhaps for this and other information I may from time to time send you you may be willing to send me your valuable paper. I should like any back numbers you could send me, and I will also take great pleasure in procuring subscribers.

The plan is as follows: Place the grapes in jars of this shape, which you often see lying about the streets of San Francisco. I do not know what is brought in them, or where they come from. The reason for the peculiar form of the neck is, that a wooden stopper must be put in which *must not fit exactly*, but which this shape of the neck will prevent from going into the jar. Into this vessel the grapes, after being *sweated*—dried—are packed with sawdust. The space above the stopper should be filled with slacked lime or plaster, wet, which, as it dries, absorbs the air out of the jar. Probably it would be well to place a tight cover over the plaster, so as to compel all the drying air to come from below; but the idea once given will, no doubt, be improved upon. Kegs could be used with a similar opening; but I presume jars could be made as cheap and better than anything.



Where and How to Apply Manures in California.

The above question, which cannot be decided by Eastern practice, was discussed at the last meeting of the Santa Cruz Farmers' Club. We collate from the *Times* and *Sentinel:* Mr. Morgan stated that he had applied manure in this country in various ways; but he preferred hauling it out early in the fall and leaving it in piles of four or five bushels, within a short distance of each other, trusting to the seepage from the piles to enrich and fertilize the entire tract. His experience, running through several years, had demonstrated conclusively to him the superiority of his plan.

Mr. Daubenhiss preferred scattering it over the surface just before the rains.

Mr. Humphreys was in favor of manuring early in the fall so as to get a green crop and then plow it under, and thus enrich the soil.

Mr. Doane agreed with Mr. Daubenbiss; he never hauled his manure out until two or three days before plowing.

Mr. Hackett thought no arbitrary rule could be depended upon. Location of land, as to whether level or rolling, ought to guide the farmer.

Mr. Humphrey said that the great want was the need of a green crop to turn under. And asked whether it would not be better to apply the manure early in the fall, so as to have green stuff to plow under early in the spring. He thought if the farmers would sow corn, and then plow the stalks under, it would be beneficial. In the States, buckwheat was sown in the spring, and plowed under in August. In the fall the land was re-plowed, and sowed to grain, and the result was a splendid crop.

Mr. Leonard desired to know whether putting lime on coarse manure would decompose the straw. Mr. Mattison, in reply, said it would destroy the manure.

Mr. Russell was in favor of making manure by erecting artificial vats, covering the bottom with three or four inches of lime and then filling them with alternate layers of straw and drippings, and then spread the compost on the grain as soon as it is three or four inches high. This, he said, is the European plan, and the one by which the air, which is the real decomposing agent, sets free and puts in operation all the fertilizing gases and properties of the manure. Lime, which is absolutely necessary for the production of good crops of grain, must be applied as the soil is exhausted.

Mr. Woods thought top-dressing would not be beneficial in this State, on account of over-dry climate. Dr. Anderson said that manure, to afford the most nutriment to plants, should be in the form of a solution.

Mr. Humphreys contended strenuously for the use only of thoroughly rotted manure, and then it should be spread from a wagon, so as to be evenly distributed. Mr. Mattison was in favor of hauling manure when it was dry, as it then contained only 25 per cent. of water; after the rains it contained fully 75 per cent. of water. He always spread it from the wagon.

The next question for discussion will be, "Can Flax be Profitably Grown in California?"

Irrigation--Means and Ends.

The above heading forms the topic of Mr. Greeley's twelfth talk to his readers. The subject is an important one, especially in this State. To rid the soil and keep it free of superfluous, and especially of stagnant water, and at the same time to secure to growing plants at all times a sufficiency of moisture, is a matter which requires much thought, and is at the same time one which urgently demands a practical solution from a great majority of the farmers of California. In discussing this question, Mr. Greeley refers his readers to the admirable and effective plan of irrigation adopted on the great plains of Lombardy, in Northern Italy, which he once visited, and of which he speaks as follows: "I saw there a region perhaps thirty miles wide by one hundred and fifty along the east bank of the Po, rising very gently thence to the foot of the Austrian Alps, which Providence seems to have specially adapted to be improved by irrigation. The torrents of melted snow which in spring leap and foam adown the southern face of the Alps, bringing with them the finer particles of soil, are suddenly arrested, and form lakes Garda, Maggiore, Como, etc., just as they emerge upon the plain. These lakes, rising slowly, often overflow their banks, with those of the small rivers that bear their waters westward to the Po; and this overflow was a natural source of abiding fertility. To dam these outlets, and thus control their currents, was a very simple and obvious device of long ago, and was probably begun by a very few individuals, whose success excited emulation, until the present extensive and costly system of irrigating dams and canals was gradually developed.

When I traversed Lombardy in July, 1851, the beds of streams, naturally large, were utterly dry; the water which would naturally have flowed therein being wholly transferred to irrigating canals, often two or three miles distant. The reservoirs thus created were filled in spring, when the streams were fullest and their water richest, and gradually drawn upon throughout the later growing season to cover the carefully leveled and graded fields on either side to the depth of an inch or two at a time. If any failed to be soon absorbed by the soil, it was drawn off as here superfluous, and added to the current employed to moisten and fertilize the field next below it; and so field after field was refreshed and enriched, to the husbandman's satisfaction and profit. It may be that the rich glades of English Lancashire bear heavier average crops; but those of Lombardy are rarely excelled on the globe.

Why should not our Atlantic slope have its Lombardy? *Utah, Nevada and California exhibit crude suggestions of such a system;* but why should the irrigation of the New World be confined to regions where it is indispensable, when that of the Old is not? I know no good reason whatever for leaving an American field unirrigated where water to flow it at will can be had at a moderate cost.

Mr. Greeley next proceeds to give some of his own experience in irrigation on his farm in Westchester. His early experiments, conducted by the aid of hired engineers, were quite unsatisfactory and costly; but he finally succeeded on a plan devised and engineered by himself, in so effectually irrigating a small tract of hill-side meadow that for the last ten years it has doubled its annual crop of hay, at comparatively trifling extra cost. And more than that he adds:

My hill-side, while it was well grassed in spring, always gave out directly after the first dry, hot week; so that when I most needed feed, it afforded none; its herbage being parched up and dead, and thus remaining till refreshed by generous rains. I judge, therefore, that my irrigation has *more* than doubled the product of those two acres, and that these are likely to lose nothing in yield or value so long as that petty irrigating ditch shall be maintained.

Dry Soil for Wine.—The grapes from which the famous Johannisburger wine (the finest and highest-priced wine in the world) is made, are said to be grown on hillsides, where the soil, especially at and about the time of ripening, is like a solid cake of burnt clay! Wine-growers in this State who do not already recognize the fact, have yet to learn that, in producing good wine, the roots of the vine cannot be kept too dry, at least from surface moisture. The roots should go down deep into the soil. A rocky bottom, in a volcanic or metamorphic region, is best—one full of seams which the roots can penetrate, so as to derive their moisture, charged with mineral salts, instead of depending upon surface moisture, which has not yet taken up from the earth the salts which appear to be so essential to the production of a perfect wine grape. The wine should never be allowed to receive artificial irrigation after it has come into bearing, and during its early growth, even, only sparingly.

Cheese.—The American Cheese Factory, near Alansford, Victoria, Australia, has commenced operations, and is the first of the kind opened in the Colonies. The *Australian*, from which we gather these particulars, says that the present apparatus has a daily capacity to convert 380 gallons of milk into cheese, on the factory plan. Cheese from the milk of 500 cows can be made by three hands alone; whereas, on the ordinary system, it would require four hands to make cheese from 100 cows. The owners take the milk to the factory, and receive a minimum of four pence—equal to eight cents—in summer, and four and a half pence—equal to nine cents—per gallon in winter, and have a guarantee that the price of milk per gallon shall never fall below two-thirds the price of cheese per pound. The price of cheese in Melbourne ranges from twelve to eighteen cents per pound.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, April 7, 1870.

Flour, Extra, ₩ bbl	$5 00	@$5 50
Do. Superfine	4 50	@ 4 75
Corn Meal, ₩ 100 lbs	2 00	@ 2 25
Wheat, ₩ 100 lbs	1 30	@ 1 62½
Oats, ₩ 100 lbs	1 15	@ 1 60
Barley, ₩ 100 lbs	90	@ 1 15
Beans, ₩ 100 lbs	2 50	@ 3 50
Potatoes, ₩ 100 lbs	2 00	@ 2 50
Hay, ₩ ton	11 00	@17 00
Live Oak Wood, ₩ cord	9 00	@14 00
Beef, extra, dressed, ₩ lb	7	@ 12½
Sheep, on foot	2 50	@ 3
Hogs, on foot, ₩ lb	5	@ 9
Hogs, dressed, ₩ lb	8	@ 8½
GROCERIES, ETC.		
Sugar, crushed, ₩ lb	13½	@ —
Do. Hawaiian	8	@ 11
Coffee, Costa Rica, ₩ lb	18½	@ 19
Do. Rio	—	@ 17½
Tea, Japan, ₩ lb	75	@ 90
Do. Green	60	@ 1 25
Hawaiian Rice, ₩ lb	8	@ 9
China Rice, ₩ lb	5½	@ 6½
Coal Oil, ₩ gallon	40	@ 42½
Candles, ₩ lb	16	@ 18
Overland Butter	20	@ 30
Ranch Butter, ₩ lb	20	@ 28
Isthmus Butter, ₩ lb	25	@ 30
Cheese, California, ₩ lb	14	@ 20
Eggs, ₩ dozen	25	@ 30
Lard, ₩ lb	13	@ 14
Ham and Bacon, ₩ lb	14	@ 15
Shoulders, ₩ lb	9	@ 10

Retail Prices.

Butter, California, fresh, ₩ lb	40	@ —
do. pickled, ₩ lb	35	@ —
do. Oregon, ₩ lb	25	@ —
Cheese, ₩ lb	20	@ 25
Honey, ₩ lb	25	@ 30
Eggs, ₩ dozen	45	@ 50
Lard, ₩ lb	20	@ 25
Hams and Bacon, ₩ lb	22	@ 25
Cranberries, ₩ gallon	1 00	@ 1 25
Potatoes, ₩ lb	3	@ 7
Potatoes, Sweet, ₩ lb	—	@ 2
Tomatoes, ₩ lb	—	@ —
Onions, ₩ lb	3	@ 5
Apples, No. 1, ₩ lb	4	@ 5
Pears, Table, ₩ lb	5	@
Plums, dried, ₩ lb	10	@ 12
Peaches, dried, ₩ lb	10	@ 15
Oranges, ₩ dozen	50	@ 75
Lemons, ₩ dozen	—	@ 1 00
Chickens, apiece	75	@ 1 00
Turkeys, ₩ lb	—	@ 25
Soap, Pale and C. O.	10	@ 12
Soap, Castile, ₩ lb	18	@ 20

Scientific Press.

W. B. EWER..........................Senior Editor.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance..........$4 00
One copy, six months, in advance.......... 2 50
Delivered by city carriers, per month.......... 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month.......... 3 00
One column, one month.......... 40 00
One column, one year.......... 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

Thomas Poyzer is now visiting Los Angeles and neighboring counties on business for this office, receiving subscriptions, etc. He is an old and worthy agent for the Press.

San Francisco:

Saturday Morning, April 9, 1870.

Table of Contents.

Farm Wagons—Ill......233
Our Foundries..........233
Improved Scroll Saw—Ill..........233
Mills and Mines of Colorado..........234
California Marbles......234
The Gold Fields of Victoria..........234
In Memoriam..........240
Raising and Moving Buildings—Ill..........241
Ore from Tem Piute....242
Full List of Patents.....242
Notes of Recent Patents.241
To Correspondents.....240
Patent Commissioner's Report..........244
S. F. Stock Market......237
S. F. Shareholders' Directory..........237
New York Metal Market.247
S. F. Metal Market..... 246
New Incorporations....237
Sale of an Owen's River Mine..........233
What's the Matter and the Remedy..........240
Silver in Limestone....244
A Powerful Machine....234
A New Ligot.......... .241
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Colorado, and Nevada..........236
Farming and Gardening.—California Wheat and Flour; Coal Gas Not Injurious to Trees; Budding the Grape Vine; Gypsum as a Fertilizer; Poisonous Plants in California; New Method of Packing Fruit for Transportation; Irrigation—Means and Ends, etc.......... 237-8
Mechanical Progress — Another Advantage in Favor of Steel; The Cut-off Valve of the Rider Engine; A New Rail and Spike; Photographing in Colors, etc..........235
Scientific Progress.—Force and Will; The Nascent State; Another Alloy of Ammonium; Telegraphic Warning of Approaching Storms, etc.235

Notices to Correspondents.

J. W. R., Bear Valley, Mariposa county, sends us a new plan for constructing railroads. He proposes a triangular rail with cogged sides laid along the center of the track on string-pieces mortised into the ties laid, say ten feet apart. The locomotive has one driving wheel and each car a guide wheel, cogged to fit this rail. On the ties on each side of the rail are fixed cast iron chairs containing rollers about eight inches in diameter, with outside flanges three inches high for steadying the cars, and on these rollers run the floor-timbers of the rolling stock, which are shod with iron. Our correspondent thinks that by his plan he obviates all danger of running off the track and of collisions (as the cogged arrangement would enable the train to be very quickly stopped), that much lighter cars can be used, and that the cost of rolling stock would not be more than one-half of what is usual now; also that steeper grades are possible. The matter of cogged wheels and rails for common roads is a very old and long since exploded idea. As to the rollers, one would be obliged to have a very nice road-bed to render them possible; and we would not like to guarantee a train's running a few rods without something being badly damaged. However, in accordance with our correspondent's wish, we publish this for the benefit of those whom it may concern.

Properly Appreciated.—A lady who has casually received a copy of the Scientific Press, writes the following appreciative note, which we take the liberty to transfer to our columns: "I received the number of February 12th of your extremely valuable paper. I had intended to take an agricultural paper, but I see that yours, in addition to much other valuable matter, gives such agricultural information as is truly useful on this coast; while papers from other States cannot guide agriculturists here. And as I also take an interest in all new scientific discoveries, I shall take your paper, as soon as I can anyway spare the money to send for it. I prefer it also for family reading to the pictorials which generally find their way into our families. I shall show the number I have received to my friends and endeavor to spread your circulation in this county, for every farmer ought to take it, if able."

What's the Matter, and the Remedy.

In our last issue we made some remarks upon the great value which our mountain lands possess for agricultural purposes, intimating that we should to-day explain the cause of their neglect, and the reasons why the agricultural lands of California, as a whole, are not more generally sought after by our own people, or by emigrants, for immediate occupation and improvement.

The great difficulty, at the threshold, grows out of the restlessness and discontent of our people with the regular gains of legitimate business. The present is emphatically an era of speculation. Professional men, merchants, bankers, miners, mechanics and laboring men of every class in our midst, are all alike drawn into this vortex of wild speculation. All are intent upon making a sudden fortune by some speculative movement.

Those who have nothing, are seeking to make a "raise" by their wits; and those who have what in other countries would be considered a moderate competency, are here in a hurry to become rich, to the end that *they* may also connect themselves with "rings" and "combinations," to more effectually carry out their speculative operations. Nearly all have become so thoroughly imbued with the spirit of speculation, that the sure and honest gains of legitimate business are almost entirely ignored; and as farming, above all other occupations, presents the least opportunity for such scheming, our people congregate in the cities and towns, where they can more readily watch the turn of events.

There, in the absence of anything more exciting, the spirit of speculation finds vent in city lot investments. So universal and speculative has this become in San Francisco, that we have now about twenty millions of surplus money—mostly the hard-earnings of mechanics and laboring people—thus employed in a business but little, if any, superior or more productive of values than the probervial one of "swapping jackets." In fact, a most pernicious result has already grown out of it, in the establishment of fictitious values upon real estate in this city, thereby increasing the cost of rents, living, and all kinds of merchandising, the injurious effects of which are felt all over the State.

Again, several millions of dollars are constantly employed in mining stock-gambling—in making "corners" in which to trap the unwary; in devising all manner of "tricks" in mine management, such as covering up rich ore, crushing worthless stuff, etc., to successfully carry on the "freezing-out" process, or more readily "bull" or "bear" the stock according to the programme of iniquity which may have been agreed upon by the "ring."

Thus it is that the surplus earnings of our people are diverted into all manner of mischievous and generally profitless speculations instead of being employed in the creation of actual values. Thus it is that we have no money for legitimate investment, in developing the real wealth of the State—for establishing a diversified agriculture, and building up manufacturing interests to give certain employment to the poorer classes, more extensive occupation to our mechanics, enlarged business to our merchants, and to provide a ready market for our farm produce. Hence it is that so large a proportion of our rich mountain valleys and our broad and fertile plains have no fixed market value.

The existence of this state of things is well known abroad; and hence it is that emigrants fail to reach our shores in numbers at all commensurate with the relative inducements which our natural advantages hold out. We neglect the first important requisite for establishing these real evidences of prosperity, *in failing to help ourselves*. We ask for foreign capital to come here and establish manufactories; to purchase farms at speculative prices, and stock them; to open our mines—that is, those of doubtful value—and to forward all other branches of legitimate business, while we employ our own surplus capital mainly in speculation, and in doing those very things the natural tendency of which is to discourage legitimate business and that very emigration which we profess to so earnestly desire. The remedy for these evils will be considered next week.

In Memoriam.

Died—At Middleboro', Mass., on Monday, the 4th instant, Rev. Seth Ewer, aged 78 years and 5 months.

Like the rushing of mighty waters came the memories of more than half a century as we read the brief telegram announcing the above sad record. Childhood, youth and manhood, were passed in quick review, bringing to our mind fond recollections of the tender guiding hand that led our early footsteps, the strong arm that shielded and protected us in later years, and the fatherly care that counselled us aright as we went forth, inexperienced, to encounter the wiles and dangers of an unfeeling and selfish world.

Though warned of Death's approach, and though almost a decade had already been added to his allotted age, still Hope whispered the cherished anticipation that we should yet once more behold the form and enjoy the smiles and counsels of a cherished parent. But the summons came—the silver cord was loosed and the golden bowl broken at the fountain.

An only son, in his loneliness, feels the blow in a distant land, and seeks to pay the tribute which affection prompts. As these feeble and imperfect lines are passing through the press, in California, the tolling bell of a New England village tells of a slow-moving hearse, followed by weeping mourners, bearing to the tomb the mortal remains of a loved one, whose spirit, after more than fifty years of labor in its Master's cause, has passed to its "eternal rest." As a little circle of weeping friends gather around the family altar, in this far-off Pacific home, we almost fancy we hear the solemn toll, the sob and the groan. In spirit we press forward to the weeping train—we lift the lid, gaze upon the inanimate form, then close it forever from mortal view, and drop the green token of an affectionate farewell upon the last resting place of—My Father.

The counsels and prayers of pious parents are a priceless legacy. They are like the refreshing dews which first ascend from earth heavenward, and then descend to bless and revive. A home, where father and mother, brother and sister, have a unity of interest, sympathy and affection, becomes in mature life sacred in memory's shrine beyond all else of earthly name. When, in passing years, the destroying angel once and again and often, perhaps, crosses its threshold to silence some familiar voice in death, how does memory carry us back to childhood days, and force upon us the realization that the home of our childhood, however humble it may have been, was the brightest, greenest spot in the pathway of life!

Home! What a blessed harbor of rest and enjoyment is implied in that little word. Its enjoyment on earth is but a foretaste of that better home, "not made with hands," "where the weary are at rest and the wicked cease from troubling." Infidelity may array itself against the Bible; it may meet us in all the outward walks of life and be loud and clamorous in the public assembly; but it has neither the courage nor power to enter the sanctuary of that home where a pious mother teaches infant lips to pray, and a religious father points his children to the throne of God.

One o'clock to-day (Saturday) is the time fixed for the blowing up of Blossom Rock.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending March 29th.

Medical Compound.—Philester Lee and Lemuel Matthews, Lebanon, Oregon.

Wagon-Brake.—Michael Howell, Umatilla, Oregon.

Caster for Sewing Machines.—John M. Veasey, Denver, Colorado Territory.

Water-Closet Valve.—Curtis T. Forrest, San Francisco.

Carriage-Axle.—George A. Lloyd, San Francisco, assignor to himself and Anthony Rosenfield.

Pump-Piston.—New England Pump-Manufacturing Company, Boston, Mass., Pacific Pump-Manufacturing Company, San Francisco, Cal., Charles F. Mudge, Bridgeport, and Bridgeport Manufacturing Company, Bridgeport, Conn., assignees, by mesne assignments, of Nathan Stedman. Patent No. 41,543, dated February 9, 1864.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Ledger Index.—C. A. Fitch, San Francisco, and W. O. St. John, Oakland, Cal. The object of this invention is to provide the book-keeper with a convenient index book, which is arranged with ruled pages, each leaf being sufficiently stiff to support itself, so that, when it is raised, it will stand vertically in a convenient position to display the names. It consists essentially of a case or cover, of the shape of a book with one end and one edge open, divided into compartments for the different letters of the alphabet. In these compartments are sheets of suitably stiff paper, lettered at the upper edge with metallic or other tags, and secured at one corner by a bolt or rivet. To use this device, the book-keeper needs only to take the sheet with the proper letter and turn it to a vertical position, the sheet revolving on the above mentioned bolt, thus saving time in turning over the leaves of a common index, and obviating all soiling of his book by frequent use.

Improved Bolster and Axle-Bed Plates for Wagons.—J. Henry, Suisun, Cal.—This is an improved device to be applied between the front axle-bed and the bolster of a wagon, and which will serve as a turn-table for the front wheels to turn on as a pivot. The device consists essentially of two plates with projecting flanges on the sides, which are fastened, one to the axle-bed and one to the bolster of the wagon. On the middle of each is a circular plate, the lower having a convex and the upper a concave surface, so that they can rotate on one another. To keep them in place, the upper one is provided at the center with a short pin, which fits in a corresponding socket in the lower one. By the use of this construction, which can be applied to any kind of wagon, the board and the king-bolt are entirely done away with. The bolster can at any time be removed from the axle by simply removing the bolts which pass through the flanges. The weight of the metal and the cost of construction are not increased, and there are no parts which are liable to get lost.

Extracting Copper and other Metals from their Ores.—N. Haskell, S. F., Cal. This process consists in slowly leading water upon heaps of ore and collecting this water, after it has passed through the heaps, and re-using it again in the same way at intervals of three or four days, the ore mentioned being exposed to the action of the atmosphere until all the copper has been extracted. The metal contained in the solution can be precipitated in the usual way at any stage of the process required. Moreover the solution of copper in the collecting tubs or reservoir can be utilized by inserting the poles of a battery and by a course of electro-plating, depositing the copper on various articles and manufacturing copper goods and materials.

Ores from Tem Piute.

We have been shown, by our old friend Col. J. H. Baker, of Placer county, some very rich specimens of silver ore from Tem Piute district, Southeastern Nevada, where he has spent the last six months. He gives us a glowing account of the richness of that district. From our knowledge of the man, however, we accept it without hesitation; believing, that rather than exaggerate the facts, he would prefer to keep back a part of the truth. We give here some notes made during our conversation with him. This district, which has been less talked about than some of less merit, was discovered one year ago last month. It is in Lincoln county, 150 miles due south of White Pine, and 60 miles west of Meadow Valley, or Ely District. The veins are in some instances very large. The principal "dyke," called the Sleeper, is fully forty feet in thickness, and plainly traceable for seven miles. The Wyandotte lode is from six to eight feet thick, and can be followed three and a half miles. The ledges are in most cases nearly perpendicular, and are generally well defined. The ores are sulphides and chlorides. Besides the two ledges named above, the Amy Bond, Younger Born, Prodigal, Cliff, Enterprise, Cadwalader and Mint, are among the prominent ones. The first three of these, forming a group together, have been consolidated, and a company formed in this city to work them, under the name of "The Tem Piute Mining Co." The Amy Bond is extremely rich. From a width of 30 inches at the surface, it expands to three feet at the depth of eight. The other two of the group are apparently about the same size, but have not yet been sunk upon to the same depth. A few hundred pounds of rock from the Amy Bond and Younger Born, crushed at Hamilton, yielded by working process, at the rate of $791 per ton.

Articles of incorporation were filed April 5th. The incorporators are—J. H. Baker, E. Caldwell, H. E. Highton, Jasper O'Farrell, C. D. O'Sullivan, Robert Tobin, and E. T. Bowen. These claims include 3,600 feet in all. The capital stock is in 28,800 shares, at $100 each. One half is set apart for a working capital. Four thousand shares are already taken by friends of the locators. The property will be energetically worked at once, under the superintendence of Col. Baker, who will be on the ground by the first of May. For the outlay already made Col. B. will be reimbursed out of the half stock set aside. The laws of the district have been fully complied with in every respect in regard to each of these claims, and the titles are perfect. A mill for custom work will be erected in the district during the spring, by San Francisco parties, whose arrangements are, we understand, already made.

Col. Baker proposes also to organize another company, on a similar basis, to work three other claims, which form a second group, about one mile from the one of which we have spoken. These three are the Sleeper—the 40-foot ledge; the Cliff—which is on the Wyandotte lode aforesaid; and the Mint—of which last but little is yet known from actual working. Assays of the Sleeper have gone as high as $5,000; no working test has yet been made. A streak of it, about sixteen inches thick, is very rich. Col. B. believes that the whole forty feet will average in mill one hundred dollars to the ton. Assays of Cliff ore are nearly as high as those of ore from the Sleeper. The Enterprise, a 30-inch lode of very rich ore, may perhaps be substituted for the Cliff, and the Cadwalader for the Mint, in this arrangement. Three hundred and fifty pounds of ore from the Enterprise yielded by mill process, at Hamilton, at the rate of over $800 to the ton. A similar test of ore from the Cadwalader gave $489. In case the second company should be organized, as is intended, Col. B. will, if it be the pleasure of all concerned, superintend for the present the operation of that also. A sufficient amount of ore to make a test satisfactory to all, will be sent to this city for reduction. We shall expect soon to see the bullion bricks, which will tell their own story.

We are glad to be able to chronicle the good fortune of Col. Baker. He deserves it. He is a pioneer of '49; and although in early days successful, of late his fortunes have been broken. To mend them, he left his family and his *library*,—no small effort *that*, to him,—and went out alone into the wilderness. Although he had never put in a blast in his life, he doffed his coat, and went at it with a will. Such men are bound to win at last. And now he has "struck it." We congratulate him.

Raising and Moving Buildings.

Quite lately the raising of a building on California street by means of hydraulic power attracted considerable attention and served to make the time fly more quickly for the street-corner frequenters. Although nothing in the process was new, still it may have slipped the memory of many that the plan of raising buildings by hydraulic pressure is a California invention.

Fig. 1 shows the Duncan Building, which the Messrs. Stratton Brothers have been raising. The weight of the house is about 3,000 tons, and this was raised 9 feet 7 inches in the space of five days. While actually at work, the average lift was six inches per hour. Under the four walls of the building were placed thirty-three rams, and the partitions were raised by jack screws.

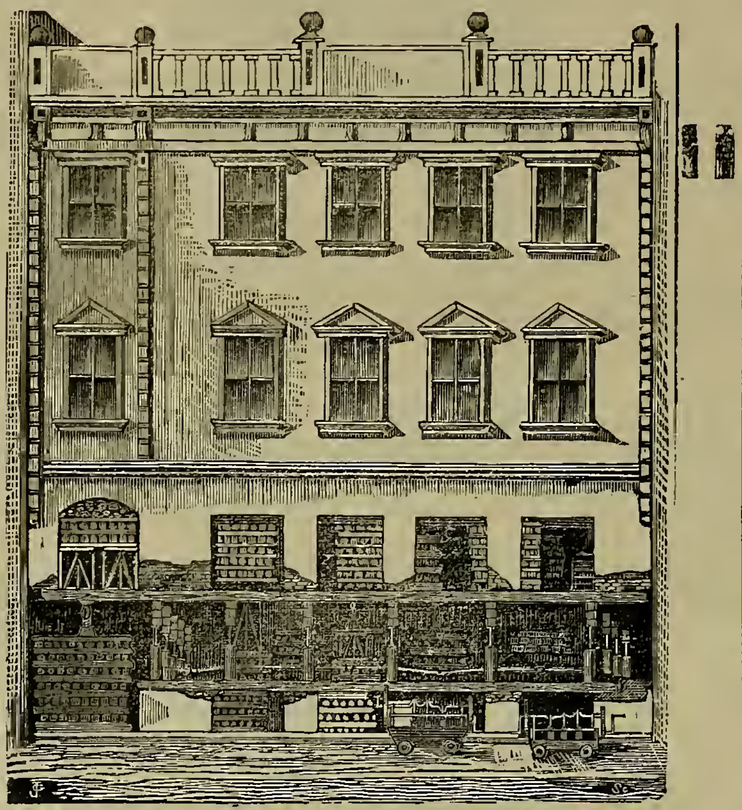


Fig. 1.—Raising Duncan's Building on California Street.

California is the first State in the Union which has turned out a manufactured article of silk, produced entirely from her own soil, and from her own looms. We refer to the late manufacture of the two American flags—one for our State Capitol and the other for the National Capitol at Washington—a most happy idea for signalizing one of those peaceful victories which are generally of more importance to a nation than victories gained upon the field of battle. California has literally begun the silk business *ab ovo*. All the silk manufactories of the Atlantic States spin and weave from imported raw silk.

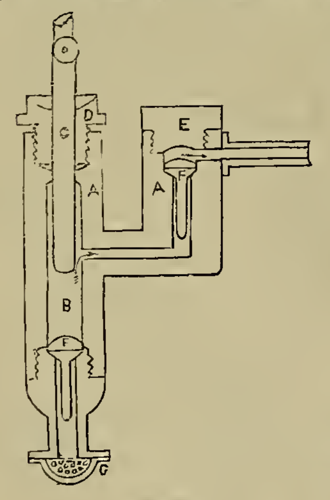


Fig. 2.

Fig. 2 shows a section of the pump cylinder, and Fig. 3 one of the rams of the machine used. This device was invented in 1853 by Messrs. Gordon and Steen of this city. It has been very extensively used here, and when the Messrs. Stratton went to Chicago they carried it with them. In Fig. 2, A is the wall of the cylinder, B the interior or bore, C the plunger, D the stuffing-box, F the valves and G the strainer. The arrows indicate the direction of the water current. Connected with the pump are copper pipes leading to the rams, Fig. 3. Here A is the chamber of the ram, B the walls, C the piston and D the valve. The piston can be raised 18 inches in one operation. The plungers are driven by connecting-rods on the cranks of a driving shaft. There are three plungers to each machine, and these are so arranged that the pressure is exercised continuously.

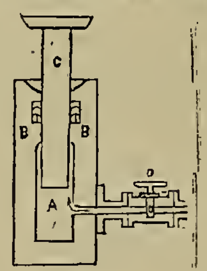


Fig. 3.

The Messrs. Stratton Brothers have long been at work in this city, and have raised some 800 buildings within the last fifteen years. One of the largest buildings ever raised in the city was the block on the corner of Davis and California streets. This was a warehouse, 137½ feet square, filled with heavy goods, and weighed 20,000 tons. A very delicate operation was the righting of Livingston's building on the corner of Battery and California. The earthquake a year ago last October had caused this to settle in such a manner that the northwest corner had sunk twenty-two inches deeper than any other part. The work was conducted very skillfully and succeeded perfectly. The building on the corner of Pacific and Kearny street was raised about two feet and moved thirty, when Kearny street was widened. And here we may call attention to the fact that moving a house in a horizontal direction is a very different matter from moving it vertically. The largest building ever moved horizontally, as far as we know, was the Hotel Pelham, at Boston, Mass., which was moved back 13 feet 10 inches in August, 1869.

It is claimed that in this city more is done in this branch of engineering proportionally than in any other city. At least California has taken a high stand in such work.

◆

A New Hay Press.—We have been shown a model of a new hay press, which promises to be a very valuable invention for farmers. It was invented by Mr. C. Talbot Clark, of San José, who has been at work endeavoring to perfect such an apparatus for six years. It consists essentially of a box or chamber in which are two followers connected by a long screw. In the middle of the box is a pinion, whose hub forms a nut for the screw, and which is fastened so as to admit only of a rotary motion. This pinion being driven by connecting wheels, the followers are moved to and fro in the chamber as desired. Thus one side of the chamber being full of hay, this is compressed by the motion of the follower, and in the meantime the other side is filled. The first being pressed, the wheels are reversed, and the second follower operates, and so on. It is claimed that a bale can thus be pressed in a very short time; if necessary, in eighteen seconds. The whole apparatus is mounted on wheels, and can be easily transported from place to place, and the machine operated by two horses, or perhaps even by one.

◆

The Earthquake last Saturday met with its accustomed success in frightening people, but otherwise occasioned no damage. It occurred at 11 o'clock 48m. 30s. a. m., lasted six seconds, and had a direction of southeast and northwest. Its most vivid effect was felt in the office of the Scientific Press, where it incontinently hurled a large number of Professor Rowlandson's pamphlets on the *Causes of Earthquakes* at the head of one of the clerks who was passing out of the office door in a graceful but expeditious manner. Persons desiring to obtain the pamphlet in question will apply soon, as judging from the result of Prometheus' stealing fire from heaven, the next shock will swallow up the books. What will become of the clerk is at present a matter of profound speculation.

◆

Smoke-Consuming Engine.—The improvement for consuming smoke, invented by E. Daley, was applied to the locomotive "Sacramento," on the trip between Sacramento and Oakland. The cost of the application is given as less than $100, and the engineer states that the saving of coal was from 25 to 33 per cent.

◆

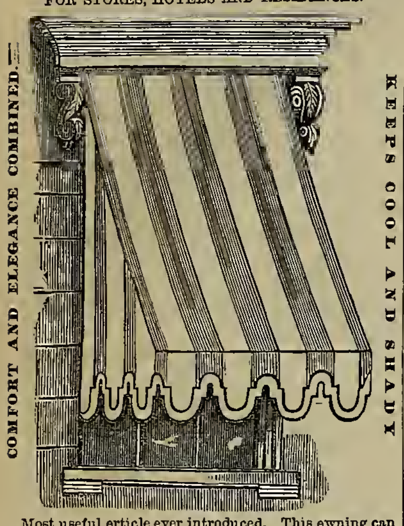
N. Y. Manufacturer and Builder.—Ten dollars cash premium is offered for a club of twenty subscribers, at $1.50 each, to this popular low-priced monthly, by Western & Co., publishers, 37 Park Row, New York.

◆

Reports come of another stampede from San Diego to a new locality, twenty-five to thirty miles south of Julian City, in the Cuyamaca mountains.

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.



Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

---

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. OLD Goods of all kinds re-plated for hotels, restaurants, etc.

☞The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. A full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞All work done at the lowest prices. 1v20-3m

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

SAN ANTONIO

PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of

STONE WARE,

Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also

Chemical Ware, of Sorts Made to Order.

We manufacture to order

Terra Cotta Equal to the Best French.

Samples on hand.

FIRE BRICK.

A No. 1 article made to order, warranted superior to any imported.

Flower Pots and Ornamental Vases

Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

☞Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.

8v20-tf

I. O. O. F.

THE NEW AGE,

A WEEKLY JOURNAL OF SIXTEEN PAGES.

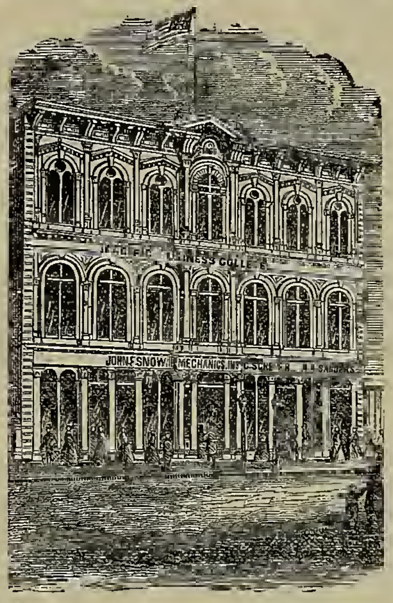
The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco, 19v19

PACIFIC BUSINESS COLLEGE,

Mechanics' Institute, 27 Post Street,

BET. MONTGOMERY AND KEARNY, SAN FRANCISCO.



THE PIONEER AND ONLY BUSINESS COLLEGE

On the Pacific Coast where BOOK-KEEPING is taught as practiced in the Counting-room.

PENMANSHIP.

In this useful and very important branch we challenge competition.

PROF. SEREGNI

Has obtained First Premiums at all the Fairs on this coast where his Penmanship was exhibited, and was awarded the MEDAL at the Seventh Industrial Exhibition of the Mechanics' Institute in 1869 over all competitors. His success as a Teacher is unequalled.

TELEGRAPHING.

The only place in the city where Telegraphing is taught by an experienced Operator.

We cordially invite the public to call and examine the merits of the College. Our Institute is patronized by the youth of fifteen and the man of fifty, where they receive instruction in Single and Double Entry Book-Keeping, Commercial Arithmetic, Commission Jobbing, Business and Ornamental Penmanship, Commercial Correspondence, Actual Business, Merchandising, Banking, Importing Railroading, Steamboating, Mining, Real Estate, Brokerage and Exchange, Mechanical and Architectural Drawing, Telegraphy, Orthography, French, Spanish, Italian, German and English Grammar. No CLASS SYSTEM. Each student receives individual instruction. No Vacations.

Sessions Day and Evening.

12v20-12t VINSONHALER, JULIAN & CO.

Air—Daisy Deane.

'Twas down in the kitchen a turkey she was stuffing,
  And trimming it with parsley fresh and green;
And the kettle on the stove was bubbling and singing,
  When I first met my darling Daisy Deane,
    None knew thee but to love thee, thou dear one of my heart,
      Oh! thy cabbages were ever fresh and green;
    Though the squash pie is gone, and stuffed hearts be eaten,
      Still I love thee, my darling Daisy Deane.

While walking on the levee, she fell into the river,
  And she floundered like a fish caught in a seine;
By the wetting she took cold and a racking cough soon followed,
  It settled on the lungs of my darling Daisy Deane.
        None knew thee, etc.

My bright flower seemed fading, like a rose that had fallen,
  Though they dosed her with pills and kerosene;
For the doctors all agreed she'd die before the morrow,
  Oh! my dear one, my darling Daisy Deane.
        None knew thee, etc.

So down to the drug store I despondingly did wander,
  To end my existence with a glass of glycerine;
But ALLEN'S PECTORAL BALSAM was placed within my grasp,
  Just one bottle cured my darling Daisy Deane.
        None knew thee, etc.

☞Ask for ALLEN'S PECTORAL BALSAM, and see that the proprietor's signature (as below) is written across the wrapper in red ink. SOLD BY ALL DRUGGISTS AND GROCERS.

Depot—139 J Street, Sacramento.

Isaac P. Allen.

H. S. CROCKER & CO.,

Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM

PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED, 24v19xtf

FRANCO-ITALIAN MANUFACTORY.

NEW CALIFORNIA

Chocolate and Coffee Steam Mills.

DESCALZO, LASTRETO & CO.,

526 WASHINGTON STREET.

MANUFACTURERS OF

Hygienic Chocolate of Every Variety,

Ne Plus Ultra Ground Coffee,

And sole manufacturers in California of the world renowned Coffee,

"CAFE DES GOURMETS,"

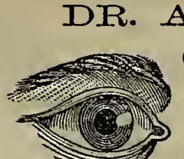
CORCELET PROCESS. 9v20-q

Our Home Physician.

AGENTS WANTED.—"OUR HOME PHYSICIAN."—New, complete, simple, reliable. The Pacific Medical and Surgical Journal says: "It is the best book on 'Popular Medicine' we know of." The Overland Monthly says: "The more generally this volume is introduced into families, the better it will be for them and the worse for quacks." Apply for circular fairly representing its character, at WESTERN PUBLISHING AGENCY, 411 Kearny street San Francisco, 6v20-3m

---

DR. ABORN,



Oculist, Aurist,

AND

CATARRH, THROAT

AND

Lung Physician.

No. 22 KEARNY STREET,

SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox, Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.

San Francisco (Cal.), Jan, 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street, San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.

San Jose (Cal,), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

TO WHOM IT MAY CONCERN.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.

WILLIAM BEARDSLEE.

Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.

VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869 7v20-3m

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up IN TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

Notice to Miners,

Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
3v18 ly Stove Store, No. 1 Clay Street, below Davis

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 6v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,

423 Washington street................................San Francisco (Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scarifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,

HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco. 21v18-1y

---

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

J. VAN C. HORNER,
DENTIST,
COR. J AND THIRD STREETS, SACRAMENTO.
☞ All work warranted. 7v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
510 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.
DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

REFERENCES.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

---

DR. MABON,
ORTHOPÆDIST,
(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the

MOST EFFICACIOUS INSTRUMENT

Yet invented for the cure of

RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment.

Office, No. 128 Kearny Street, near Sutter,
SAN FRANCISCO. 11v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,
DENTIST.
OFFICE, 313 BUSH STREET, NEAR MONTGOMERY.

Is a regular graduate, with twenty years experience in practice. 14v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.

Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap. 21v19-6m

---

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets. 25v14tf

---

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.

Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 CLAY STREET, bet. Kearny and Montgomery, San Francisco. 11v20-3m

---

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

☞ The first and only Manufactory on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

H. G. STILLEY,
PLANE MAKER.

PLANES of every description made to order of beech timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 BELDEN PLACE (near Bush street), below Kearny, San Francisco. 11v20-3m

---

W. C. & JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.

Job work of all kinds in the Drug and Spice Line promptly attended to.

SECOND DEPARTMENT.—Feed Ground, Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v20-6m

---

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,
26 611 and 613 Front street.

F. SCHOENER,
METAL SPINNER.

All kinds of Metal spun to order. Give me a call at No. 10 STEVENSON STREET, fourth story Pioneer Mills. 14v20-3m

---

California File Manuf'g Co.
437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.
REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

At a saving of 60 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

---

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

---

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
GOLD PENS REPAIRED. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

---

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

Metallurgy and Ores.

S. W. HOWLAND. J. W. THURMAN.
S. W. HOWLAND & CO.,
Crushers and Samplers
— OF —
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

☞ All work done at the shortest notice. All orders promptly attended to.

REFERENCES—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co., Assayers. 7v20qy

---

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street. San Francisco

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES. Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

---

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
☞ Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE..............................Manager.
J. A. MARS.......................................Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Stree , near First.

Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

---

ICE! ICE!
At Lower Prices than Ever Before Sold.
SUMMIT VALLEY ICE CO.,
No. 261 First Street, near Folsom.
Office at the Miners' Foundry.
J. L. MOULTHROP, - - - - - - - AGENT.
☞ Office open at all hours of the day, 14v20-1m

THE FIREMAN'S
FUND
INSURANCE COMPANY.
OFFICE,
S. W. Corner California and Sansome Streets,
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL	$500,000 00
SURPLUS	267,115 63
TOTAL ASSETS	$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
13v20-3m CHAS. R. BOND, Secretary.

OCCIDENTAL
Insurance Company,
OF SAN FRANCISCO.
Cash Capital, - - - - - - - $300,000
GOLD COIN.
Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.
All Losses paid in U. S. Gold Coin.
A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

United States Mutual Benefit Co.
OF NEW YORK.
Capital, - - - - - $125,000.00.
Benefit for $5,000 secured for $10.
Benefit for $2.500 secured for $6.
HOWARD & HOWE,
GENERAL AGENTS FOR THE PACIFIC COAST.
No. 338 Montgomery street, corner California, Room 7.
☞ Agents Wanted. ☜ 14v20-3m

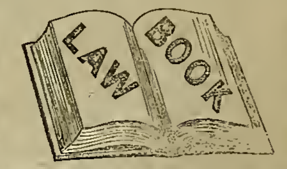
SOMETHING NEW
— FOR —
MINERS AND FAMILIES.
EAKINS'
EGG SUBSTITUTE.
TRADE MARK.

One Can equal to three dozen Eggs,
And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.
Price, 35 Cents per Can.
MANUFACTURED BY ADAMS & CO.,
423 WASHINGTON STREET.

HEATHFIELD, BOOEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

---

Agents Wanted for Chamberlin's New



FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

---

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the **WEED** Machines work *easier, simpler faster* and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO $500

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

Report of Samuel S. Fisher, Commissioner of Patents.—1869.

[CONTINUED FROM PAGE 218.]

Appeals.

[Under this head the Commissioner makes some plain statements regarding the law permitting appeals to be taken to the Supreme Court of the District of Columbia, after a case has already been appealed to a second examination and considered by the First Examiner, to the Examiner-in-Chief, and to the Commissioner, after it is taken from the Patent Office. Conflicting opinions at different times are made by the Judges of the Court. Several ridiculous and mischievous decisions are cited, showing a conflicting system of judgments, which is a growing evil, and calls for abatement. The Act of March, 1869 provides "that the applicant may file a bill in equity in any Circuit Court, having cognizance thereof, 'where patents are refused for any reason whatever, either by the Commissioner of Patents or by the Chief Justice,' and the complainant may obtain a decree authorizing the Commissionor to issue the patent," and we think the Commissioner's recommendation that the appeal to the first named court is a good one.—EDS.]

Drawings.

No part of the machinery of the Patent Office is of more value than the drawings. It is to these, as has been stated, that reference is made by the Examiner, in order to determine the novelty of every new application. Models may be altered, or broken, but the drawings remain unchanged. Under the law, the applicant furnishes one drawing for the use of the office. These are carefully preserved in portfolios, where they can be readily examined. Some of these drawings have been in the office over thirty years. They are handled every day, and have become much soiled and worn; some are nearly destrowed, and all soon will be. Some provisions for their reproduction *must* be made, or the present system of examination must be abandoned. Indeed, under any system, there must be something in the office by which new applicants and the public may known what drawings have been attached to the patents that have been already issued; and whether it be examined by attorneys, or by sworn officials, a single copy of a drawing will soon become worn and useless.

Besides this, as there is but one copy of the drawing in the office, it must be used upon all occasions. It is frequently taken to the examiner's room; it is taken to the room of the examiner-in-chief; it is used before the Commissioner, and must go to the appellate judge. It must be withdrawn from the portfolio whenever a copy is ordered or an applicant wishes to examine a reference.

This multiplies the chance of loss and of destruction, and, what is of more importance, it increases the risk of examination; since the very drawings which anticipates a new application and shows the alleged invention to be old, may not be in the portfolio when the examination is made.

To remedy these evils and provide against the gradual but inevitable destruction of the drawings, at least ten copies should be prepared: one for the use of the examiners; one for the record room where the specifications are kept, and where it would be accessible to the public; one for the library; two for the English patent office, in return for the duplicate set of printed specifications and drawings furnished to us; and five for sale, when copies are ordered.

The English, French, Italian and Belgian governments engrave the drawings of all patents at a considerable expense, and are, in this particular, in advance of this country.

At the beginning of this present fiscal year, as no special appropriation was made for this purpose, and necessity was so urgent, I availed myself of the general authority of the Commissioner to provide copies of the drawings, and of such sum as it was believed might be saved from the amount appropriated for contingent expenses, and entered at once upon the work of reproduction.

For ten copies of the drawings to be furnished weekly, photography appeared to offer the cheapest and surest method. A contract was made in June last, with Messrs. Peters & Rehn, upon terms advantageous to the office, and the weekly issues have been regularly photographed ever since. The quality of the copies thus produced has steadily improved as difficulties have been overcome, and the work has become more familiar; until it is now performed in the most satisfactory manner both to the office and the public.

During the year experiments have been made in other methods of engraving and printing the drawings.

The American Photo-lithographic Company offered, if tracings were furnished, to supply, free of further cost to the office, ten lithographed copies of each of the fourteen hundred drawings of patents granted during the month of June, 1869. This proposition was so favorable that it was at once accepted, and the work has been done in a very creditable manner.

The firm of French, Langran & Ogilive, of this city, made an offer for the drawings of May, 1869, at a nominal price, which was also accepted, and the work, which has thus far been well done, is now nearly completed.

The experiments have led to the conclusion that, for a few copies for office use, photography is the cheapest process, while for a large edition; either for the back drawings or of the current issues, lithography or photo-lithograpy must be employed. An appropriation has been asked for, to make this business of reproduction a prominent feature in the office work.

[TO BE CONTINUED.]

Water Meters.

We've been excited here in San Francisco of late more about the method of getting our water supply than concerning the manner of measuring it. The latter topic has been occupying the minds of many at the East, and came up before the New York Society of Practical Engineering, at their meeting on the 16th ult., and the salient points brought out at the time are communicated to us by the President, Mr. J. A. Whitney:

Measuring the volume of water passing through a pipe would appear to be an easy thing, but that it is not so is proved by the hundreds of devices for the purpose which have been invented and laid aside, and the acknowledged defects of the comparatively small number which have gained even a minor share of public patronage; yet the demand for a perfect meter is very great. In the United States and Canada there are probably a hundred cities and towns with water-works costing in the aggregate one hundred millions of dollars, and in each of which the supply is wasted in the most reckless manner. In New York city the quantity furnished to each user daily is from sixty to seventy gallons, but, notwithstanding this abundance, the waste during the past summer led temporarily to the disuse of water for washing the streets.

Different Kinds Used and Their Defects.

The essential requisites of a practical water meter are cheapness, accuracy, and capability of being attached, not at the faucets, which would require too many meters in a house, but to the main supply-pipe. Among cheap meters are: Screw meters, which act somewhat on the principle of a turbine wheel, with a registering mechanism attached to the stem or shaft; diaphragm meters, in which the water is measured alternately in each of two chambers, divided by a flexible diaphragm, which latter, by its movement to and fro, serves as a substitute for a piston, and also actuates suitably arranged valves, as well as the recording devices; and rotary meters, which are simply small rotary engines, furnished with registering clockwork and dial, and run by the current of water instead of steam. Of these the screw and rotary ones are defective, in that a portion of the water leaks past the screw or rotary piston, as the case may be, and fails to be recorded. The diaphragm meters wear out quickly, the bending of the diaphragm to and fro soon destroying its integrity. Piston meters, more largely used than any other, have too much friction, and are not accurate under varying pressures. Differential meters measure a part of the water, and the proportion of this being known the entire quantity passed through the meter is estimated. This differential system has been applied to screw meters by making, say two per cent. of the water pass through a small turbine connected with an index apparatus; by multiplying the quantity thus recorded by fifty the whole quantity would be shown. This, however, possessed the double defect of not registering all the water that passed through the small meter, and of difficulty in exactly proportioning the size of the smaller to that of the larger division of the water.

Dr. Hall's Experiments.

At the regular monthly meeting of the New York Society of Practical Engineering, held in the Cooper Union, Wednesday evening, March 16th, Dr. A. W. Hall described a series of experiments undertaken with a proportionate meter on a different principle. These tests had extended over a period of two years, and had cost about two thousand dollars. The result was that the plan, except for cheap faucet meters, was given up for the screw system, which the writer believed could be made accurate and durable by making the body of the screw hollow to bring its specific gravity very near that of the water, so as to diminish weight and wear upon the bearings, and by so arranging the parts that any flow of water, aside from the screw, would be so retarded as to be practically nullified, by which means, he claimed, the entire quantity would be made to act upon the vanes of the screw, and through them upon the registering device.

The proportionate or differential meter experimented with was constructed with two valves, actuated simultaneously to divide the water into two streams of definite proportions. The smaller stream flowed to a small dumping meter, where it was measured, and, being duly registered, indicated the entire quantity. The ratio of water passed by the two valves varied, however, under different pressures, and when a pressure equalizer was applied to remedy this, small particles of dirt obstructed the orifice of the small valve, and spoiled its working. Furthermore, the extra expense of a pipe to carry away the water from the measuring or dumping meter made the cost too much. From the above it will be seen that the solution of the meter question is yet a good ways off, and the device really needed has not yet been made.

◆

ON THE WAR TRAIL.—The citizens of South Pass, Wyoming, have formed two mounted companies to avenge the death of the miners murdered lately by the Indians.

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

LAYRES' ELEMENTS OF COMPOSITION.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

ABSOLUTE DIVORCES legally obtained in New York, Indiana, Illinois and other States, for persons from any State or country, legal everywhere; desertion, drunkenness, non-support, etc., sufficient cause; no publicity; no charge until divorce obtained. Advice free. Business established fifteen years.
Address, M. HOUSE, Attorney,
14v20-3m No. 78 Nassau street, New York City.

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful Institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block San Francisco. 24w

TREATMENT OF REBELLIOUS SILVER ORES, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

BUSINESS FORTUNES are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

PHOTOGRAPHY.—FOR CABINET PHOTOGRAPHS, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 5m B. F. HOWLAND.

The Portable Gas-Burner at 550 Market street, R. J. Phillips & Co., is the only burner that can be properly regulated so as to give any quantity of light desired without smoke or smell. County Rights for sale. *

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

MICROSCOPES for Scientific Investigation and Educational Purposes. Price list sent free. T. H. MCALLISTER, Optician, 49 Nassau street, New York. 15v20-3m

SURVEYORS can have their instruments repaired at C. Muller's, 205 Montgomery street. *

F. GRUBER, NATURALIST, No. 626 California street, between Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

New Mining Notices.

Alameda Coal Mining Company, San Francisco and Alameda Counties, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the sixteenth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
F. T. McMahon	43	25	$7 80
Louis Peres	102	25	7 50
Louis Peres	103	25	7 50
I. Veillcr	254	10	3 00
I. Veiller	255	10	3 00
I. Veiller	256	10	3 00
I. Veiller	279	50	15 00
I. Veiller	289	78	23 40
I. Veiller	299	5	1 80

And in accordance with law and an order of the Board of Trustees, made on the sixteenth day of February, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by Maurice Dore & Co., on the twenty-second day of April, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

M. PHILIPP, Secretary.
Office, 409 Battery street, San Francisco. apr2

POSTPONEMENT.—The above sale is hereby postponed until Saturday, the thirtieth day of April, 1870, at the same hour and place. By order of the Board of Trustees.

apr9 M. PHILIPP, Secretary.

Glenwood Mill and Mining Company.—Location of Works: Greenwood, El Dorado County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the fourth day of February, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Balch, S M	not issued	70	$17 50
McCarthy, M	not issued	70	17 50
Sharp, W H	not issued	70	17 50

And in accordance with law, and an order of the Board of Trustees, made on the seventh day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, on the twenty-seventh day of April, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. D. SQUIRE, Secretary.
Office, 418 California street, San Francisco. apr9

Kincaid Flat Mining Company, Tuolumne County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the fourth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
Ira P Rankin	33	10	$25 00
Ira P Rankin	34	10	25 00
Ira P Rankin	55	5	12 50
Ira P Rankin	99	5	12 50
James Nelson	31	10	25 00
James Nelson	32	10	25 00
Wm A Quarles	15	10	25 00
Wm A Quarles	16	10	25 00
S Card	10	10	25 00
S Card	39	5	12 50
Robert Chrlsty	41	10	25 00
N Gartner	64	5	12 50

And in accordance with law and an order of the Board of Trustees, made on the fourth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of S. L. Jones & Co., auctioneers, 207 and 209 California street, San Francisco, on the twenty-third day of April, 1870, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.
Office, 220 Clay street, San Francisco. apr9

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

NOTICE.—There are delinquent on the following described stock, on account of assessment (No. 1) levied on the eighth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
I I Herr	unissued	2000	$50 00
R P Johnson	unissued	2000	50 00
H C Kihbo	unissued	2000	bal. 30 00
Thos G Taylor	unissued	2000	50 00

And in accordance with law and an order of the Board of Trustees, made on the eighth day of February, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room No. 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the fifth day of April, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.
Office, Room 5 No. 302 Montgomery street, San Francisco, California. mar19

POSTPONEMENT.—The above sale is hereby postponed until Tuesday, the nineteenth day of April, 1870, at the same hour and place. By order of the Board of Trustees.

ap9 WM. H. WATSON, Secretary.

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the second day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
L A Booth	12	40	$160 00
L A Booth	13	40	150 00
L A Booth	14	40	160 00
L A Booth	18	20	80 00
L A Booth	20	100	400 00
L A Booth	22	120	480 00
Joseph Sedgley	24	40	160 00
E B Mott, Jr.	27	40	150 00
J M Shotwell	29	40	150 00
Joseph T Sanhorn	33	20	80 00
Newton Booth	35	80	320 00
John O Earl	36	120	480 00
N D Burlingham	40	100	400 00

And in accordance with law and an order of the Board of Trustees, made on the second day of March, 1870 so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of John Middleton & Son, No. 310 Montgomery street, San Francisco, on Thursday, the twenty-eighth day of April, 1870, at the hour of twelve o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. A. JENNINGS, Secretary.
Office, 419 California street, San Francisco, California.

Yosemite Silver Mining Company, Humboldt County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the seventh day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm H Hedges	49	5	$ 5 00
Wm H Hedges	60	15	15 00
N M Hedges	61	35	35 00
L F Rowell	116	14	14 00
S Rosenthal	118	10	10 00
S Rosenthal	137	10	10 00
James Manning	119	20	20 00
E H Levy	152	10	10 00

And in accordance with law and an order of the Board of Trustees, made on the seventh day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of S. L. Jones & Co., auctioneers, 207 and 209 California street, San Francisco, on the twenty-third day of April, 1870, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary pro tem.

Office, 220 Clay street, San Francisco. apr9

Mining Notices--Continued.

Alban Gold and Silver Mining Company.—

Location of Works: Virginia City, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of March, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, or to GEO. BONDWELL, ESQ., President of said Company, at his office, No. 432 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Monday, the twenty-fifth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fourteenth day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. B. SMITH, Secretary.

Office, 432 Montgomery street, San Francisco. m26

Eagle Quicksilver Mining Company.—Location of Works: Eagle Mining District, Santa Barbara County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of March, 1870, an assessment of twenty dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 26 Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the sixteenth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.

Office, Room 26 Hayward's Building, 419 California street, San Francisco. mar19

Green Monster Copper, Gold and Silver Mining Company, Inyo Mining District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of March, 1870, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold or silver coin, to the Secretary, at his office, No. 16 Montgomery Block, San Francisco.

Any stock upon which said assessment shall remain unpaid on Saturday, the sixteenth day of April, 1870, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on Monday, the second day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

I. N. THORNE, Secretary.

Office, No. 16 Montgomery Block, San Francisco. m12

Latawana Mining Company.—Near Hamilton City, White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of March, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, or at 526 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the tenth (10th) day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. mar26

North San Francisco Homestead and Railroad Association:—Location of Property: City and County of San Francisco, State of California.

NOTICE.—There are delinquent upon the followed described stock, on account of assessment levied on the ninth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B F Moulton	281	1	$7 50
John A Zoller	60 226	5	37 50
Prosper Huerne	98, 99 100	6⅔	50 00
Jno G Klumpke	143, 145 288	52	390 00
R Bayerque	146	30	225 00
Geo H Ensign	179 344	457⅓	3430 00
J B Richardson	246	10	75 00
M O'Neill	296	2	15 00
J G Shepherd	354	1200	9000 00
J W Hendrie	351	547	4102 50

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the fourteenth day of April, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessments thereon, together with costs of advertising and expenses of sale.

EDWARD O. LOVELL, Secretary.

Office, 415 Montgomery street, San Francisco. mar26

Pacific Pneumatic Gas Co.—Notice.—

A meeting of the stockholders of the Pacific Pneumatic Gas Company will be held at the office of the Pacific Iron Works, in San Francisco, on the FIRST DAY OF MAY, 1870, at 1 o'clock P. M., to consider the proposition to reduce the capital stock of said Company to the sum of two hundred and fifty thousand dollars ($250,000).

IRA P. RANKIN,
J. J. FELT,
J. W. STOW,
A. P. BRAYTON, } Trustees.

mar26

New Advertisements.

ECONOMY AND CLEANLINESS

Are to be found in the use of the

PATENT SPRING BED.

They are the cheapest and best in the market. Manufactory on Twelfth street, bet. C and D, SACRAMENTO. Caveat filed Aug. 9, 1869. [15v20] G. B. DEAN.

Pacific Bank.

PETER H. BURNETT..........President.
FORD H. ROGERS..........Cashier.

REMOVED

To its new Banking House, northwest corner of Sansome and Pine streets.

O. P. SUTTON, Secretary.

San Francisco, March 30, 1870. 15v20-3m

FIRE PROOF

— AND —

Fire and Burglar Proof Safes.

J. J. DUNN,

NOS. 317 AND 319 BATTERY STREET,

Sole Agent for JONATHAN KITTRIDGE'S

Fire Proof and Fire and Burglar Proof Safes.

Constantly on hand a large assortment of Fire Proof and Fire and Burglar Proof SAFES. Also the celebrated MONITOR SAFES. Steel Lined Bank Vaults, Silver Safes, and Safes of every description, made to order. SAFES REPAIRED, and furnished with new Combination Locks.

New Safes exchanged for second-hand ones. Safes let by the month on reasonable terms. An assortment of the most approved COMBINATION BANK LOCKS.

15v20-1am-3m

Restore your Sight!

SPECTACLES RENDERED USELESS.

Failing Sight from age and other causes restored and preserved by

DR. STEVENS & CO'S

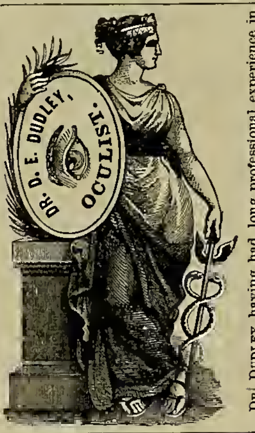
EYE-SIGHT RESTORER.

This simple and wonderful mechanical invention is applied by suction directly to the eye, bringing the sight to a natural focus and restoring the Cornea to its original convexity. We have certificates of recommendation from eminent physicians, oculists, divines and others in the East, and from many on this coast. Among the latter, the most of whom are known by the city agent of the Scientific Press, we give the names of Mrs. Rev. James Wood, 801 Union street; Mrs. Sutherland, 123 Ninth street; Mr. T. C. Boyd, 133 Kearny street; Mrs. J. B. Hoyt, Suisun City.

M. A. SUYDAM, Sole Agent,

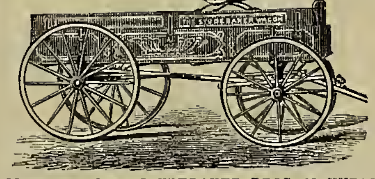
No. 20 Geary street, San Francisco, at Dr. Benton's rooms.

☞ Also Cornea Flatteners for cure of Near-Sightedness. 15v20


DR. D. E. DUDLEY, OCULIST.

DR. DUDLEY, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: McFadden's Block, corner Montgomery and Market streets. Se habla Español. On parle Français. 15v20

The Celebrated Studebaker Wagon,



Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

FIRST.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover. SECOND—They are made by experienced mechanics. THIRD—The lightest running and most durable Wagon in the market. FOURTH—Their Thimble Skeins never break, while all others do. FIFTH—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not. SIXTH—The only Wagon in which the SLOPE SHOULDER SPOKE is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying. SEVENTH—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction. EIGHTH—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road. NINTH—Last, but not least, Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others.

Sold by COPELAND & DEFREES, K street, between Seventh and Eighth, SACRAMENTO, CAL. ☞ PIONEER AGENTS FOR THE PACIFIC COAST. 15v20-3m

Railroads and Steamers.

SHORT ROUTE.

CALIFORNIA PACIFIC RAILROAD & STEAMER NEW WORLD VIA VALLEJO.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
8:00 A. M. 3:30 P. M.	12:50 P. M. 7:15 P. M.	12:15 P. M. 7:50 P. M.	2:00 P. M. 9:00 P. M.
ON SUNDAYS.			
9:00 A. M.	12:30 P. M.	1:00 P. M.	3:45 P. M.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
6:00 A. M. 1:00 P. M.	7:45 A. M. 2:00 P. M.	7:15 A. M. 2:45 P. M.	11:45 A. M. 7:00 P. M.
ON SUNDAYS.			
10:30 A. M.	1:30 P. M.	1:30 P. M.	5:15 P. M.

FREIGHT—Leaving San Francisco (by steamer VALLEJO) at 4 P. M.—is carried through greatly in advance of all other lines, at $2.50 per Ton to Sacramento and $4 per Ton to Marysville.

TICKETS for sale at No. 313 Montgomery street, or on board steamer New World.

D. C. HASKIN, General Manager.

R. S. MATTISON, Superintendent.

Vallejo, April 1, 1870. 13v20-1y

Pacific Mail Steamship Company.—For NEW YORK, VIA PANAMA. PRICES GREATLY REDUCED.

Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

April 2..........CONSTITUTION,
Connecting with Alaska.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

April 1—GREAT REPUBLIC, Capt. Cavarly.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.

13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation COMPANY,

Steamer CAPITAL..........CAPT. E. A. POOLE
" CHRYSOPOLIS..........CAPT. A. FOSTER.
" YOSEMITE.......... — —
" CORNELIA..........CAPT. W. BROMLEY
" JULIA..........CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE, President.

13v12

SPAULDING & BARTO,

BOOK AND JOB PRINTERS,

Scientific Press Office,

NO. 414 CLAY STREET,

CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,

AND

PRINTING OF ALL KINDS FOR BUSINESS MEN

BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,

Neatly, Correctly and Promptly Printed.

MITCHELL & BELL Carpet Dealers 606 Clay St.

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞ Can compete in prices with any other dealer. 11v20-3m

Patent Brokers.

WIESTER & CO.,

PATENT BROKERS,

314 BUSH STREET,

SAN FRANCISCO.

Patents Bought and Sold on Commission.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

BURGESS' PATENT PAPER FILE.

This is a recent patent, and one of no ordinary merit. It is light and complete, yet costs but little. In all file-holders before presented to the public, the papers are very liable to tear, or else the method of inserting them requires too much time and trouble. This device is easily adjusted, is not liable to tear the paper, nor let it loose. This patent is also used in combination with covers for forming music folios. Musicians who have seen it, speak in the highest terms of its value. No person can fully appreciate the Paper File or Music Folio without seeing one.

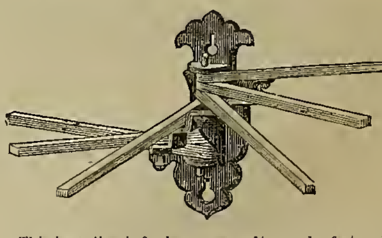
THE RANDALL RAKE.

Here is an article that we take pleasure in recommending. This patent has been for some time on this coast, but for want of means has been allowed to remain comparatively quiet. It will require from four thousand to six thousand dollars to handle this invention successfully on the Pacific Coast, and we would advise any one with this amount of capital to look into the merits of this patent before embarking in other business. We cannot see why it will not eventually supersede all other horse rakes. It does its work completely and is easily operated. It is so constructed that the teeth play on an iron rod independently of each other, and therefore accommodate themselves to any surface. The inclination of the teeth to the surface prevents them from raking up sand and dust with the hay, and causes them to glide easily over the ground. The driver has a spring seat to sit upon, and a simple action of the foot is all that is necessary to drop the hay. A complete model can be seen at our office, or references can be had to parties who have them in use on their farms.

LIGHT.

A Lamp that makes its own gas and burns it. No chimneys are required. It is equal to the best coal gas, and costs fifty per cent. less. Agents get the lamps at manufacturer's prices. This new light can be seen at our office, 314 Bush street, San Francisco. The Right for the State of Oregon will be sold cheap.

HOTCHKISS' CLOTHES DRYER.



This invention is for house use. It can be fastened to the wall with two screws, and removed without taking them out. When not in use the arms can be folded closely against the wall. Each arm has an iron brace to support it. This is really a "good thing in a family." County or State rights for this will be sold very low. Full particulars given on application.

A NEW SEED SOWER,

That can be attached to the Randall Rake at a cost of a few dollars, and is guaranteed to sow as well, if not better, than any other Sower in use.

A neat and convenient CUPBOARD LATCH, that answers equally well for single or double doors. It is suitable for Wardrobes, Wash-stands, Cupboards, etc.

A LOCAL AGENT wanted in every town on the Pacific coast to sell patent goods

WIESTER & CO.,

11v20 314 Bush Street, San Francisco,

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, April 7, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 lbs.; Bar, 1@1⅛c ℔ lb; Sheet, polished, 3c ℔ lb; common, 1⅛@1¾c ℔ lb; Plate, 1⅛c ℔ lb; Pipe, 1⅛c ℔ lb; Galvanized, 2⅛c ℔ lb.

Scotch and Eng. Pig Iron, ℔ ton	$33 00	@$35 00
White Pig, ℔ ton	28 00	@ 30 00
Refined Bar, bad assortment, ℔ lb	— 03	@ — —
Refined Bar, good assortment, ℔ lb	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04⅛
Sheet, No. 10 to 13	— 04⅛	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05⅛
Sheet, No. 24 to 27	— 05	@ — 06⅛

Copper.—Duty: Sheathing, 3⅛c ℔ lb; Pig and Bar, 2⅛c ℔ lb.

Sheathing, ℔ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22

Tin Plates.—Duty: 25 ℔ cent. ad valorem.

Plates, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℔ lb	— —	@ — 42
Steel.—English Cast Steel, ℔ lb	— —	@ — 15
Quicksilver.—℔ lb	— 55	@ — 60
Lead.—Pig, ℔ lb	— 7⅛	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℔ lb	— 10⅛	@ — 11
Borax	— —	@ — 45

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED..........APRIL 30, 1868.
CAPITAL..........$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	Wm. Alvord,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON..........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..........Secretary.
21v17-qy

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

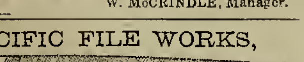
GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings which they offer to the trade on liberal terms.
21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867.
2v17-3m **T. G. DURNING & CO**

R. SAVAGE. R. E. DORAN.

SAVAGE & CO.,
Empire Iron Foundry,

No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices. 9v20-3m

---

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

MACHINERY
—AT—
GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

---

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and **15** Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA TOOL WORKS,
Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.
21v17-qy **J. WEICHHART, Proprietor.**

San Francisco Wire Works,

No. 665 Mission Street, near Third.

SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,

Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

---

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connecions of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL.

PARIS
Scouring and Blanket Cleaning
ESTABLISHMENT.

Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling.* Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

---

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf **414 Front street,** San Francisco.

STEAM
FIRE-PROOF
SAFES

SANBORN'S PATENT.

Perfectly Dry in Use.

ACTUALLY FIRE-PROOF.

GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

☞ Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by ROSS, DEMPSTER & CO.,
106, 107 and 109 California street,
5v20-3m San Francisco.

To Sufferers from Rheumatism.

NOTICE OF REMOVAL.

MR. J. W. MAC,

Master of All Rheumatic Complaints, Weak and Painful Loins or Joints, Neuralgia and Tender Feet,

Is compelled, from his great success for the past five months in this city, to remove to more central and extensive premises,

128 KEARNY STREET,

Where he can be applied to daily for his wonderful (and may be termed magic) PLASTERS. No useless drugging. A discovery made by himself in New Zealand, and first personally tested by himself, having been a great sufferer. The innumerable testimonials awarded him for his marvelous cures since his arrival in this city, and his former services in New Zealand, Tasmania, and Sydney, New South Wales, are open for the strictest inquiry, and may be seen at the office of the "Daily Call," or at his rooms, Nos. 34, 35 and 36,

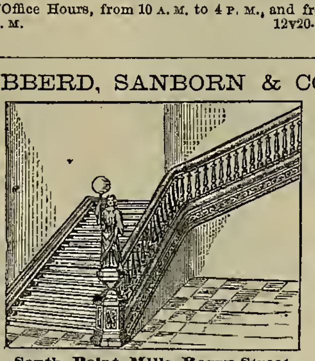
No. 128 Kearny Street, bet. Sutter and Post.

☞ Office Hours, from 10 A. M. to 4 P. M., and from 7 to 9 P. M. 12v20-1m

---

HIBBERD, SANBORN & CO.,

STAIR BUILDERS.



South Point Mills, Berry Street,

Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. C. ALLEN & CO., Augusta, Maine. 5v20-3m

---

USE
DR. S. GIRARD SMITH'S
ARAMIRACULAS
—FOR—
RHEUMATISM, GOUT AND NEURALGIA

CURES GUARANTEED.

Has cured Thousands. Has never been known
One bottle will relieve you.

OFF . 621 KEARRY STREET.

Agents Wanted in every City and Town.—Terms Liberal.

DR. S. GIRARD SMITH, 621 *Kearny street.*—Dear Sir It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

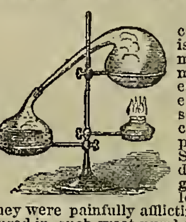
ENON HARRIS,
Everard's Auction Rooms, 527 Kearry street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Ayer's Sarsaparilla,
FOR PURIFYING THE BLOOD.



The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this *SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears,* and other eruptions or visible forms of *Scrofulous* disease. Also in the more concealed forms, as *Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia,* and the various *Ulcerous* affections of the muscular and nervous systems.

Syphilis or *Venereal* and *Mercurial Diseases* are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. *Leucorrhœa* or *Whites, Uterine Ulcerations,* and *Female Diseases,* are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. *Rheumatism* and *Gout,* when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also *Liver Complaints, Torpidity, Congestion* or *Inflammation* of the *Liver,* and *Jaundice,* when arising, as they often do, from the rankling poisons in the blood. This *SARSAPARILLA* is a great restorer for the strength and vigor of the system. Those who are *Languid* and *Listless, Despondent, Sleepless,* and troubled with *Nervous Apprehensions* or *Fears,* or any of the affections symptomatic of *Weakness,* will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 7v20eow-4m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, March 19, 1870.

IRON.

Pig, Scotch, No. 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No. 2................	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common.............................	87 50	@	92 50
Refined............................	95 00	@	— —
Rods...............................	100 00	@	155 00
Horse-shoe.........................	115 00	@	— —
Hoop...............................	125 00	@	180 00
Scroll.............................	110 00	@	145 00
Nail-rods, per lb..................	— 8¼	@	— 9¼
Spring.............................	— 9¼	@	— —
Tire...............................	— 9¼	@	— —

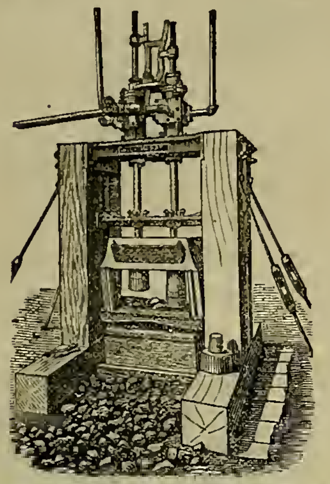
STEEL.

Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast.....................	— 23	@	— —
Sheet, second quality................	— 20	@	— —
Sheet, third quality.................	— 18	@	— —
Saw-plates, circular.................	— 27	@	— —
Double-shear, warranted..............	— 23	@	— —
Single-shear.........................	— 19	@	— —
Montague & Co. (cast bars)...........	— 18	@	— —
Machinery, round.....................	— 16	@	— —
German, best.........................	— 16	@	— —
German, goat.........................	— 13½	@	— —
German, eagle........................	— 12	@	— —
Blister, warranted...................	— 16	@	— —
Blister, common......................	— 15	@	— —
Jessop & Sons', common...............	— 17	@	— —
Double-refined.......................	— 26½	@	— —
Stone-ax shapes......................	— 26½	@	— —

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

☞ The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELL, Agent,
Nevada City, California,

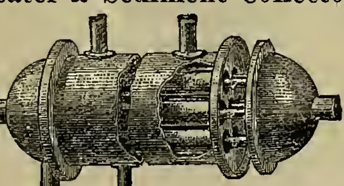
Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

CROSS' COMBINED

Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal

Crandall's Patent Spring Bed.

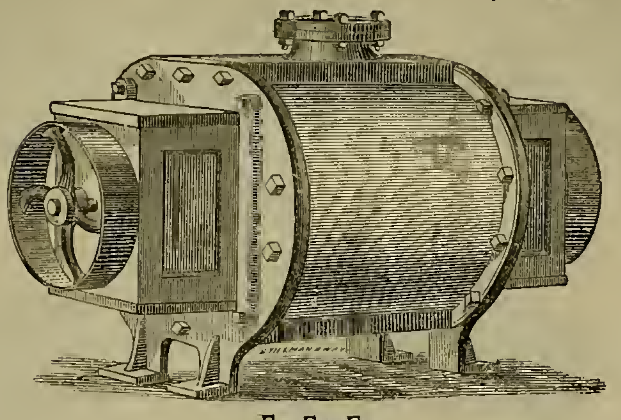
Manufactory, corner Front and M streets, Sacramento COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

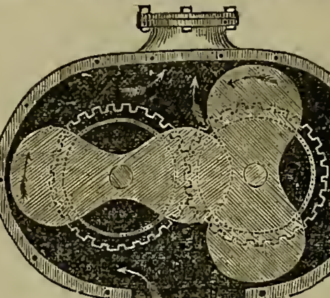
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** LESS POWER Than any Blower Now in use.

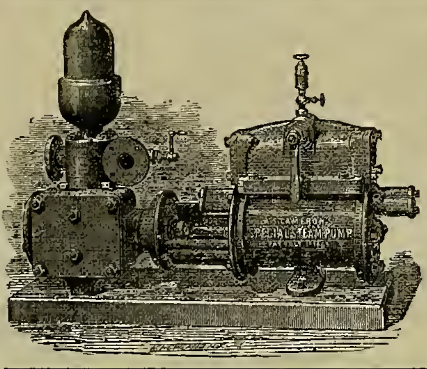
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

GIFFARD'S
INJECTORS.

MARINE
ENGINES.

SURFACE
CONDENSERS.

DAVID STODDART,
4 BEALE STREET.

Rails, Newel Posts,

AND BALUSTERS,

Constantly on hand for sale, and shipped, together with all kinds of

STAIR WORK,

To any part of the coast. Practical workmen sent, when desired, to put up the same.

Work Warranted to Fit

by simply sending a correct ground plan of stairs, together with hight of story.

Wood-Turning and Scroll Sawing of all kinds promptly executed.

☞ Spanish Cedar, Walnut and California Laurel always on hand for sale.

Langland & Cameron,
STAIR BUILDERS,
309 Market street,
And 485 and 487 Brannan street,
SAN FRANCISCO.
16v16-1y

VARNEY'S PATENT AMALGAMATOR,

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, **229** Fremont street,
1v1 San Francisco.

Scientific Press.—Dewey & Co. are the publishers of this sterling paper. It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican*

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

Caution.—All persons are hereby cautioned against using, or sending to others to be used, Governors for Steam Engines operated by direct action of the springs upon their arms, as such application of the springs is my invention, secured to me by Letters Patent of the United States, issued Jan. 12th, 1869.

G. T. PRACY.
San Francisco, March 24th, 1870. 14v20-1m

WHOLESALE DEALERS IN

DRUGS, CHEMICALS,

Patent Medicines,

DRUGGISTS' SUNDRIES,

TILDEN & CO'S

SOLID AND FLUID EXTRACTS,

Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.

SAPOINE
FRAGRANT SAPOINE FOR THE TEETH

THE GREAT MEDICAL DISCOVERY!

Dr. J. Walker's California

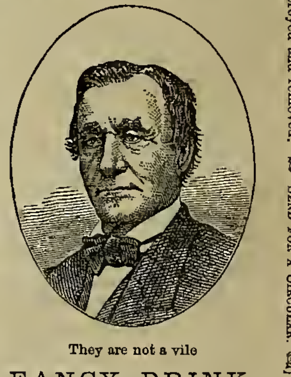
VINEGAR BITTERS.

More than 500,000 Persons

Bear testimony to their wonderful Curative Effects.

WHAT ARE THEY!

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ Send for a Circular. ☜



They are not a vile

FANCY DRINK,

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, free from all alcoholic stimulants. They are the GREAT BLOOD-PURIFIER and LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition. No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

R. H. McDONALD & CO.,

Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞ SOLD BY ALL DRUGGISTS AND DEALERS.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.
Thomas Poyzer—California.
John Pennycook, Jr.—Contra Costa, Solano and Napa.
Philo B. Fox—Napa, Sonoma and Mendocino.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J. street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orabood.
Central City, O. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, O. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hudson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number.

WONDERFUL Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

To Owners of Horses.

WATSON'S EUREKA SYSTEM.

A GREAT IMPROVEMENT IN SHOEING. Lame, tender or flat-footed horses put in good condition to travel over any cobble stone pavement in the City, in from one to four months. In nine cases out of ten, of what is called Lame Shoulder, Chest Founder and Corns, it is no more or less than the result of bad shoeing, therefore, this system, which is based on scientific principles and practice, remedies the above, and is particularly adapted to all horses working on hard or rough roads, as it keeps the feet sound in all seasons. Quarter crack in any stage cured. No bar shoes used after one or two months. Charges same as other shops. Watson's Eureka Shoeing Shop, Main street, between Mission and Howard. 14v20

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes.
H. M. RAYNOR,
57 Bond street, New York.
Platinum Scrap and Ore purchased. 15v20-1y16p

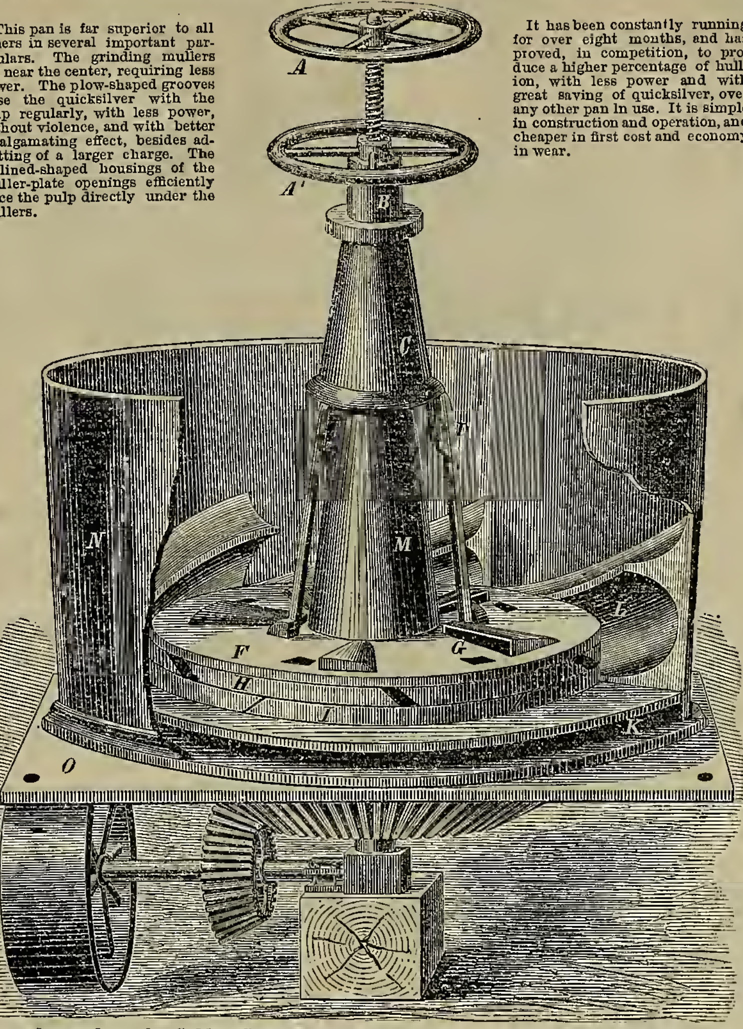
LOST.

Between Market street and the corner of Clay and Montgomery streets, a linen tracing of mechanical drawings representing an amalgamating pan. The finder will be rewarded with one year's subscription to the SCIENTIFIC PRESS—the most valuable illustrated weekly on the Pacific coast—by leaving the drawings at 414 Clay street,
DEWEY & CO.,
U. S. & Foreign Patent Agents.

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.

It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.



Manufactured at the Golden State Iron Works (Co-operative). 19 First street, S. F.,
Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, Gold Hill, State of Nevada, where the Pans have long been in constant operation. 15v20-1mr,1amtf

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.
THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.
9v20-qy16p

Carmen Island Salt Works

MANUFACTURE AND OFFER FOR SALE
TABLE, DAIRY, COARSE-FINE,
CARMEN ISLAND ROCK,
AND LIVERPOOL COARSE AND FINE
SALT.

Dealers and Packers supplied in quantities to suit, at the lowest market prices.

MILL, 249 STEWART STREET.
HOLLADAY & BRENHAM, Agents,
11v20-3m 325 Front Street, San Francisco.

ENGRAVING ON WOOD

DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully; H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology, and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v16-1y16p

W. T. GARRATT & CO.

CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

—IMPORTERS OF—
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
—ALSO AGENTS FOR—
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY.
54 K Street, Sacramento.
7v20-ng

WILCOX'S

PATENT STEAM
WATER LIFTER.
Requiring no Engine.

Send for circular containing full explanations, price list, testimonials and references.

M. & A. WILCOX,
15v20-3m-nbxh 74 K street, Sacramento.

N. W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, Made of Fullen Rawhide, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

THE CALIFORNIA

Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:

JAMES T. DEAN.............................President.
JAMES MILBURN.............................Secretary.
RODGERS, MEYER & CO.....................Treasurers.

Company's office, 121 Post Street, San Francisco.
12v20-3m

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

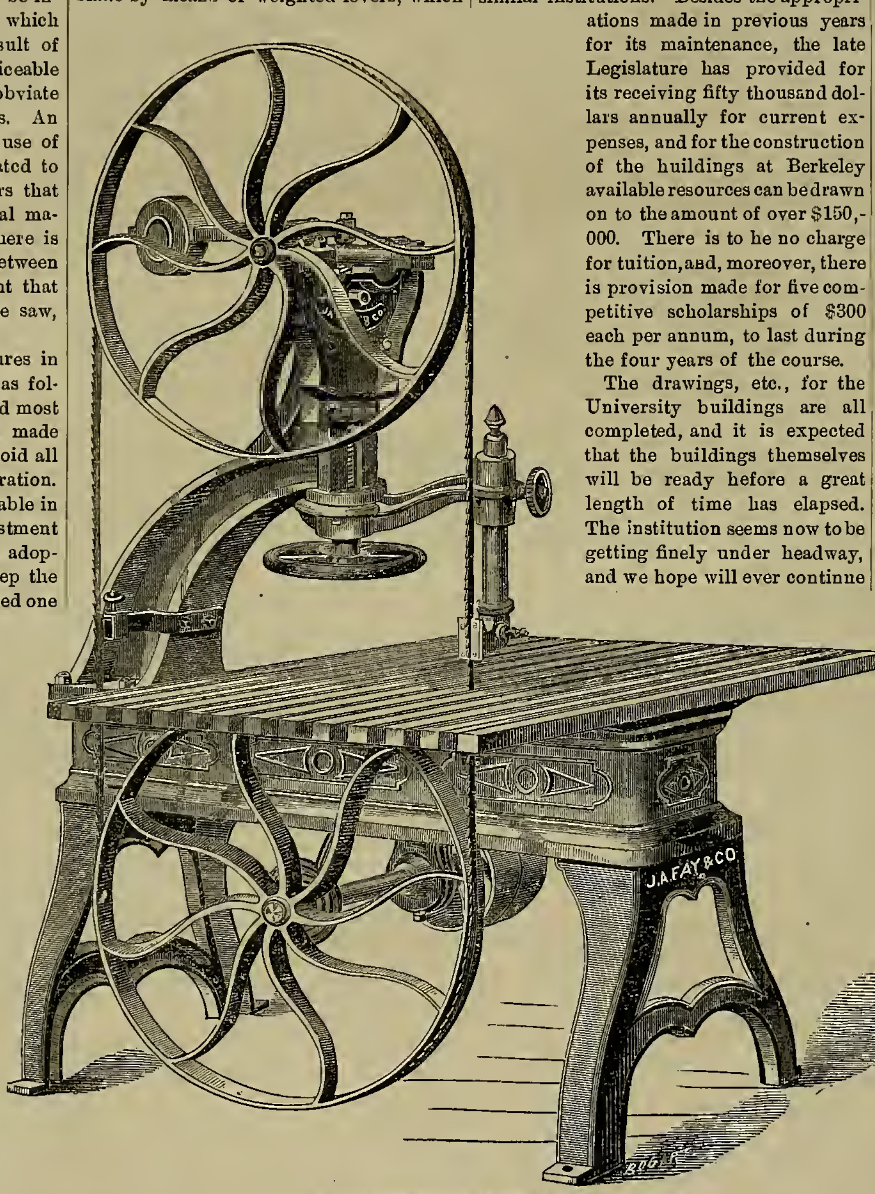
San Francisco, Saturday, April 16, 1870.

VOLUME XX.
Number 16.

Improved Band Sawing Machine.

Among the sawing machines presented to the public there are many defective ones, a number which are very fair, and several very good ones. Among those which appear to have good claims to be included in the last class is the one which we illustrate to-day. It is the result of years of effort, and has several noticeable peculiarities, which are claimed to obviate many drawbacks of other machines. An experience of fifteen years in the use of these saws in Europe has demonstrated to the satisfaction of the manufacturers that no other than a heavy and substantial machine can operate successfully. There is so much elasticity in the frame between the shafts where the framing is light that an undue strain is necessary on the saw, causing it to break.

Some of the distinguishing features in this machine may be enumerated as follows: The frame is very heavy and most substantial in all its parts, being made wholly of iron and steel, so as to avoid all vibration or trembling when in operation. The lower or driving shaft is adjustable in all directions. A want of this adjustment in ordinary band saws has led to the adoption of flanges on the wheels, to keep the saws in place. Such flanges have proved one of the most frequent causes of broken saws. The top wheel is adjustable independent of the guides, and has a range of 12 inches in its movement. The strain upon the saw is made *constant* by means of weighted levers, and is not affected by the adjusting screw. The new frictionless guides consist of a combination of rollers for the back and adjustable lateral guides for the sides of the saws. These guides are formed of hardened steel-plates, about 3-16ths inch thick, and are placed just below the table, and from their nature are very durable. While the friction common to fixed guides is avoided, these steel guide-plates can be so adjusted as to clip the sides of the saw as tightly or as loosely as may be desired, and, when adjusted, are secured in their position by screws passing through slots formed in them. In these guides the thrust of the saw due to the work being forced against it, is received by the steel roller on the back, and gives rise to roller friction only, so that the back of the saw is not heated, and there is no buckling caused by unequal expansion of the two edges of the saw-blades. This arrangement, it is claimed, renders the machine particularly desirable for cutting thick timber. A machine with these improvements, it is stated, has been operated constantly for two months, reducing the single saw used one-half by wear without any apparent tendency to fracture, and with much less power than with fixed guides, which amounts in some cases to a resistance equal to the sawing. Indeed, it claimed that there is no reason why a saw fitted in this manner may not be worn out without breaking, if properly taken care of. Provision is furthermore made for maintaining an even tension on the saw-blade by means of weighted levers, which are not affected by the adjusting screw, which is also indispensable.



J. A. FAY & CO'S IMPROVED BAND SAWING MACHINE.

This saw is coming largely into use in the East, and the great facility, ease of operating, and very large amount of work which can be done on it, makes it a valuable machine in any planing mill or wood-working shop. It is furnished with English, French or American saw-blades. The machine was patented in June, 1868, by J. A. Fay & Co., of Cincinnati, Ohio, by whom it is manufactured. It may be seen at the machine warerooms of Berry & Place, 112 and 114 California street, in this city, who are the manufacturers' agents, and who will doubtless be pleased to give any further information in regard to it.

The University.

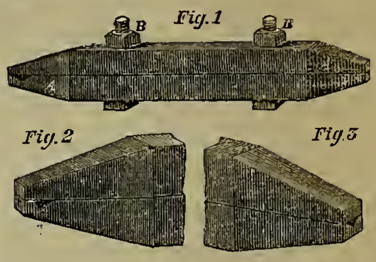
It is to be hoped that our State University will be able now to flourish without the impediment of dire want of necessary funds, which is usually such a drag on similar institutions. Besides the appropriations made in previous years for its maintenance, the late Legislature has provided for its receiving fifty thousand dollars annually for current expenses, and for the construction of the buildings at Berkeley available resources can be drawn on to the amount of over $150,000. There is to be no charge for tuition, and, moreover, there is provision made for five competitive scholarships of $300 each per annum, to last during the four years of the course.

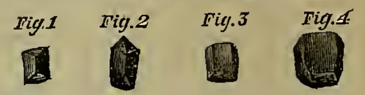
The drawings, etc., for the University buildings are all completed, and it is expected that the buildings themselves will be ready before a great length of time has elapsed. The institution seems now to be getting finely under headway, and we hope will ever continue prosperous. In this connection we may speak of the very interesting course of lectures which have been delivered at Oakland this winter by the professors of the University. These, although most instructive and entertaining, have been but sparely attended. The last one was by Professor Fisher, on the "History and Properties of Gunpowder," and was illustrated by some very beautiful experiments. If Oakland people would attend the lectures once, they would see what they now miss by their absence.

The Board of Regents are to hold a special meeting on June 3d for the election of a President for the University.

Dickinson's Patent Adjustable Tool for Holding Carbon Points.

In the scale of hardness for minerals, the diamond stands the highest, and is, therefore, able to cut all others. This quality has long led to its more or less extended use in the arts; but a serious drawback to its general application has been its cost. The black diamond, however, being valueless as a gem, is comparatively cheap, and being just as useful for the arts, is coming largely into use, and is now employed in very many ways for cutting and dressing a great variety of articles.





The firm of Dickinson has long been engaged in preparing diamonds for such purposes, the business descending from father to son, we are informed. We give an illustration of a tool patented by the present head of the house, for securely holding the diamond in a proper position. Fig. 1 shows the holder, Figs. 2 and 3 being merely the two ends of the same in such a position as to show more clearly the cavities for holding the diamond.

The other figures show some of the carbon points, as they are called in preference, which are quite commonly used. No. 1 is a prismatic point for turning grindstones, emery wheels, etc. No. 2 has an acute point for truing calender paper rollers, etc. No. 3 is used for cutting or sawing stone, for facing or edging ring or cylinder drills and circular saws. No. 4 is for drilling stone, glass, etc.

These points and tools are coming rapidly into use, and growing in favor among machinists and others in all parts of the country. Any information with regard to them may be obtained by applying to John Dickinson, 64 Nassau street, New York.

◆

A Bird Story.—An Eastern paper says that among the Sandwich Mountains in New Hampshire there is a deep glen, thickly covered with evergreens, on the tops of which trees the snow lodges, shutting out the cold winds as well as the light. This secluded spot has been found to be the winter residence of thousands of New England robins, who prefer somewhat restricted quarters at home to southern migration.

Communications.

Mills and Mines of Colorado.—Concluded.

BY ALMARIN B. PAUL.

[Written for the Scientific Press.]

Nevada, Central City and Black Hawk are in such close proximity to each other that in speaking of them it must be as of one place. They are located in the order named, as approached from the south. They form one continuous line of about three miles in length, and, as respects location, put me somewhat in mind of Gold Hill, Nevada. Central City forms the heart of the trade and population, and has quite a number of good substantial buildings.

Want of Hotel Accommodations.

There is a population in these places, in a circuit of a few miles, of 7,000 people. Central is a place of considerable wealth, and yet does not possess hotel accommodations which would rank above common.

The landlord of the principal hotel (Connor House) is clever and accommodating enough, and the table is passable, but the *house*, divested of furniture, would not make, in San Francisco, a second-class Chinese lodging-house, and yet it is $1 a meal and $1 for lodgings, or, in other words, $4 per day. There is nothing like a comfortable and fine hotel to give good impressions to strangers. In this respect Central does not do justice to herself. The enterprise of this section is clearly illustrated in the support of two daily journals—the *Register* and the *Herald*—which distribute daily telegrams from all parts of the world, not excepting the Pacific coast. They are both lively, spirited papers.

The Mills.

As one looks about at the mining interest, he is surprised to see the vast amount of capital that has been expended. I was informed that Boston alone had expended nineteen millions of dollars, though I doubt it—in fact, don't believe it. Yet the expenditure has been so large, that an idea arises in the mind that possibly it might be so. Boston went in heavy on the Crosby & Thompson desulphurizing process, which proved very expensive and unsuccessful.

There are, within a circuit of five miles around Central City, about 700 stamps. To give a review of these mills is a bigger job than I propose to enter upon. They are of all sizes, but few with less than ten stamps, and from that up to thirty. In consequence of the extreme cold snap, but few were running; consequently not as much activity was displayed as during the warmer months. Not half of the stamps, however, run in any month, there having been an overdoing of things in previous years. The mills, as a whole, do not come up to our California or Nevada mills, either in arrangement, thoroughness of working, or general symmetry. They are mostly from the East, and have not the advantage of improvements, which long experience has been able to furnish us with. Here, as elsewhere in the Territories, the dependence is on copper plates and what can be caught in the batteries, which might do where gold is perfectly clean; but on ores such as they work, it is not possible to save as much as could be with other simpler machinery, and at even a trifling additional expense.

The Ores.

The ores washed by these mills, as elsewhere in the Territory, are all impregnated with lead, copper, antimony and zinc, and some, to my eye, seemed more suitable for the furnace than stamps. When one looks at the ore and the mills with such deficient amalgamating appliances, and knows that a few do make it pay, he comes to the conclusion that they must have considerable rich ore. The surface ore, they say, works well; but when that ends their doubt begins. Decomposition relieves the gold in the first case, while the undecomposed base metals prevent amalgamation in the second. There is, no doubt, an abundance of rich ore in this district; the point is to get it out cheaply. Some of the mills have tried pans, but they, only acting as agents for precipitating the base metal, were abandoned.

Loss in Milling.

I have the result of a close investigation, made by a young man of fine metallurgical skill, and of a practical, investigating turn of mind, which, no doubt, closely approaches the facts of the value of Colorado and the mechanical effectiveness. It is as follows: By assay, first-class ore will run from $80 to $100; second-class ore, from $20 to $30; dump piles, $12 to $20. Pretty thorough investigation proves, also, that not over 30 per cent. is extracted, on the average. Another source and many other assays show even a more terrible loss, as follows: 13 per cent. is extracted in the mill; 6 per cent. in the washing; 8 per cent. goes down the creek. By this it will be seen that about all which Colorado capital and labor gets is 20 per cent. of the bullion contained in the ore.

Hill's Works.

There are several furnaces where a close percentage is worked out. The most conspicuous are Professor Hill's, which are situated below Black Hawk, and which I visited and inspected, although I afterwards found that "No Admittance" stood prominent. These furnaces are simply ordinary melting hearths, and work mostly the concentrated tailings from the blankets and buddles. The ore is roasted for the furnace in heaps, which is certainly economical, and run into matt for shipment.

"Professors."

There is one thing quite observable in Colorado, which I must not pass over, as it is important to those ambitious for titles, and that is, when any man presumes to be poeted, he is dubbed "Professor," and, to give all the dignity possible to it, up goes "No Admittance." I even had the courtesy (?) extended to me. "Professor Paul!" would not that sound ridiculous? So I said, "Now, friend, just drop that, if you please. I neither aspire to nor desire the title." Among the old California friends I met there, was *Professor* Hitchena.

Bullion Returns.

Colorado has been understood as a great mining country, but, as I look into the statistics, I find she has been much more of an absorber than a developer. Without going beyond the two years past, and giving them all the advantage of the most favorable features, I found her product of bullion was as follows:

1868.	
Central and vicinity	$1,175,000 00
Georgetown	91,829 35
Elsewhere, say	50,000 00
Total for 1868	$1,316,829 35
1869.	
Central and vicinity	$1,380,000 00
Georgetown	249,854 00
Elsewhere, say	100,000 00
Total for 1869	$1.729,854 00

Among us, where one single company, in either Nevada or California, can foot up as much, it seems nothing to brag of. It is by figures we get a square look at ourselves and conditions. The fact is that Colorado wants an overhauling, reconstructing, revolutionizing. Her whole mill system wants bettering and cheapening, and the way to do it is to introduce Western practice instead of Eastern science. Successful mining is hard-fisted work, and not laboratory play. Colorado has stamps, population and mines enough to produce, at least five millions per annum. Now, why don't she do it?

Humboldt City, Nevada.

Editors Press:—Hastings, Huntington & Co. have made a rich strike in the Yellow Jacket mine, about one mile from town. The ledge, which is three and a half feet wide at a depth of fifteen feet, shows a considerable quantity of silver sulphurets and horn silver. Quite a number of claims have been located here lately, and look very favorable. Prospecting is very lively just at present in this district. Chloride Bill.

* * *

For the first three months of this year there were exported from here 188 tons of silver ore and 228 tons of copper ore, of which latter, 77 tons went to Great Britain and 151 tons to New York; also 5,173 flasks of quicksilver. The receipts of coal from the Mt. Diablo mines were 30,092 tons, making the total amount from these mines (from 1861 inclusive) 677,375 tons.

Letter from White Pine.

[Written for the Scientific Press.]

Editors Scientific Press:—Some time ago you expressed a wish to hear from me on the prospects of this district; and, perhaps, your readers, on the approach of spring, may not be averse to know, from the observations of some one on the ground, what those prospects are. I say "on the *approach* of spring;" for spring, with us, does not begin with March, nor with April, nor even with May; but, from courtesy to the poets, we will assume that spring shall commence on the first of next month. The "April showers" that "bring forth May flowers" here bring only the snowflake; and this peculiar species covers with a white carpet the entire surface in this region.

Mines on Treasure Hill.

But few mines on Treasure Hill have been continuously worked for their ore during the winter; however, a great deal of preparatory work has been performed, and the final cessation of snowstorms will be the signal for the resumption of operations on a large scale.

Many of the mills have been idle a portion of the time, from the difficulty of hauling ore through the deep snow. Others have been stopped because their owners became financially involved, and their property was placed under attachment. This latter was the case with several of the smaller mills.

The hurry and hustle and excitement of last spring no longer exist in White Pine. The consequent waste of time and means which always attends haste, especially the haste to become rich, has also ceased. Those who have remained in the district now know how to "make haste slowly," and, as a natural sequence, the country is being better prospected, and the mines more thoroughly and economically developed, than ever before.

Mines on the Base Range.

Especially is this the situation in the mines of the Base Range—a section of mining ground rapidly growing in importance, as capital, skill and labor are brought into it for its development. Some very productive lodes have been worked during the whole winter, in spite of storms and deep snow; good natural roads and the nearness of smelting works rendering these operations possible and profitable. Among these are the Cadiz mine, owned by the Russell Brothers, news dealers, of Hamilton; the Alta, belonging partly to the Alsop Smelting Co., of which Alsop & Co., of your city, are the agents, and partly to John W. Cooper, of Colorado; the Rulofson, in which, I believe, your photographer has some interest; the Bounty; the Molly Stark; the Miser's Dream; the Imperial, and a few others.

The Ores.

These mines all yield the carbonate of lead and argentiferous galena in abundance, but more especially the carbonate ore. Some of these ores, as those of the Imperial and the Bounty, are impregnated with considerable carbonate of copper; others are more or less degraded by oxides of iron and manganese. But all, without exception, yield a certain percentage of silver, sufficient to pay for extraction, smelting, shipping and refining, and to leave a fair margin of profit to all concerned in their manipulation. The miner, however, as usual, comes in for the smallest share of reward for his labor. By an ingenious system of depreciation, the purchasers of ore for the smelting works contrive to keep the price of ore yielding 50 per cent. of lead and $20 per ton in gold, at the low figure of $12 per ton, and ore which yields $40 and $60 in silver commands no more than $15. At these prices, the miner cannot afford to live very luxuriously. The increasing number of furnaces, however, will make competition in the purchase of ore very lively during the coming summer, and prices will advance materially.

The Furnaces.

Capt. Rawlings, C. Carpenter, F. S. Luther, and Thornburg, of Thornburg & Paxton, have associated themselves together under the name of the Alsop Smelting Co., and have erected a large furnace at Shermantown, where the argentiferous lead bullion is being rapidly run into bars of eighty pounds each. J. R. Partridge and Capt. Magary have three furnaces about three miles from Hamilton. Jones, Hall & Bradley have one in constant operation at Shermantown, and another at the same place is owned by Meaen & Higgine. Van Wyck, the assayer, has one within the town of Hamilton, and there are two or three others of lesser note in the same place. In addition to all these, there are several blast and draft furnaces located in the cañons, in the immediate vicinity of the base metal mines.

So that you must see that the prospects for the smelting interest and for the mines of base metal in this district are equally good as those of the mills and the mines of "free ore." W. H. M.

Shermantown, Nev., April 6, 1870.

Boiler Explosions.

[Written for the Scientific Press.]

Editors Press:—I was some days since in one of the Courts of this city, and heard the evidence given by some engineers in a boiler explosion case, as to the cause of the same. They attributed such accident to gases generated in the boiler, which takes fire and explodes by contact with the air.

If that statement is true, no one is safe near any steam boiler at any time when there is steam on, as it must be generating that fearfully explosive gas all the time, and would be liable to explode at any moment, even in the most skillful and scientific hands.

Water is composed of two gases, namely: oxygen and hydrogen, neither of them explosive separately, *nor can steam be decomposed or resolved into its constituent gases by superheating, even up to the highest temperature known.*

To effect the decomposition of steam in a boiler, it must be brought to a high temperature, and, at the same time, come in contact with some substance for which one of its constituent gases has a greater affinity than it has for the other constituent, and, whatever that substance may be, having that affinity, it will take up but one of the gases, leaving the other free, and, consequently, non-explosive. Let us suppose, for an instant, that the gases are set free in the boiler, and, also, in combination, (which would be an impossibility); to explode them you would require a high temperature, which could not be attained, unless the water is so low in the boiler as to expose the sheets to the direct action of the fire without the protection of water on their surfaces.

I think the true theory of boiler explosions may be summed up in a few words, as follows:

When the water in the boiler is allowed to get too low, the fire surfaces become exposed to the fire, without the protection of water upon them; the plates instantly become red hot, which superheats all the steam contained in the boiler to a very high temperature, the water being comparatively at rest; then, if the throttles or safety valve is opened, that act relieves the pressure upon the water, which relief imparts to it commotion or foaming, and the instantaneous commingling of the particles of water, in minute subdivision, with the superheated steam, aided also by coming in contact with the red hot sheets, at the same moment converts the entire contents instantly into steam, producing a sudden pressure which no boiler can withstand.

I. L. C.

* * *

Australian Gold.—The value of the Australian gold imported into Great Britain in 1869 was $39,463,785, an increase of $4,515,815 over 1868, and of $10,457,550 over 1867. This year commences with a receipt of $3,766,825 for January, a large increase over preceding years. The opening of new gold fields in New Zealand, Queensland and Tasmania has contributed to the increase during the past years. Recent official returns show that 2,651 distinct quartz veins have been proved to be auriferous in Victoria, and at the same date 884 square miles of gold fields were worked, and the value of gold mining claims was estimated at $44,347,520. The gold production of Victoria in 1868 is given as 1,657,498 ounces, of which about one-third was from quartz veins.

* * *

Correction.—In our issue of March 12th, the name of the translator of Prof. Cotta's invaluable book on Ore Deposits should be **Frederick Prime, Jr.**

Mechanical Progress.

A New Double Slide Valve.—A noted Scotch engineer by the name of Barclay has devised a valve, which is thus described by *Engineering:* "Mr. Barclay employs a double or compound valve, the two portions being driven by separate eccentrics. The steam ports in the lower side of the under valve are made large enough to leave the steam ports on the cylinder full open during the entire time that the steam is admitted in full by the ports in the top side of the valve; and the cover or upper valve has one port made at its center in such position that immediately one of its edges begins to cut off the steam from entering one of the larger and outer ports in the under valve the port in the top valve passes over and opens one of the second ports in the upper side of the under valve in the exact ratio that the larger port is being closed, so that although the larger port is being gradually closed, the supply of steam remains constant until the larger port is half closed, at which instant or position both the larger as well as the smaller ports are quickly closed over by the upper valve through the action of the eccentrics by which the valves are driven. From this arrangement it is obvious that, as the steam commences to be cut off only when the larger port is half covered by the upper valve, the cut off is effected with a travel of valve equal to only half the width of the larger port in the under valve, and thus a greater advantage is derived from the expansion of the steam in the cylinder than in cases where the cut off is performed in a longer interval of time."

How to Run a Locomotive.—*The Locomotive Engineer's Monthly* gives a "Letter from an Engineer," a portion of which we quote: "An engine can be run cheaper by keeping the water in the tank warm, and by keeping the boiler high in water. It is a bad practice to run connecting rods slack; it is more liable to break a crank, shaft or pins, and there is more danger of losing keys; it also causes a heavy knock on the top slide bars. Steam should never be put on in starting too quick, as it affects all connections, particularly steam pipes. A train should never be stopped by reversing and putting on steam, except in case of danger to life or property. The larger engines are built, the better. I believe in a short stroke pump in a cold climate, as there is less danger of its breaking. It is a good idea to have valves in tenders; there is less danger of bursting hose bags. I have often seen safety valves stuck by dirty water forming cement. Cylinders are often cut by running an engine over, not for want of oil or tallow. When an engine is running without steam, valves should be let run to the full extreme; it prevents the face from wearing hollow. Every engine ought to be reversed after getting oil or tallow; an engine bearing a heavy pressure of steam on one occasion is not sufficient proof of its always being capable of doing so."

Expiration of Bessemer's First Patents.—The result of this will not be the throwing open the process to the public, for Wm. Kelly, an American, controls the business by his patent, which does not expire until 1871, and may be extended for seven years longer. The *Artisan* says: "After Mr. Bessemer had secured his patents in Europe and in this country for the leading feature of the process, which is the blowing of air into and among a mass of molten iron, it appeared that about the same time or prior to its invention in England by Mr. Bessemer, the same thing had been invented in the United States by Mr. Kelly, who, after the issue of the patent here to Mr. Bessemer, also made application for a patent, which, on proving priority of invention, he obtained."

The Harvey Torpedo.—This is a wooden casing with iron plating outside, and a metal shell inside, to hold the charge. It is so shaped that when towed rapidly it will diverge from the towing vessel at an angle of 45°. The explosion is effected at will, by means of a lever attached, when the torpedo is in close contact with the bottom of the enemy's vessel. The explosive agent is a fulminate composed of three parts by weight of chlorate of potassa and one of gall-nuts. A safety key, which secures the operators themselves from all possible danger, is withdrawn when the torpedo is some distance astern of their own vessel.

A Millionth of an Inch.

A space of this length, which is almost inconceivable, so minute is it, is actually *measured* by Mr. Whitworth's contrivance for comparing lengths, designed for testing the truth of a measure representing an English inch, and described by Dr. Barnard in his Exposition report. It is a solid piece of steel resting upon a trough with inclined sides. At one end it abuts against a stop, which is so arranged as to be adjustable. The other end is opposed to the extremity of a screw of twenty threads to the inch, placed directly in the line of the axis. A single revolution of the screw advances the extremity, therefore, one-twentieth of an inch. But the head of the screw is ten inches in circumference, and is divided into two hundred parts. In turning this wheel, every division accordingly advances the screw one four-thousandth part of an inch. The divisions, however, are not traces, but teeth; and the screw-head is a gear-wheel, which is driven by a tangent screw lying horizontally in its plane and across its summit. And this tangent screw has also a head of twelve and a half inches in circumference, which is divided into two hundred and fifty parts, each part being the twentieth of an inch. An entire revolution of the tangent screw advances the gear-wheel only one tooth, which, as we have seen, moves forward the end of the measuring screw one four-thousandth of an inch. A single division of the limb of the tangent screw-head will, therefore, produce a movement in the direction of measurement of only two-hundred-and-fiftieth of one four-thousandth of an inch—that is to say, of one one-millionth part of an inch.

English and American Engine-Makers.—"An English workman in America" writes thus to *Engineering:* "The American manufacturer has several advantages over European, the principal one being that he is left to his own judgment in the designing of his engine. For example, a railway wants a dozen engines; in England the superintendent of the road designs and orders exactly what he thinks best, and the manufacturer has nothing to do but to make them; if they don't work well there is at once a dispute as to whether the fault lies in design or in workmanship. In America, the railways frequently order their engines of a certain manufacturer, he designing and making them; he, then, is solely responsible; it is to his interest to turn out an engine that will make him a reputation. His experience, of course, must be large, and hence he has better opportunities of seeing defects and advantages in design and construction, than any superintendent of a railroad can have. The specifications for some locomotives I have seen in England occupy 40 pages of foolscap; the specifications here usually about three or four. There is no quibbling as to whether the specification called for this or that. This is another reason for the excellency of American engines; if any maker produces something new and desirable, the others are compelled either to adopt it or effect the same advantage by analogous means."

Rapid Telegraphing.—The new telegraph company, the "National," which is now erecting wires between New York and Washington, and will do so all over the United States, expects to transmit dispatches at the rate of 12,000 to 18,000 words per hour over a circuit of 1,000 miles. They affirm that they have already demonstrated, by actual experiment, that they can work perfectly over 2,000 miles of line at the rate of 200 words per minute with 28 cups of battery, whereas no Morse machine is able to work through even 500 miles at the rate of five words per minute, with 50 cups of battery. The instrument used is the recently patented one of George Little. The messages to be sent are prepared by punching slots and circles through a strip of paper, which, on being drawn through the instrument, transmit corresponding signals. These are received and made visible upon strips of chemically-prepared paper. Copies of messages may be dropped at all stations upon the line without interfering with the working of the instruments.

Warming Railway Carriages.—A. Mr. Buchan has invented in Russia a method of warming railway carriages by utilizing the heat of the locomotive.

Scientific Progress.

The Primeval Monuments of Peru.

E. G. Squier, M. A., the well known antiquarian, describes and illustrates in the *American Naturalist* for March certain stone structures in Peru, the existence of which has never before been mentioned by any traveler. They are "coincident in style and character with the cromlechs, dolmens, and 'Sun,' or 'Druidical' circles, so called, of Scandinavia, the British Islands, France, and North and Central Asia." We give the concluding paragraph:

"When they shall come to be fully illustrated, I think all students will coincide with me in my already matured opinion that there exist in Peru and Bolivia, high up among the snowy Andes, the oldest forms of monuments, sepulchral and otherwise, known to mankind; exact counterparts in character of those of the 'old world,' having a common design, illustrating similar conceptions, and all of them the work of the same peoples found in occupation of the country at the time of the Conquest, and whose later monuments are mainly, if not wholly, the developed forms of those raised by their ancestors, and which seem to have been the spontaneous productions of the primitive man in all parts of the world, and not necessarily nor even probably derivative."

The Brain only a Machine.—The following is from a discourse recently read by the celebrated physicist, M. Mayer, before the Scientific Reunion of Insbruck. It was translated for the *Bowdoin Scientific Review:*

"For a long time we have generally supposed that the nervous substance, and especially the brain matter, contained free phosphorus, and the imagination attributed to this *free phosphorus* an important part in intellectual operations. But new and more exact researches in chemistry have proved that no living organ, and of course the brain, contains free phosphorus. If, on one side, similar illusions must vanish before the data of an exact science, it is none the less true, nevertheless, that there are continually produced in the living brain, material modifications, which are, as it were, the consequences of a sort of molecular activity, and that the intellectual acts of the individual are intimately connected with this material cerebral action. But it is a great error to identify these two activities which proceed parallel to each other. An illustration will render my thought clearer. We know that there can be no telegraphic communication without a concomitant chemical action. But what the telegraph says, the contents of the dispatch, could never be regarded as a function of the electro-chemical action. That is still truer for the brain and thought. The brain is only the machine, it is not thought. Intelligence, which is not a part of sensible things, cannot be submitted to the investigations of the physicist and the anatomist."

Insect Organs of Hearing and Smell. Mr. Lowne believes that the organ of smell in the flesh fly is located in the third joint of the antennæ, which are dilated, and covered with minute openings communicating with sacs in the interior. The halteres—the appendages just behind the wings on each side—he regards as the organ of hearing, their cavity being filled by a very large nerve terminating in nerve cells, which is connected with a number of small, highly refracting bodies, regularly arranged around the base of the organ.

Geology of Brazil.—Prof. C. F. Hartt, of Cornell University, proposes to make a third trip to Brazil during the summer. Several students will accompany him. He proposes to study especially the Amazonian drift. Doubts have been expressed by several geologists in regard to Prof. Agassiz's theory of a great Amazonian glacier.

Large Trees in Australia.—The Government Director of the Botanic Garden at Melbourne says that Mr. G. Klein took the measurement of a *Eucalyptus* on the Black Spur, which was 480 feet high; and adds that to Australian trees must be conceded the palm for height, though not for thickness, over the *Sequoia* of California.

The Markings Produced by Lightning.

Dr. B. W. Richardson has been making some experiments with the monster induction coil of the Royal Institution. He is satisfied that the markings produced are not always ecchymoses, as he had previously maintained, but may be true metallic lines, when the metal on the body is thin enough to be fused by the current. Several lecture experiments were performed in proof of this. We quote:

"We will take a foot which has been removed from a young pig immediately after the animal was killed and dressed. The skin is beautifully white and delicate. Around the foot we will lay a thin gold wire or chain, and then discharge from the large Leyden battery through the wire. This done, I pass you round the foot, and you will see distinctly, not only a line marking what was the position of the wire, but the metallic gold, inlaid as it were in the skin. * * Here is a feather of exquisite whiteness; I have woven through it some thread of gold; here is another similar feather through which I have woven thread of silver. I will ask Mr. Pepper to pass the Leyden discharge through these metals interwoven with the plumage. He does so, and now you see the feathers are entirely changed in color, variegated in wavy lines. The feather interwoven with gold is of a purple tint in the colored parts; the feather interwoven with silver is of silver gray, like the feather of a gray parrot, and so firmly is the metal implanted it could not readily be removed except by chemical action, which would break up the structure."

The Geology of the Rocky Mountains. Dr. F. V. Hayden, of the U. S. Geological Survey of Colorado, says: "My own observations point to the conclusion that the general strike of the metamorphic ranges of mountains is northwest and southeast, and that the eruptive trend northeast and southwest. The dikes that sometimes extend long distances across the plains, in all cases trend northeast and southwest, or occasionally east and west. The purely eruptive ranges of the northern portion of the San Luis Valley seemed to be composed of a series of minor ranges "*en echelon*" with a trend northeast and southwest. But as soon as this range joins on to a range with a metamorphic or granitic nucleus, the trend changes around to northwest and southeast. Many of the ranges have a nucleus of metamorphic rocks though the central and highest portions may be composed of eruptive peaks and ridges. In this case the igneous material is thrust up in lines of the same direction as the trend. It becomes, therefore, evident that all the operations of the eruptive forces were an event subsequent to the elevation of the metamorphic nucleus."

The Electric Light in Rarified Air. Poggendorff's *Annalen* describes the following experiment: "Two very thin platinum wires, whose points were placed opposite to one another, at a distance of one millimetre, were brought on to the plate of an air pump, and formed the poles of an inductorium. At the same time, the wire which corresponded to the negative pole was twisted round the bulb of a thermometer. It was then found that under full pressure of air the point of the negative wire glowed with a clear light, and behind was a train of a beautiful blue color; the height of the thermometer remaining unchanged. As the air was pumped out the point ceased to glow, while the blue light moved to a greater distance from the point, and towards the thermometer, which rose about 20 degrees Cent. (36 degrees Fah.) With more complete exhaustion of the air the blue light moved further in the same direction, and left the thermometer, which again sank, and all the parts to which the wire was attached shone forth in the beautiful blue light, while the point of the wire itself was almost devoid of light."

Preparation of Chlorate of Baryta. Brandau proposes the following method: Forty-nine parts by weight of sulphuric acid, 333 parts of sulphate of alumina, 122½ parts chlorate of potash are mixed to a thin paste in water and gently warmed. The product is a solution of chloric acid with alum, and excess of sulphuric acid and sulphate of alumina. When cold it is mixed with an equal volume of alcohol and filtered. The filtrate is neutralized with caustic baryta, which gives chlorate of baryta in solution, while sulphate of baryta is precipitated. The chlorate is decanted from the precipitate and evaporated to expel the excess of alcohol and is then ready for use.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

More Force.—*Chronicle*, April 2d: Next week an additional force will be put in the Pennsylvania mine. A few tons of ore have been sacked for shipment to the Stetefeldt furnace at Reno. The mine is daily improving.

Good Hope.—*Miner*, 2d: We hear of a bet that the first lot of twenty-five tons, now being taken out to be worked at the Pioneer mill, will yield an average of $50 a ton. If it yields $20 it will prove a fortune to its owners.

AMADOR COUNTY.

The New Ditch.—*Dispatch*, 9th: Work on the new extension of the Butte ditch has been commenced in earnest.

Good Clean-up. —*Ledger*, 9th: The Kennedy mill, after a run of fourteen days, cleaned up $3,400. The company having been regularly incorporated, it will now be worked more systematically.

CALAVERAS COUNTY.

Railroad Flat.—*Chronicle*, 9th: We are informed that Messrs. Cudell, Sanderson & Gay are taking out rock of unequaled richness. They have a large amount of ore on their dump which will be hauled to mill and crushed as soon as the roads will permit.

EL DORADO COUNTY.

Busy.—Placerville *Democrat*, 9th: Hardly an idle man can be found in our city. Those who have not steady business are prospecting, and quite a number have found ledges which bid fair to turn out rich. We have the mines here, and all that is needed is energy.

Phillip's Diggings.—This is the name of some new mines eight miles from Grizzly Flat, and one and a half miles from Pi Pi. They have struck a rich gravel deposit, and several companies have secured claims. The great trouble is the lack of water.

Gold Dust.—There has been shipped by Wells, Fargo & Co., during the past week, $8,090.

INYO COUNTY.

Los Angeles telegram, 5th: One hundred and fifty-seven bars of Cerro Gordo bullion are received—over two thousand at the mines awaiting shipment.

KERN COUNTY:

Telegram—Los Angeles, 5th: In Kern county, the Long Tom, and the mine in Snowy district, are the only mines now worked, both on the east side of the range. The mills in the vicinity of Havilah are idle.

LOS ANGELES COUNTY.

Placer Mining.—*News*, March 26th: At San Gabriel cañon miners are making handsome pay at work in the bed of the river. With rockers some are reported as making three to five dollars per day.

MARIPOSA COUNTY.

Suspended.—The Oaks & Reese Mining Co., Hunter's Valley, has suspended operations entirely. All the hands in the mine and mill have been discharged, and the tools, car tracks, etc., hoisted out of the mines. The vein giving out is the cause.

NEVADA COUNTY.

A Strike.—*Transcript*, April 5th: Several weeks ago, Fritz Weister and Sam Morrison struck very rich gravel on the north fork of Diamond creek, above Cal. Curtley's claims. They have located three claims and a water right, and will be ready for work next spring. On the claim they sunk a prospect shaft 12 feet deep and found gravel from the surface down. The dirt yielded $26 in gold.

The Prospects.—Same of 6th: Last season the total rain-fall was 59:69 inches. This season, the total has been 49:06 inches. Thus far the season has been more favorable for mining purposes. The snows are not so deep in the mountains as last year. While this scarcity of snow may lessen the supply of the water west of the Yuba, it will give miners on the Ridge an earlier opportunity to get a supply, as the North Bloomfield Co. will the sooner be able to resume work, and complete the connection between the new ditch and the Big Cañon creek. All things considered, the hydraulic miners throughout the county have an excellent prospect.

San Juan.—Cor. of same, 7th: There are now four companies mining on this Hill, where in 1866 there was but one. Fifteen hundred inches of water are constantly in use. Our banks embrace a range of country from French Corral to Columbia Hill, a distance of 15 miles, of which range San Juan is the central point. There is a tract of mining land, extending from Sweetland to Sebastopol, over a mile in length and three-fourths of a mile in width, every rod of which will pay, as yet, almost untouched.

Red Diamond.—Same of 8th: This claim at the Cascades, Deer creek, has been doing well. The last run gave a return of $1,400, and lately $300 was taken out in two days.

The sale, to an English company, of the Buckeye Hill and Granite Tunnel mining claims, near Sweetland, is about being perfected.

Stiles.—Same of 10th: The new hoisting and pumping machinery is kept in constant operation. The shaft is down 25 feet, and it is proposed to sink 200 feet below the level of the creek. The ledge is 18 inches thick, and the rock has paid from $10 to $25 per ton.

Gold Flat.—The north extension of the Pittsburg, owned by a company in San Francisco, is to have machinery put upon it for prospecting, this summer, and the Orleans Co. propose putting up hoisting and pumping machinery at an early day.

Alta California Mining Claims.—Grass Valley *Union*, 6th: These are on Randolph ridge, south from Webster & Co. A tunnel has been run in 850 feet and gravel struck which prospects from one to four bits a pan. The deposit is extensive. The company are putting in a flume, and in three weeks will commence washing.

Allison Ranch.—Mr. Davis, Supt., informs us that the new level has been driven 25 feet each way from the shaft, and to-morrow he will start his workmen to stoping out the backs. The incline has been sunk 12 feet below the new level, and will be continued down 100 feet, at which point another level will be started. The rock taken out of the incline in sinking the last 100 feet, yielding $36 per ton, exclusive of sulphurets.

Greenhorn Mine.—*National Gazette*, 4th: The company still continue to take out rich rock. The main tunnel is in 300 feet, and drifts have been run north and south 200 feet. The ledge is well defined, varying in thickness from five to eight feet. Only eight men are at work, but they take out rock enough to keep an eight-stamp mill running day and night.

PLACER COUNTY.

St. Patrick.—Auburn *Herald*, 9th: We learn that the owner of this mine, near Ophir, is opening out a ledge three feet thick. It is said that exceedingly rich quartz in large quantities is being brought to the surface, and that the ledge becomes more massive and well defined as they go down on it. No quartz from this claim has ever milled less than $300 to the ton.

Mill Removed.—The owners of the Evening Star mine on Rock creek, a few miles north of town,—Taylor, Quick, Heenan & Co.,—have purchased the Wehdall quartz mine at Newtown, and are having it erected on their claim. All crushings from the Evening Star have shown it to be very rich. The last, of some 28 tons, at the Green Emigrant mill, yielded $220 per ton in free gold. At present, everything betokens a prosperous season among quartz miners in this section.

Rising Sun.—The owners of this mine, near Colfax, contemplate erecting a forty-stamp mill, and will have 150 to 300 men at work within two months.

SAN BERNARDINO COUNTY.

Rich Ore.—*Guardian*, April 2d: Mr. John Baldwin has shown us some very rich silver ore, discovered on his place near Juape.

Los Angeles telegram, 5th: The Holcomb valley mines at San Bernardino are producing unusually well. New works are being erected.

Another, 7th: A man named Flynn arrived to-day with tin and silver ore from a point 35 miles from San Bernadino, Specimens have been sent to San Francisco for assay. Flynn says the ledge is not less than 25 feet in width.

SAN DIEGO COUNTY.

A Los Angeles telegram of 7th says: Men direct from San Diego and the mines to-day report that some new ledges have been found in Julian district. It is said that the Washington, Good Hope and Hayden show better on sinking, and present more the appearance of being perfect ledges.

SISKIYOU COUNTY.

Quartz in Scott Valley.—Yreka *Union*, March 8th: We have been shown a piece of float rock from a vein recently discovered in Hull gulch, near Oro Fino, by Frain and Dover, eighty rods above the mill of the Scott Valley Co. It is owned by the discoverers, in connection with Sheppard, Bean and King. The vein is a foot in diameter, and the rock spangled with free gold. Sheppard is running on good rock from the old ledge and expects a clean-up in a few days.

SIERRA COUNTY.

Mining Items.—Cor. of *Messenger*, 9th: The Monumental Co. in Potosi, it is said, is rolling the yellow stuff out of their claims as fast as their mules are able to travel, drawing from seven to nine car loads of dirt every trip. The Hawkeye Co., in Howland Flat, is working 30 men, and washing out every week from 80 to 100 ounces, and the Union is working 80 men and taking out 200 ounces per week. The Down-East Co. is about working out their claims, while the Union and Hawkeye have enough rich ground prospected to last them for years. The French Co., Pine Grove, are extending their tunnel further toward the summit to try another gravel deposit. Sam Noyes & Co. are finishing the lowering of their cut. There are two other companies getting ready for piping. Bill Morgan expects to take out $25,000 this year. He has ground enough for his lifetime.

TRINITY COUNTY.

Paying Well.—*Journal*, 9th: The new mines discovered by Harthan & Smith, near Junction City, are yielding an ounce per day to the hand with a rocker.

Oregon Gulch.—Slattery Bros. have found another channel of the gulch running under the base of the mountain, that is likely to prove rich.

Northfork.—We learn that McGillivray is going to bring the old Durkee ditch to the diggings on the west side of Northfork.

Douglas City.—Cor. of same: The claims in the vicinity bid fair to pay better than for years. Butts & Hunter are getting good prospects. Marsh & Ham are getting good pay. The Union Hill claim, worked by Marshall, Reed & Co., is keeping up its old reputation. The claims of Theodore & Crickard, on Mabie's bench, Ramsey & Mathewson, on Weaver creek, the Portuguese companies, on Smith's flat and Mud bar, Matsen & Co., on Smith's flat, Jones & Hughes, on Trinity bench, Charley Tourat, on the hill near town, also his claims on Filibuster flat, and Silander & Alexander, on the same flat, all promise to pay beautifully. The Whetstone bar boys are doing better than for years.

The Dutton creek mines are assuming greater importance every day. In the discovery claims, Dixon & Co. have drifted through the cement and found soft blue gravel that yields better prospects than ever. Wm. Lange is bringing the water of Dutton creek on the Dixon claim. It will take a month.

TUOLUMNE COUNTY.

Confidence Mine.—Sonora *Democrat*, 9th: Six days' run last week produced 400 ounces of about $7,500 value.

A correspondent of same has visited the Confidence mine, and gives these items: Depth of lowest level, 160 feet; length of incline, 296; width of south vein, 10 to 14 feet, and pays from $8 to $15 per ton; width of north vein, 7½ feet, paying from $30 to $150 per ton. Engine at hoisting works is of 35-horse power, and, with pump and pipe, cost $4,500; the pump has six feet stroke, and there is 300 feet of five-inch pipe. The engine for the mill is of 60-horse power, and cost $3,500. The capacity of the mill is from 30 to 40 tons per day, averaging $700 to $800. Fifty men are employed at wages from $2 to $3 per day and board.

Arizona.

Big Bug.—Prescott *Miner*, March 26th: The Indian raid retarded mining matters for a few days, but the mill is now crushing. A clean-up had been made, after a run of six and one-half days, with ten stamps, and the yield was estimated at $1,400.

Walker District.—Lynx creek and its tributaries are filled with water, and the miners at work. The Eureka 10-stamp mill was started up several days ago. Uncle Billy Pointer's arastra is crushing rich ore; C. Y. Shelton is arastraing ore from the Mountain Jay; Herbert Bowers and Co. have men running a tunnel towards the Accidental lode. Lower down six or eight men are at work in the hydraulic claims belonging to Bowers, Bean and Lieut. Wells. The claims of the Bashford Co., near the old Mexican camp, are being turned upside down by six or eight men and a big head of water; as are, also, the hydraulic claims of Jackson, Lovejoy & Co.

Hassayampa.—A great many placer miners are at work in the district. George Lount, Frank and Lew. Alters are running a tom in a side gulch, and making from $10 to $20 per day to the hand. Most of the miners are at work in the high bars of the main creek. C. V. Beseler, Supt. of the Sterling, intended to start the mill, provided there was sufficient water to run it. Taylor & Davis were getting ready to start their arastras.

A prospecting party returned from Turkey Creek district several days ago, and brought very rich specimens of silver ore.

Colorado.

Rich Strike.—Georgetown *Miner*, March 31: Very rich ore has been struck in the North American lode. We were shown a specimen from the bottom of the shaft, 50 feet deep, that was rich in brittle silver. The crevice is over 8 feet wide, and, in addition to a large vein of good mineral, there is nearly three inches of ore assaying, probably, $450 to the ton.

Mendota.—Work will shortly be commenced on this lode. The Rockford Co., of Rockford, Ill., have become the owners of the east half of the property. There is a tunnel on the vein 130 feet in length, in the breast of which there is a vein of ore two feet in thickness, with an average of fifteen inches, and assaying from 60 to 800 ounces to the ton of ore. The company will open the mine by a tunnel 150 feet in length, which shall penetrate the lode at nearly a depth of 150 feet

Work is being pushed vigorously on the new Stewart reduction works. The mill, when completed, will have a capacity of twenty tons per day.

Sale of the Terrible.—One-half of the Terrible, the largest and richest silver vein in Colorado, has been purchased by a company of English mining capitalists. Mr. Henry Crow, formerly part owner of the recently purchased interest, is in receipt of a telegram from his partner, Fred A. Clark, now absent in England. An agent will be sent immediately to take charge of the mine. At this time the Terrible is producing ore such as will make glad the hearts of the foreign capitalists.

Latest.—A Georgetown telegram of April 11th says: The sale of the Terrible silver lode was completed to-day, through the British and Colorado Mining Bureau of London, to a stock company of London capitalists for $550,000. The agent of the new company, under the style of the "Colorado Terrible Lode Mining Co.," took possession to-day. The mine will be vigorously worked hereafter, with an increased force of men; first-class ores will be shipped to England for reduction, and for the treatment of the second and third-class ores they propose erecting pressing and smelting works on a mammoth scale in this vicinity.

Idaho.

Getting Ready.—*Avalanche*, April 2d: Owners of placer claims are making preparations. Jacob's gulch boys are laying in grub and hauling it over the mountain on hand-sleds. Shuster & Co., in Blue gulch, are sawing locks for their flume. Work has already started at the Wagontown diggings. Slaughter House gulch ditch is being cleaned out and sluice boxes repaired. The bars this side of Wagontown will be worked this season by Chinese. Some of the owners of claims on Florida mountain are shoveling snow and arranging flumes.

The *Statesman* of 2d says: The injunction suit, in which the Idaho and Rocky Bar companies were parties, has been vacated, and work will be resumed on both mines.

Loon Creek.—*World*, March 31: Tassel, expressman, arrived safe from Oro Grande on the 23d. There are not over four or five inches of snow, and the several companies had begun work. Three miles of the bar, on the town side, has proved good as far as prospected, the depth to the bed-rock varying from 10 to 40 feet. The bar claims are principally drift diggings. John Ramey and party had struck good diggings thirty miles below town, on a creek between Loon creek and the right hand bank of Salmon. The camp will support a thousand people this season, and claim owners are afraid that the supply of labor will not be sufficient. Tassell says, also, that Stanley Basin will afford employment to 80 men; Deadwood, 25; Robeson's bar, 60, and Loon creek from 400 to 500. Wages, he thinks, will be $6 per day.

Oregon.

The Roseburg *Plaindealer* says: New mines have been discovered on a branch of the East Fork of the North Umpqua river, called Fall creek. The miners are said to be making from four to ten dollars a day.

Willow Creek.—The La Grande *Democrat* is informed that there will be no water brought into camp by the Burnt river ditch before the 18th of April. Where the ditch strikes Camp creek, the snow is 8 feet deep. The miners have their sluice boxes and hydraulics ready.

Nevada.

HUMBOLDT.

Mining Items. — *Register*, April 9th: Webh's mill at Gold Rnn will start up the first of next week....Efforts arn being made to have work resumed on the Pride. Buck & Kuakel have a lease of the mine till August ...Trask & Co. have struck a body of rich copper nre, after sinking 90 feet withont a trsce....L. C. Pease has 40 tons nf ore from the Stars and Stripes, sacked and piled at the depot, ready for shipment. The mine yields five tons of first-class ore per day....Henderson & Co. are sacking fine ore from tho Neptune.... Burton has gone to San Francisco to purchaso a smelting furuace....Four car loads of ore shipped this week from Battle Mountain....The Toledo company will commence in a few days....Tho Star City Co., at Golconda, have arranged mattors with their creditors, and will resume operations immediately.

Galena.—Cor. of samc: The White minc, supposed first north extension of the Shiloh, has been leased until the first of June hy S. R. Knowles. In the now shaft a large hody of ore has been struck, assaying two hundred dollars per tou. About fifteen tons have heen shipped during the week, and the supply appears inexhaustible. It is prohable that the mine will change hands, as the stipulation, $5,000, is a small snm, if the ore holds out. The returns trom the last shipment from the Shiloh were $80 per ton. H. L. Spargur, lessee, is prosecnting work with vignr. The new ehaft; wbich is to he 100 feet deep, is now down 30.

REESE RIVER.

Shutting Down.—*Reveille*, 9th: Manhattan mill closes to-day fnr the purpose nf introducing the new roasting process. The erection of the furnace will probably occupy a month; after which the mill will do more work than heretofore. The season is now propitious, the mines never looked better, and when the mill starts up, it will do so with hrighter prospects than ever.

Cortez.—We learn from S. O. Clifford, who arrived on Saturday, that matters have heen quiet, owing to the etoppage of the oaly mill in the district. A few companies have been taking out small lots of chloride ore, and are waiting for tho mill to start, which will bo some time in May.

Mineral Hill.—The Grass Valley *Union* has a letter from Uncle Billy Chollar to G. C. King, from which we quote: "The specimene marked 'Giant' is from a shaft 50 feet deep and the ledge is seven feet thick, and we think it will pay $500 per ton. My tunnel will strike this ledge 300 feet deep; and the tunnel will strike two or three other ledges in 400 feet from the mouth. * * I dnn't go on a large company any more. Two of ns can hold 600 feet and that is large enough. Two day'e work will hold a claim for one year. Now if you will come here we will make a few locations and hold on. * * Now, this is the richest camp in mineral I wae ever in, and I am going to fight it out on this line."

WASHOE.

Imperial : Empire.—Gold Hill *News*, April 9th: Sinking in the main shaft is resumed, and a station will be opened for the new level, to drift west through tbe ledge.

Yellow Jacket.—The new body of rich ore at the 900-foot level proves more extensive than supposed, It is kuown to be 18 feet wide, and has beeu breasted out for 25 foet north. The daily yield of the mine is 350 tons.

Hale & Norcross.—Shaft 100 feet deep helow the sixth level, and further sinking ceased. A station is being opened 85 feet bolow the sixth, leaving 15 feet for a sump. This new eeventh level will be in orn from the start.

Sacramento & Meredith. — Actively worked at the surface. The dump and ore house is completed, and the double track for sending ore in cars down to the mill is now being laid. The new mill is progressing, the building being nearly completed, and tbe machinery all on the grnund. It will be running in a montb.

Gouln & Curry.—Daily yield 85 tons, frnm the npper levels; average assays $73 per ton. The ore of the El Dorado section still improves. The bullion yield for March footed up $50,213.15.

Ophir.—The water in the new shaft is reduced to the lowest station—lnwer than at aay time since the 700-foot level cut the east clay of tbe ledge. The new steam hoistiug works operate well.

Daney.—A track is laid from the dump to tbe shaft, and measuree are being taken towards the extraction of the good surface ore.

Occidental.—During the week, crosscutting iu the lower tnnnel shows the ledge to he at least nine feet wide. The ore assays from $30 to $270 per ton.

Chollar-Potosi.—The drift at the 500-foot level west of the new sbaft has quartz and porphyry. Total receipts for March, $113,188.65.

Belcher.—Considerahle water in the 730-foot level, hut prospects for gond orc excellent. The upper levels yield 70 tons of average grade nro daily.

Crown Point.—Yielding 40 tons of low grade ore daily from tho upper levels. The receipts fnr March fnoted up $22,000.

Sierra Nevada.—Mill running steadily and yielding well, the supply being from the east body of the surface deposit.

Calenonia.—The drift from tho shaft at the 200-foot level has reached the ledge, and a good yield is beginning.

Savage.—Bullion receipts for March, $23,000.

Let Out.—*Enterprise*, 6th: Tho miners of the Imperial & Empire mine werc let out last eveuing. Thcy had been confined therein since six o'clock on Friday evening. No very encouraging devolopment, we learn, were made during tho time they were shut dowa.

Sutro Tunnel.—This is in 927 feet. The ground is quite hard. No water is heing encountered at the face of the tunnel. The superintendent will try a new explosive noxt week called Hercnles powder. Heretofore ho hae nsed none hut common black blasting powder.

WHITE PINE.

Review.—*News*: The spring is opening finely, and the universal testimony nf miaers is, that a few more days of good weather will enable them to take out and transport to the mills enough ore to keep every stamp in the district gning day and night. Many of our best average mines bavn large quantities of ore on their dumps, wbich will be shipped to the mills as soon as the roads will admit. The water works were, nn the 4th inst., knocked down hy the Sheriff to W. G. Bourno, of San Francisco, for $43,000. At no time, the past winter, ought tbe works to have failed to pay a large interest on that amount. We look to an early resumption of the business of the late company. Most nf the hase bullion goes east to New York. Shippers find that they tbereby make from $48 to $70 more per ton.

Items.—*News*: The contractors on the Morrison & Shipton mine have struck gray carbonate ore in abundance....The Clark & Cross mine, on the Base Metal Range, has also struck fine ore....The Alsop smelting wnrks are turning out rich bullion. The White Pine worke, damaged by the late storm, are nearly roady to start up. A mine belonging to this company, on the eastern slope of White Pine mountain, is turning out exceedingly rich ore....The fissure in the Noonday mine is turning ont a big thing. Where the main east drift cut the ledge the ore averages $180 to the ton, hy assay, and by mill process works 73 per cent. The quality has steadily improved, and the ore now being cnt by the lower drifts is very rich....The Westford mine has been bonded to W. N. Osborne, who will push work on a large scale.... The company owning the "Jennie A." have got their mine splendidly opened, and bave 100 tons of good ore now on dumps. Gen. Biggs, the only memher of the company who has means, has kept the rest in eupplies through the wiuter, and they are now taking out $100 ore.

Items.—*Empire:* The Tom Paine mine bas bcen sold to a Chicago company, and wo may look for active operations in a sbort time. We are advised of other extensive negotiations....Wo understand that tbe Stanfnrd mill will resume operations on the 11th.

Original Hidden Treasure. — *News:* This mine, the first located on Treasure Hill, has tn-day more ore of good quality than any, save, perhaps, the Aurora South. The lower tunnel is in 200 feet, and has 90 feet to go hefore tapping the shaft. The tunnel hae cut into nre of excellent quality more than 20 feet. The nortbwest incliue frnm the south cut opens into a large cbamber, wbich is tapped by a sbaft, covered witb an orehouse. The body of ore in this part nf the mine is first quality—some of it exceedingly rich in hnrn silver—aud it is appareutly abont 40 feet wide, hut will not, perhaps average over 25. This body is pitchiug southwest, into the hill, the whole of it bigh grade, and along the faoe nf one breast a knife may be stuck into the ore in many places, while thin sheets of it cau be donbled like a piece of paper. Minere eay that there are large qnantitiee of ore in this chamber which will pay $2,000 to the ton.

San Francisco Mining Stock Market.

The mining share market has bceu characterized hy greater activity than during tho previous week, the majority of stocks showing a recession from opening prices of the present week.

The aggregate assessments aud dividends of the claims located on the Comstock lode for the first three months of the past five years have heen as followa:

First quarter, 1870	Assessments	$731,000
First quarter, 1870	Dividends	220,000
First quarter, 1869	Assessments	156,200
First quarter, 1869	Dividends	588,000
First quarter, 1868	Assessments	557,900
First quarter, 1868	Dividends	310,000
First quarter, 1867	Assessments	230,780
First quarter, 1867	Dividends	790,000
First quarter, 1866	Assessments	474,600
First quarter, 1866	Dividends	90,000

We call the attention of the reader to the anuexed table, the same being a mouthly statement of tweuty-two mining companies for the months of January, February, and March, 1870, giving their highest aud lowest price, bullion product, assessments, and dividends, as near as could bo ascertained, as well as the aggregates for same time in 1869, 1868, and 1867. As usual, we havo been ohliged to estimate the hullion product of the Yellow Jacket Company:

Company.	January.					February.					March.				
	Highest Price.	Lowest Price.	Bullion.	Assessments.	Dividends.	Highest Price.	Lowest Price.	Bullion.	Assessments.	Dividends.	Highest Price.	Lowest Price.	Bullion.	Assessments.	Dividends.
Belcher	$16 75	$14 75	$34,106			$19 00	$15 75				$34 50	$16 25	$65,368		
Bullion						7 00	4 00		$10,000						
Caledonia			2,078					$4,442					7,276		
Chollar-Potosi	20 87	17 50	115,263		$28,000	21 25	18 25	91,545		$28,000	32 75	22 50	113,189		$28,000
Consolidated Virginia				$23,200							17 00	10 00			
Crown Point	17 25	10 00		90,000		19 00	11 00	14,719			29 00	17 00	34,453		
Daney	1 25	12							8,000		5 00	3 00			
Empire M. & M. Co	31 00	19 00		12,000		25 00	14 00				45 00	14 00			
Gold Hill Q. M. & M. Co.	35 00	35 00	3,802			22 00	13 00				30 00	16 00			
Gould & Curry	72 00	44 00	18,239	72,000		85 00	39 00	33,389			500 00	86 00	50,213		
Hale & Norcross	163 00	140 00	188,334			164 00	126 00	145,203		48,000	147 50	126 00	107,057		48,000
Imperial	51 50	30 00				35 50	17 50		40,000		52 00	17 00			
Julia	1 00	40									1 00	75		$ 6,000	
Justice						3 00	3 00				3 00	80		36,000	
Kentuck	147 00	100 00	31,207		20,000	106 50	80 00	29,300		20,000	98 50	60 00	31,790		
Lady Bryan	6 50	2 50				4 00	1 00				7 00	2 75		12,000	
Ophir	15 00	12 50		33,600		15 37	10 50				25 00	11 37		50,400	
Overman	76 00	60 00	49,229			69 00	63 00	57,613			110 00	63 50	72,000		
Savage	47 50	37 75	25,560			41 00	30 50	7,035	160,000		60 00	29 50	23,030		
Segregated Belcher	8 00	6 25				7 00	5 25				8 87	5 50		12,800	
Sierra Nevada	9 87	7 25	11,025			8 00	6 50	12,300			9 25	6 37	15,600		
Yellow Jacket	56 00	44 00	125,000			54 50	42 00	125,000			53 00	41 06	125,000	168,000	
Total in 1870			$603,843	$230,800	$ 48,000			$520,546	$218,000	$ 96,000			$644,976	$285,200	$ 76,000
Total in 1869			673,500	16,000	224,000			600,513		160,000			766,872	140,200	204,000
Total in 1868			481,016	294,900	110,000			501,333	186,000	110,000			781,697	76,000	90,000
Total in 1867			1,022,377	110,300	294,000			1,014,238	76,000	276,000			728,916	44,480	280,000

We herewith present a condensed tabular statement relative to the product of bullion, dividends and assessmeuts of the various mines on the Comstock Lode during the first three months of 1870, together with the aggregates of the same period during the four preceding years:

Company.	Bullion Product.	Dividends.	Assessments.
Belcher	$99,474		
Bullion			$10,000
Caledonia	13,796		
Chollar-Potosi	319,997	$84,000	
Consolidated Virginia			23,200
Crown Point	49,172		90,000
Daney			8,000
Empire Mill & Mining Co.			12,000
Gold Hill Q. M. & M. Co.	3,802		
Gould & Curry	101,841		72,000
Hale & Norcross	440,594	96,000	
Imperial			40,000
Julia			6,000
Justice			36,000
Kentuck	92,297	40,000	
Lady Bryan			12,000
Ophir			84,000
Overman	178,842		
Savage	55,625		160,000
Segregated Belcher			12,800
Sierra Nevada	38,925		
Yellow Jacket	375,000		168,000
In 1870	$1,769,365	$220,000	$734,000
In 1869	2,040,885	588,000	156,200
In 1868	1,764,046	310,000	556,900
In 1867	2,765,531	850,600	230,780
In 1866	2,291,883	90,900	474,600

Chollar-Potosi—has been well maintained, under fair sales. During the week ending April 8th, 1,300 tons of ore were extracted, showing an average assay value, from car samples, of $72 10; previous week, 1,217 tons were taken out. Forty-three feet have been added to the drift from the New Shaft, the face of which is now in heavy clay. On the 12th inst., $19,460 in bullion was sent to the office in this city.

Kentuck—was in slight request. During the week closing April 8th, 381 tons of ore were extracted, showing au estimated yield of $5,651, equal to $14 85 per ton. The aggregate bullion product for the month of March was $31,790, and for the quarter, $92,297; same time in 1869 it amounted to $201,088.

Crown Point—increased iu activity, at a recession from opening rates. For the week closing April 8th, 484½ tons of ore were extracted, showiug an approximate value of $5,603 42.

Ophir—has heen lu the market to a very large extent, under an advance. On the 11th inst. the drift had been cleared of water, and at shaft No. 3 "the first-station drift is being well started off."——Sierra Nevada was in moderate request. For the week ending April 7th the ore-product amounted to 390 tons.——Overman declined. For the week ending April 9th, 1,094 tons of ore were extracted.

Gould & Curry—continues to change hands at fluctuating ratea, and at the recent decline. During the week ending April 11th, 675 tons of ore were taken from tho minc. Work has been steadily carried on in the cross-cuts ruuning west at the seventh station. Nine feet have been added to cross-cut No. 2, making the total length 191 feet, the material penetrated being hard, flinty quartz. Cross-cut No. 3 is 78 feet in length, running in heavy clay, mixed with porphyry. Tho upper ore-producing chambera continue to furnish a good supply of ore, and promise well for the futuro.

Hale & Norcrosa—has heen inactive, at a recession in price. During tho week closing April 9th, 1,120½ tons of ore were extracted, against 1,158½ tons the prevlous week. They have on hand, at the dumps, 5,977½ tons, of which 2,485 tous ia low grade.

Amanon (Cal.)—figured conspicuously in the market during the past week, owing to a fire in the minc, which caused the stock to fall as low as $265, closing at over $300 per share. A dispatch of the 14th inst., from the Superintendent, reads as follows: "Sent men down the middlo ahaft last night. No fire in any part of the shaft at the 844-level. They crossed the uorth shaft, and explored the stopes north, and found one log on fire; also, that the platform-timhers had been carried away by the falling of the *debris*. Went down to the San Francisco level; found no fire. The water is tweuty fect above the Panama level. Covered the shafts tight, and shall send down hose to-day to drive all the fire upward—covering the shaft as we come up. No caves have occurred, thus far, and I think the damage is much lighter than at first supposed. No smoke this morning; a little steam and gas is escaping." The bullion yield for March aggregates $56,127.—*Commercial Herald.*

MINING STOCK QUOTATIONS, APRIL 14, 1870.

WASHOE.

	Bid.	Asked.		Bid.	Asked.
Alpha Con.	$ 15	$ 16¼	Gold Hill Q M C.	$ —	$ 25
American	—	—	Hale & Norcross	135	—
Belcher	26	27	Imperial	42½	43
Bullion	—	—	Justice	—	—
Crown Point	22	22½	Julia	—	—
Cole, Va.	—	—	Kentuck	84	85
Confidence	—	30	Lady Bryan	2¾	3
Chollar-Potosi	26½	27	Occidental	15	15½
Con. Virginia	13	—	Ophir	25	26½
Daney	5	5½	Overman	85	86
Empire	25	—	Savage	47	47½
Exchequer	—	11	Sierra Nevada	7½	7¾
Flowery	—	—	Seg. Belcher	10	10½
Gould & Curry	212½	215	Yellow Jacket	49½	50

WHITE PINE.

	Bid.	Asked.		Bid.	Asked
Aurora Con.	$ 9	$ 9½	Noonday	3	3½
Brodt	—	—	Orig. Hidden Tr.	24	25
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	2¼	2½	Silver Wave	4¾	—
Mammoth	2½	2¾	Virginia	4¾	5

CALIFORNIA.

Amador	$302	$305	Eureka	$240	$250

IDAHO.

Golden Char't.	$ —	$ —	Silver Cord	$—	$—
Rising Star	—	—			

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment.	Day Delinquent.	Day of Sale.
Alameda Coal, Feb. 16, 30c	March 30	April 30*
Alban, Storey co., March 21, 5c	April 25	May 14*
Eagle Quicksilver, March 14, $20	April 16	May 2*
Green Monster, Inyo co., March 10, $1.	April 16	May 2*
Glonwood, El Dorado, Feb. 4, 25c	April 6	April 27*
Hartwell, W. P., Feb. 19, 5c	March 25	April 21*
Hormiguera, L. Cal., March 11, $2.50	April 15	May 6
Hidden Treas. Cons., March 28, 25c	May 3	May 24
Imperial, Storey co., March 7, $10	April 11	May 3
Julia, Storey co., March 12, 60c	April 15	May 3
Kincaid Flat, March 4, $2.50	April 5	April 23*
Lady Bryan, Virginia, March 17, $2	April 18	May 19
Latawana, W. P., March 19, 15c	April 23	May 10*
Meadow Valley, Ely Dist., Mar 26, 75c	April 28	May 20
N. Bloomfield Gravel, March 28, $2.50	April 30	May 17
Nevada L. & M., Feb. 8, 2½c	March 15	April 19*
Ophir, Storey co., March 7, $3	April 11	May 3
Pocahontas, El Dorado, March 2, $4	April 2	April 28*
Peytona, Va. Dist., March 18, $1	April 19	May 4
Placer G. & C., Placer co., April 9, $2	May 20	June 10*
Rising Star, Idaho, April 6, 50c	May 14	June 4
Sterling, Arizona, March 9, $5	April 18	May 17
San Jacinto Tin, March 4, 5c	April 4	May 4
Segregated Belcher, S. co., March 2, $2.	April 6	April 29
Sierra, Douglas co., March 29, $2	April 29	May 20
Tecumseh, Calaveras co., March 21, $5	April 21	May 5
West Point, W. P., Feb. 22, 50c	March 26	April 18
Yellow Jacket, March 16, $7	April 18	May 19
Yosomite, March 7, $1	April 7	April 23*

MEETINGS TO BE HELD.

Best & Belcher	Meeting April 30
Exchequer	Meeting April 30
Gould & Curry	Meeting April 25
New Idria	Annual Meeting April 26
Noonday	Annual Meeting April 25
Oneida	Annual Meeting May 2
Pocotillo	Meeting April 32
White Pine Smelting	Annual Meeting April 20

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable April 11, 1870
Eureka, div., $7.50	Payable April 7, 1870
Golden Rule, div., 50c	Payable March 26, 1870
Hale & Norcross, div., $6	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 60c	Payable Jan. 10, 1870

——*Advertised in this journal.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Adaptation of Crops.

In casting about for the most profitable crops to raise, there are many considerations which the farmer has to take into account, the two most important of which are the nature and condition of the soil, and the nearness or remoteness of a good market. The intelligent farmer will not plant perishable vegetables in a wet, heavy soil, nor will he cultivate such crops largely in a locality remote from a great center of population. The vegetable and fruit-grower locates in the vicinity of a city. The dairyman who wishes to produce butter or cheese, goes back into the country where land is cheap; so with the cattle-grower and the producer of wool. The wheat-grower must also locate near some route of easy and cheap transportation to a market.

One of the greatest mistakes of California farmers is the disposition to crowd the lines of the principal thoroughfares, with the view of paying almost exclusive attention to the production of cereals. To raise a large crop of wheat or barley almost all other productions are ignored. If wheat rules high, when the crop comes off, the plan works well for the time; but if the reverse, disaster and discouragement ensues, a result which always obtains in the long run. How often do we see the wheat-grower, in this State, buying his potatoes and other vegetables, his butter, his cheese, his fruit, his beef, pork, etc., at high prices, with the produce of his wheat marketed at ruinous rates! A large portion of his crop thus goes to pay for that which he might readily have raised upon his own farm, and at very little extra cost—such work may generally be done at odd times, when his principal crop does not demand his attention. Such policy is short-sighted in the extreme.

Farm-work needs to be arranged and carried out in accordance with certain fixed and well-known principles of agricultural science. There is no great difficulty involved in this idea, even here, in California, where many of the practices of the East are inapplicable, except under frequent and greatly modified conditions.

If every part of a farm could be treated each year with a liberal dressing of barn-yard manure, impulse, accident or caprice even, might, with a great degree of impunity, be left to determine the nature of the crop upon any field. We see this fact exemplified in the case of the extensive market gardens, near all our great centers of population, where such dressing is easily attainable. The reason of this is obvious; for the barn-yard and city drainage always returns to the land everything that is taken from it. But in extensive field culture, as in California, such practice is inapplicable, and we must resort to other expedients, such as mineral plant food scientifically supplied and aided by judicious rotation of crops, plowing in green manures and by fallowing. The great fundamental fact which has been abundantly proven, and which must be acknowledged as a necessity for all successful farming, is the rotation of crops. This, however, involves a system of diversified farming, which has not yet been introduced to any extent in this State; but which, as we have often said and again repeat, is peculiarly applicable here. Some hints on diversified farming will be found in another article on this page.

Maple Sugar.—Last year, from a grove of one hundred maple trees in Berkshire, Mass., 500 pounds of sugar were made in five days. Vermont is the largest producer of maple-sugar of all the New England States.

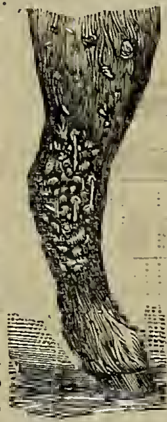
Diseases of Horses.—No. 2.

Glanders and Farcy.

Glanders and farcy are essentially the same disease, or rather two forms or stages of the same. When the disease is located in the nasal cavities it is called "glanders;" when in the lymphatic vessels (those vessels near the surface, which contain the colorless fluid of animal bodies), it is known as "farcy." The pus which flows from either will produce the other. Glanders, however, is generally the first to make its appearance, from the fact that the part of the system where that form of the disease locates is most sensitive.

How and When Communicated.

The disease is readily communicated to the horse or to man, but has never been known to attack any of the brute creation except those belonging to the equine family, as the horse, the ass, the zebra, etc. The fact that it can be communicated to man has only been known since the commencement of the present century. It is always fatal to either man or beast It never makes its appearance in man except by inoculation or transmission from the horse. At a meeting held in Burlington co., N. J., just after the war, to adopt measures to prevent the spread of this disease, which had been communicated by a sale of government horses, statistics were introduced to show that over two hundred human beings had died of the disease. When the disease makes its appearance in man, it takes a modified form, more nearly resembling a malignant fever—never the true "glanders."



Cause and Symptoms of Glanders.

The disease appears to be of comparatively modern origin, and arises spontaneously from exposure to insufficient or unwholesome food, foul air and confinement. It is especially liable to make its appearance when horses are congregated in large numbers, under the above conditions. It was very prevalent about the close of and just after the late war, for the above reasons.

The symptoms attending the first appearance of the disease in the form of glanders, are severe and wandering pains, high fever, great prostration, profuse and offensive perspiration and discharges. Inflammation pervades the face and nasal organs, and the inner pink membrane or middle wall between the nostrils becomes pale and sickly, and covered with small sores, which discharge a viscid, offensive and slightly bloody matter, the same which, generally by contact, imparts the disease to other animals. When these indications make their appearance, fully, the case is hopeless, and the animal should be at once killed and carefully buried, to prevent the spread of the disease. If, however, the animal is allowed to survive this point of the disease, numerous hard pustules appear on the face, and gradually spread over the neck and body. Common gleet is sometimes mistaken for the glanders, though it need never be, with due reference to the symptoms as here described.

Farcy—Its Symptoms and Appearance.

At this stage farcy sets in, and the lymphatic system is attacked. The vessels immediately beneath the skin become hard and cord-like, and sensitive to the touch. These swollen vessels or glands, technically termed "farcy buds," after a while suppurate and form ulcerous sores, which sometimes run together in large masses, as shown in the accompanying illustration. In that condition they exude a pale yellowish and sometimes quite dark-colored matter, very unlike that accompanying healthy granulations on common sores. These swellings and sores usually make their appearance on the sides of the face and neck, but most commonly on the inner side of the legs, but sometimes on the outer side of the body. The entire leg also takes on a swelled and dropsical appearance.

When *farcy* is the first to make its appearance, unless promptly arrested, it is sure to reach the stage of glanders in a very few days, when all hope of saving the animal may be given up. Glanders makes its appearance from four to eight days after the first showing of the symptoms.

The accompanying illustration is taken from a picture prepared by an English veterinarian, of a case which came under his treatment, at the Royal Veterinary College of London. It exhibits quite an extreme confluent condition of the farcy ulcers, the skin nearly gone and the leg swollen and dropsical. Yet, severe as was the case, the animal is said to have been permanently restored by the administration of antiseptic, tonic stimulants (aided by a judicious use of cantharides), which kept up the strength of the animal, and prevented the progress of the disease into the glander's stage.

Treatment of the Disease.

As the disease is very rapid in its progress, a good veterinary physician should be summoned at once. If it has made its first appearance in the form of farcy, there is hope, if prompt action can be had; for the disease is then wholly confined to the skin and lymphatic system. It affects the rest of the body only through general debility; hence the strength must be supported by stimulants and antiseptic tonics, as mentioned above—such as wine, ammonia, ether, etc. Iodide of potassium and iodine have been successfully employed at this stage of the disease.

If, however, the indications of farcy continue for any considerable time, the blood carries the poison through the entire system; and when the lungs and nasal organs are affected, the case is hopeless, and the animal should be killed at once, for reasons already stated, and to put him out of misery. The average duration of the disease is from fifteen to twenty days; although it sometimes proves fatal in a week.

We are not aware that either glanders or farcy have made their appearance in California; but their presence has been quite common, for a few years past, in the Atlantic States; and every owner of a good horse should be on his guard against putting him in a large, illy-ventilated stable with strange horses. No doubt the clear and invigorating atmosphere of this coast has much to do with the immunity which is enjoyed here from this and similar diseases to which this noble animal is elsewhere subjected.

Blooded Fowls.—Much attention is being paid to the introduction of blooded fowls into California. The Los Angeles *News* says that Joseph Babcock has recently imported eight pullets and three cocks—magnificent and perfectly pure specimens of Brahma Pootras. Four pullets and one cock cost $100 landed in this city. These chickens are to be carefully kept in an enclosure by themselves, for breeding, so that their blood may be kept untainted. This breed of fowls combines most excellent laying qualities with large size and weight, tender flesh and quiet habits. We judge, from the description in the *News*, that they are of the light variety. This breed of fowls is at the head of the Asiatic list in regard to size and weight. They will often reach twenty-two to twenty-six pounds a pair.

The *News* spells the word "Brama-poota." They take their name from the country where they originated, and geographers differ as to the orthography of the name—some spelling it Burrampooter, others Brahmputra, and others still Brahma Pootra. The last is the spelling now most generally adopted by the best authorities.

Diversified Farming.

The climate and soil of California is so varied that almost everything which the earth produces, can be raised here with great success. All the cereals, vegetables of every name and description, fruit of every variety, not excepting the tropical orange, olive, fig, lemon, pomegranate, prune, date, banana, etc., can be raised in almost every portion of central and southern California. The grape for raisins and wines and the mulberry for silk flourish here in their greatest perfection, and no land or climate is better suited to the culture of the poppy for opium. Experiments have already quite fully shown that we can produce our own tea, while coffee will eventually be a certain success in the lower portion of the State. Our mountains, while they abound in almost every mineral known to the arts, furnish herbage sufficient to produce all the wool needed to clothe our forty millions of people, and water-power for its manufacture into cloth. The navies of the world might also be constructed from the timber which crowns their slopes.

Yet with all this, our agricultural industry is said to be languishing or overdone, and the spring of 1870 finds our farmers almost exhausted of funds, and our financiers seeking various and diverse remedies to increase the volume of currency—to "make money easy." But their efforts in that direction will be in vain. *The lack of diversified farming* and the want of a disposition among our own people to enter thereupon, is what's the matter—and nothing else. Diversified farming encourages industry and application on the farm; it leads to intelligent action in the selection of crops and in their application to the soil, as well as their proper rotation; it economizes the farmer's labors and expenditures; keeps money in the State that under our present system goes out by thousands and millions to support farmers in other parts of the country; it tends to subdivision of our lands into smaller sections, whereby they are more thoroughly tilled; it fills up the State with an industrious population; furnishes a home interchange of products, encourages manufactures, and thereby greatly enlarges the market for its own surplus.

The growing of any one crop, to the exclusion of others, is always to be deprecated. It stakes success on a single enterprise; it is an exhaustive system of agriculture; it affords no opportunities for the general average which, under the diversified system, makes profit and loss a uniform success; it crowds the work of the entire year into a few months, thereby necessitating bad economy in labor; it compels the farmer of small capital to annually hypothecate his crop at ruinous discounts; it is a short-sighted, ruinous policy for the great mass of producers in every possible aspect in which we may view it; in short, it is the very antipodes, in its results, of diversified farming.

There is scarcely an intelligent farmer in the State that will not subscribe to these propositions, and we frequently meet with those who curse their folly for having pursued this course in the past, and who express the wish that they had diversified their crops and labor. Yet, as a general thing, these very persons still continue to go on in the same old routine, their lands growing worse and worse, their crops growing less and less—in fact, with ruin staring them in the face! Why they do so it is difficult to say; whether it is impulse or listlessness, or a feeling of discouragement at the magnitude of the task involved in the change, or all combined, we leave for others to judge. In many places, no doubt, a general system of irrigation is essential to the desired change; yet much might be done independently, with or without drainage, and it will be only by such independent action, carried out to an extent sufficient to prove its practicability and economy, that we can hope for any general improvement in this direction.

Animal Fat—Its Significance.

The fat of man or animals is an oily matter, of itself unendowed with life or sensibility. It is contained in cells much as honey is in the comb. The walls of these cells possess sensitiveness, and are so organized as to have the power of adding to or taking from the amount of oily matter, or fat, which they may at any time contain.

The use of fat is to fill up crevices, as it were, in the body, and facilitate the movement of parts one upon another. It also serves as a sort of internal nutriment, wherewith the animal system may be sustained, whenever it may be in a position where it cannot obtain its usual supply of food, or when the digestive organs fail to act promptly. It is, in fact, a sort of *balance wheel*, which serves to average the nutritive supply to the system, whenever, from any cause, that supply is made irregular.

Whenever, from any cause, there is an undue accumulation of fat in the system, it clogs and impedes; instead of facilitating the motions of the parts of the body, it becomes a burthen. An over-fat horse is unfit for speed or easy labor, from the fact that his limbs are clogged—he has a useless burthen to carry. A fat animal suffers more from loss of blood than one in good working condition. A fat man will sooner faint from the abstraction of blood than a lean man.

Plumpness from fatness is not always a sign of strength and health. Horse-dealers well understand this. It is often the case that such persons, by a careful manipulation of food and exercise, *will so fill up with fat the crevices* in a broken-down animal, as to conceal most or all its outward imperfections. Fat thus becomes the horse-dealers' putty; for by it, like the coach or cabinet-maker, he makes the article which he has for sale appear more perfect than it really is. The eye of the experienced horseman, however, is generally able to detect the cheat. Such a person, quietly feeling the ribs and along the crest, determines at once, by the eye and hand, that which one, with less experience, can discover only on actual trial.

An ox takes on fat more readily than a horse, and when forced in that direction, the fat of the bovine is less likely to assume an unhealthy form, or accumulate, in excess, in undesirable localities. In young horses, fat is mostly deposited externally—upon the superficial muscles; but horses seven or eight years old and upwards are more disposed to accumulate fat inwardly—as about the kidneys and bowels. A horse sometimes shows very little fatness outwardly when he is "loaded with fat" inwardly.

Fatty matter deposited among the muscles of an animal—between their fibers—renders the flesh flabby, and is not an indication of strength. Such fatness, however, is desirable in beef intended for the table. The ox, as we have already said, takes on fat in that manner readily, the horse with difficulty. This appears to be a wise distinction of Nature between the two animals; and may not this fact add another and important inference to the teachings of Holy Writ, that the horse was never intended as food for man?

A good horse is less made up of fatty substance than a good ox. Both, however, should have large bones and joints and muscles; for in these alone are found their strength and physical powers. Large bones are more essential, however, to the horse than to the ox, for the reason that without them there will be a lack of speed. All our best racers have been large-boned horses. We will endeavor, next week, to show where fat and flesh come from.

The Willamette river is stated to be higher now than at any time during the winter or in any year, at this season, as far as known.

What I Know of Farming—No. 10.

The Possibilities of Irrigation.

I have given an account of my poor, little experiment in irrigation, because it is one which almost every farmer can imitate and improve upon, however narrow his domain and slender his fortune. I presume there are half a million homesteads in the United States which have natural facilities for irrigation at least equal to mine; many of them far greater. Along either slope of the Alleghenies, throughout a district at least a thousand miles long by three hundred wide, nearly every farm might be at least partially irrigated by means of a dam, costing from twenty-five to one hundred dollars; so might at least half the farms in New England and our own State. On the prairies the plans must be different, and the expense probably greater, but the results obtained would bounteously reward the outlay. I shall not see the day, but there are those now living who *will* see it, when artesian wells will be dug at points where many acres may be flowed from a gentle swell in the midst of a vast plain, or at the head of a fertile valley, expressly, or at least mainly, that its waters may be led across that plain, adown that valley, in irrigating streams and ditches, until they have been wholly drunk up by the soil. I have seen single wells in California that might be made to irrigate sufficiently hundreds of acres, by the aid of a reservoir into which their waters could be discharged when the soil did not require them, and there retained until the thirsty earth demanded them.

An old and successful farmer in my neighborhood affirms that water is the cheapest and best fertilizer ever applied to the soil. If this were understood to mean that no other is needed or can be profitably applied, it would be erroneous. Still, I think it is clearly true that the annual product of most farms can be increased, and the danger of failure averted, more cheaply by the skillful application of water than by that of any other fertilizer whatever, plaster (gypsum) possibly excepted.

I took a run through Virginia last summer, not far from the 1st of August. That State was then suffering intensely from drouth, as she continued to do for some weeks thereafter. I am quite sure that I saw on her thirsty plains and hillsides not less than three hundred thousand acres planted with Indian corn, whereof the average product could not exceed ten bushels per acre, while most of it would fall far below that yield, and there were thousands of acres that would not produce one sound ear! Everyone deplored the failure, correctly attributing it to the prevailing drouth. And yet I passed hundreds, if not thousands of places, where a very moderate outlay would have sufficed to dam a stream or brooklet issuing from between two spurs of the Blue Ridge, or the Alleghenies, so that a refreshing current of the copious and fertilizing floods of winter and spring, warmed by the fervid suns of June and July, could have been led over broad fields lying below, so as to vanquish drouth and insure generous harvests. Nay, I feel confident that I could in many places have constructed rude works in a week, after that drouth began to be felt, that would have saved and made the corn on at least a portion of the planted acres through which the now shrunken brooks danced and laughed idly down to the larger streams in the wider and equally thirsty valleys. Of course, I know that this would have been imperfect irrigation—a mere stop-gap—that the cold spring-water of a parched summer cannot fertilize as the hill-wash of winter and spring, if thriftily garnered and warmed through and through for sultry weeks, would do; yet I believe that very many farmers might, even then, have secured partial crops by such irrigation as was still possible, had they, even at the eleventh hour, done their best to retrieve the errors of the past.

For the present, I would only counsel every farmer to give his land a careful scrutiny with a view to irrigation in the future. No one is obliged to do any faster than his means will justify; and yet it may be well to have a clear comprehension of all that may ultimately be done to profit, even though much of it must remain long unattempted. In many cases, a stream may be dammed for the power which it will afford for two or three months of each year, if it shall appear that this use is quite consistent with its employment in irrigation, when the former alone would not justify the requisite outlay. It is by thus making one expense subserve two quite independent, but not inconsistent purposes, that success is attained in other pursuits; so it may be in farming.

As yet, each farmer must study his own resources with intent to make the most of them. If a manageable stream crosses or issues from his land, he must measure its fall thereon, study the lay of the land, and determine whether he can or cannot, at a tolerable cost, make that stream available in the irrigation of at least a portion of his growing crops when they shall need water and the skies decline to supply it. On many, I think on most, farms situated among hills, or upon the slopes of mountains, something may be done in this way—done at once, and with immediate profit. But this is rudimentary, partial, fragmentary, when compared with the irrigation which yet shall be. I am confident that there are points on the Carson, the Humboldt, the Weber, the South Platte, the Cache de-Pouder, and many less noted streams, which thread the central plateau of our continent where an expenditure of $10,000 to $50,000 may be judiciously made in a dam, locks and canals, for the purposes of irrigation and milling combined, with a moral certainty of realizing fifty per cent. annually on the outlay, with a steady increase in the value of the property. If my eye did not deceive me, there is one point on the Carson, where a dam that need not cost $50,000 would irrigate one hundred square miles of rich plain, which, when I saw it, eleven years ago, grew aught but the worthless shrubs of the desert, simply because nothing else could endure the intense, abiding drouth of each Nevada summer. Such palpable invitations to thrift cannot remain forever unimproved.

In regions like this, where summer rains are the rule rather than the exception, the need of irrigation is not so palpable, since we do or may secure decent average crops in its absence. Yet there is no farm in our country that would not yield considerably more grain and more grass, more fruit and more vegetables, if its owner had water at command which he could apply at pleasure and to any extent he should deem requisite. Most men, thus empowered, would at first irrigate too often and too copiously; but experience would soon temper their zeal, and teach them

> "The precious art of Not too much;"

and they would thenceforth be careful to give their soil drink, yet not drown it.

Whoever lives beyond the close of this century, and shall then traverse our prairie States, will see them whitened at intervals by the broad sails of windmills, erected over wells, whence every gale or breeze will be employed in pumping water into ponds or reservoirs, so located that water may be drawn therefrom at will and diffused in gentle streamlets over the surrounding fields to invigorate and impel their growing crops. And, when all has been done that this paper faintly foreshadows, our people will have fairly indicated, not by any means exhausted, the beneficent possibilities of irrigation.—*Horace Greeley.*

Japanese Chesnut Trees.

Mr. Keudo's treatise upon silk, tea and other Japanese products, elsewhere more particularly noticed, gives the following interesting facts with regard to the Japanese chesnut: "They have in Japan four or five different kinds of chesnut trees, bearing nuts of a good, and some of a most delicious flavor. Some of these trees grow to a height of forty feet, and have a diameter of three feet, while others are of a dwarf species, very bushy, but not reaching a height of more than three or four feet. The species is an evergreen, the nuts, which are, also, of a diminutive size, though of very superior excellence, ripening upon the tree all the year round. The larger trees have wide spreading branches, which they send out about ten feet above the ground. The wood of the Japanese chesnut is hard, different from the European and American tree, and is used for building and mechanical purposes. The nuts are enclosed in thickly spinated burs; those grown upon the larger trees being from an inch and a quarter to an inch and a half in diameter, resembling the French chesnuts, though somewhat larger and of scarcely so fine a quality.

All these varieties of the chesnut tree grow well in California, as shown by actual trial, it being thought that they will bear in two years from the planting of the young trees, and in three where grown from the seed. When once rooted they are a hardy tree, and unless destroyed by accident, will flourish in almost any kind of soil, and bear fruit for centuries; wherefore, they could not fail to yield large profits in California, where chesnuts now sell at rates varying from fifty to seventy-five cents per pound, many of them being old and unsound at that.

St. Louis Wheat Trade Classification.

The following classification of wheat is in use at the Merchants' Exchange, St. Louis: "Choice" must be bright, sound, plump, dry and well cleaned, pure *white* winter, to weigh at least sixty-two pounds to the measured bushel. No. 1 white must be sound, dry, well-cleaned, pure white winter wheat, that will weigh at least sixty pounds to the measured bushel. No. 2 white must be round, dry, white winter wheat, reasonably well cleaned, weighing not less than fifty-nine pounds. No. 1 red must be sound, well cleaned, dry red or red and white mixed winter wheat, free from rye, and weighing at least sixty pounds. No. 2 red must be sound, dry, reasonably well cleaned, red or red and white mixed, weighing not less than fifty-nine pounds. No. 3 red must be as No. 2, free from must, and weigh at least fifty-seven pounds. "Choice" red must be bright, sound, plump, dry and well-cleaned red or red and white mixed winter wheat, weighing at least sixty-two pounds per measured bushel. "Rejected" will include all damp, rough, either very smutty or unground wheat of any weight, and all light, trashy, or dirty thin wheat falling below No. 3 wheat.

All quotations made according to the above classification will be considered bulk wheat in elevator.

Farmers generally suffer much unnecessary loss from badly-cleaned wheat, inasmuch as a very small quantity of poor wheat degrades even a larger quantity of good wheat to the lower grade. Farmers should clean their wheat thoroughly, and thereby secure the highest market rates, and save the refuse for the hog pen or stable. It is poor economy to feed very dirty, and especially *smutty* refuse, to the chickens; better give it to the hogs.

New Agricultural Products.—Specimens of Chinese bamboo and Japanese plums, grown from imported roots, have been exhibited in Los Angeles, and are attracting much attention. Our next Institute exhibition in this city will doubtless contain a large list of new agricultural products for California.

Coffee.—About 713,000,000 pounds of coffee are annually produced in the world, of which Brazil furnishes 400,000,000, or over one-half, and the United States consumes nearly one-third.

Graded Stock.—Twenty-two head of English graded milch cows were shipped last week from Marysville to Mr. Summer,s a dairyman at Reno.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, April 14, 1870.

Flour, Extra, ℘ bbl	$5 00	@$5 50
Do. Superfine	4 50	@ 4 75
Corn Meal, ℘ 100 ℔s	2 00	@ 2 25
Wheat, ℘ 100 ℔s	1 30	@ 1 60
Oats, ℘ 100 ℔s	1 15	@ 1 50
Barley, ℘ 100 ℔s	90	@ 1 05
Beans, ℘ 100 ℔s	2 50	@ 3 50
Potatoes, ℘ 100 ℔s	1 75	@ 2 50
Hay, ℘ ton	11 00	@17 00
Live Oak Wood, ℘ cord	9 00	@14 00
Beef, extra, dressed, ℘ ℔	7	@ 12½
Sheep, on foot	2 50	@ 3
Hogs, on foot, ℘ ℔	5	@ 9
Hogs, dressed, ℘ ℔	8	@ 8½
GROCERIES, ETC.		
Sugar, crushed, ℘ ℔	13	@ —
Do. Hawaiian	8	@ 11
Coffee, Costa Rica, ℘ ℔	18½	@ 19
Do. Rio	—	@ 17½
Tea, Japan, ℘ ℔	75	@$1 00
Do. Green	60	@ 1 25
Hawaiian Rice, ℘ ℔	8	@ 10
China Rice, ℘ ℔	6	@ 7
Coal Oil, ℘ gallon	40	@ 42½
Candles, ℘ ℔	16	@ 18
Overland Butter	20	@ 30
Ranch Butter, ℘ ℔	20	@ 28
Isthmus Butter, ℘ ℔	25	@ 28
Cheese, California, ℘ ℔	14	@ 20
Eggs, ℘ dozen	25	@ 30
Lard, ℘ ℔	13	@ 14
Ham and Bacon, ℘ ℔	14	@ 15
Shoulders, ℘ ℔	9	@ 10

Retail Prices.

Butter, California, fresh, ℘ ℔	40	@ —
do. pickled, ℘ ℔	35	@ —
do. Oregon, ℘ ℔	25	@ —
Cheese, ℘ ℔	20	@ 25
Honey, ℘ ℔	25	@ 30
Eggs, ℘ dozen	45	@ 50
Lard, ℘ ℔	20	@ 25
Hams and Bacon, ℘ ℔	22	@ 25
Cranberries, ℘ gallon	1 00	@ 1 23
Potatoes, ℘ ℔	3	@ 7
Potatoes, Sweet, ℘ ℔	—	@ 2
Tomatoes, ℘ ℔	—	@ —
Onions, ℘ ℔	3	@ 5
Apples, No. 1, ℘ ℔	4	@ 5
Pears, Table, ℘ ℔	5	@
Plums, dried, ℘ ℔	10	@ 12
Peaches, dried, ℘ ℔	10	@ 15
Oranges, ℘ dozen	50	@ 75
Lemons, ℘ dozen	—	@ 1 00
Chickens, apiece	75	@ 1 00
Turkeys, ℘ ℔	—	@ 25
Soap, Pale and C. O.	10	@ 12
Soap, Castile, ℘ ℔	18	@ 20

Scientific Press.

W. B. EWER........................Senior Editor.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance................$4 00
One copy, six months, in advance................ 2 50
Delivered by city carriers, per month.......... 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month.......................... 3 00
One column, one month.......................... 40 00
One column, one year........................... 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

Thomas Poyzer is now visiting Los Angeles and neighboring counties on business for this office, receiving subscriptions, etc. He is an old and worthy agent for the Press.

San Francisco:

Saturday Morning, April 16, 1870.

Table of Contents.

Improved Band Sawing Machine—Ill..............249
The University..........249
Adjustable Tooth for Holding Carbon Points—Ill.249
Mills and Mines of Colorado..................250
Letter from White Pine.250
Humboldt City, Nev....250
Boiler Explosions.......250
The Remedy............256
Asphaltum Water, Drain and Gas Pipes....... 256
Boring Large Shafts—Ill.257
Full List of Patents.....257
Notes of Recent Patents.257
To Correspondents.....256
S. F. Stock Market......255
S. F. Shareholders' Directory..................255
Patent Commissioner's Report...................260
Musical Education.....260
New Book..............257
Stock Quotation........255
Returned...............256
Farming and Gardening.— Adaptation of Crops; Diversified Farming; Diseases of Horses—Ill.; Animal Fat; What I Know of Farming; St. Louis Wheat Trade Classifications; Japanese Chestnut Trees; S. F. Market Rates, etc...................264
Mechanical Progress — New Double Slide Valve; How to Run a Locomotive; A Millionth of an Inch; Engine Makers; Rapid Telegraphing...251
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Colorado, Nevada and Oregon...252
Scientific Progress.— Primeval Monuments of Peru; The Brain Only a Machine; The Workings Produced by Lightning; Insect Organs, etc....251
S. F. Metal Market..... 252
New Incorporations.....255
New York Metal Market.263

"In all places where the hot dry breath of constant drouth prevails through the summer, grapes are small but very sweet. Where a surplus of moisture and cool winds prevail, they are sour and mildew. I am constrained to think that the sunny hills, through the eastern part of Alameda county, are admirably adapted to the culture of the grape."

We find in the Scientific Press of our city, this most wonderful discovery relative to the culture of the grape. Its very lucid (?) description of the causes of the sweetness and acidity found in wine, should entitle the author to a professorship in our Agricultural College!—*California Farmer.*

Our contemporary writes at random. There is nothing said, or even hinted at, in the paragraph quoted from this paper, or in any portion of the article from which it is taken, about "the causes of the sweetness and acidity found in wine," nor is there any reference whatever made to *wine* in the article in question. Hence, the "very lucid (?) description," to which reference is made by the *Farmer*, must have existed only in the brain of the editor of that paper.

The paragraph quoted from the Scientific Press is strictly correct, both in fact and theory, and contains important truths, which ought to be familiar to every grape-grower, as our contemporary will see and recognize, if he will carefully re-peruse the article in question.

* * *

Returned.—We print in another column the concluding letter of a series written for the Press by Mr. Paul. In these Mr. P. has, in a clear, unprejudiced manner, spoken of things as he saw them; and it must be interesting, as well as instructive, to our Colorado friends to see how a Californian is impressed with their Territory. In these letters there has been neither indiscriminate blame nor unqualified praise, but plain language, such as cannot but benefit any locality. Mr. Paul returned to this city last week and has published a pamphlet, which states the claims, the philosophy and the practical workings of his process, and contains strong certificates as to its value.

The Remedy.

In our last issue we endeavored to explain the cause of the great neglect of the agricultural and manufacturing interests of the State, and gave some reasons why emigrants failed to reach this coast in numbers commensurate with the natural advantages which it presents. To-day we propose to consider the remedy.

The only proper and available road out of the unfortunate condition in which we find the great industrial interests of this State involved, is for our people to come down to legitimate business themselves—to that in which sure gain awaits every man of energy, economy and perseverance. Our mechanics and laboring men should save their earnings until they can command an amount sufficient to go into the valleys and mountains, and secure a reasonable amount of land, and have sufficient left to stock the same and wait for the return of crops, or product of stock. Our mechanics and manufacturers should husband their resources, keep out of speculations, in which nine out of ten lose, and coöperate together in the establishment of manufacturing, mechanical and other industrial operations. Our bankers should cease to encourage speculations, confine themselves to a regular banking business, and extend facilities to such legitimate operations as have real merit, and a tendency to develop values and encourage industry. Banks should also be established for the special purpose of aiding the farming and mechanical industries of the State. Our Trades Unions should cease their present useless and mischievous war against employers, and devote their energies to the establishment of coöperative industry, as the true and only legitimate remedy for labor against the impositions of capital. Their efforts should be directed to the creation and building up, instead of to the discouragement and breaking down of values.

When these changes take place in our business and monetary interests, then, and not till then, can we become a really prosperous people. Then, and not till then, can we, with propriety, send out agents to crowd emigration to this coast.

It would be a shame and a reproach to our people to undertake any special encouragement of emigration to this State at the present time, except of such as can bring with them sufficient means to make business for themselves, or take them back again in case of need. Contrary to the opinion generally promulgated by the press of this State, we say, unhesitatingly, that California is no place, at this time, for a poor man to come to. The time has gone by when a man can go into the mines and make wages with his pick and pan or rocker. Now and then a prospector makes a "strike" in the mines; but such instances are rare exceptions.

It requires money to go into the valleys or mountains and occupy land, even if such land is free. The emigrant and his family must live while his vineyard is growing, or his crops maturing; and then he must have a market for his produce. He must have capital wherewith to buy cows for his dairy or sheep and goats for his stock ranges. If he comes here poor he must find others in the business in which he wishes to engage, where he can obtain employment until he can earn the necessary money to start in the business himself.

Moreover, we want a diversified system of farming, such as will give steady employment, the year round, instead of compelling the laborer to remain idle half the year or more, during which time the surplus earnings of the busy months are entirely absorbed.

We also want small manufactories, out of which larger ones may grow. The individual who makes anything, however trifling, which society requires, benefits himself and profits the community. If he is enterprising and industrious, his business will grow. When there is a lack of individual capital let several individuals unite—coöperate; they will thereby make business for themselves and others, and we shall have more workers and fewer idlers. We are importing articles to the value of many millions, annually, which ought and might be produced here, thereby giving full employment to those already in the State, and creating a demand for labor from abroad, which would be heard farther and wider than would the call of the most industrious and clamorous "society for the encouragement of immigration" which could be devised. Such manufacture would also provide diversified labor and create a largely increased market for the product of our farms. The permanent industries of a community are always coöperative in their action, mutually building up each other and the State.

The leading merchants of this city have become rich and too careless of trade. They are too often indisposed to extend such accommodations to interior traders as can be obtained in the Atlantic States. Such action drives trade from this coast, and tends to break down and discourage small trades and mechanics at home. Our middle-men demand exorbitant profits, and are too much inclined to favor trade in imported products rather than in home-made. Our manufacturers of soap, candles, shoes, clothing, agricultural implements, glassware, etc., etc., are suffering from such a suicidal policy. Our merchants don't seem to recognize the elsewhere-accepted fact, that large business and small profits is better than small business and large profits; nor that while the former stimulates productive industry the latter hinders it.

To expect well-to-do emigrants to come hither in any considerable numbers is an absurdity. Men in comfortable circumstances are generally inclined to let well enough alone, and stay at home among their friends and kindred. Poor emigrants will not, and should not, come here, in large numbers, until we change our modes of doing business, and furnish a greater amount of diversified industry.

There is reason, however, to hope that a better day is dawning for California. The extension of local railroads; the more rapid and cheaper communication with the Eastern States and the Orient is bringing us down from our stilted position, and doing away with the old mania for large and sudden gains. The influence of the gradual incoming of steady workers; of traders with economical and more correct ideas of mercantile practice; of men of moderate means and industrious habits coming to initiate and carry on the smaller manufacturing enterprises we so much need here, is already beginning to be felt in our midst. These men are coming with habits and calculations more consistent with a permanent state of society, and with the actual needs of the State. Our own people are also becoming aware of the cause of our lack of prosperity, and are recognizing the true remedy therefor. Let us hope that the anomalous state of things which has so long existed on the Pacific coast, is now giving way to a new condition, under the influence of which California will soon take that rank in the family of States to which her unparalleled resources, climate and position on the map so fully entitles her.

* * *

The Geological Survey.—Mr. Goodyear has been sent by Professor Whitney to examine the coal beds at Mount Diablo. A party will probably start off in a week for one of the mining camps. The dearth of money in the General Fund is a serious drawback to the prosecution of the work.

* * *

Harvard University has eleven hundred and seven students, forty-nine professors and forty-two other teachers.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending April 5th.

Sulky-Plow.—John H. Cole, Vacaville, Cal.

Lifting-Jack.—Leon Paul Garcin, San Francisco, Cal., assignor to himself and John D. Hooker, same place.

Lasting-Machine.—Karl Grassau, Virginia City, Nevada.

Pencil-Holder.—Annie J. Hall, San Francisco.

Reflector for Streets.—Abraham Keefer Grim and Austin D. Moore, San Francisco.

Self-Tightening Buckle.—Matthias Marvin, Salem, Oregon.

Extension Bed.—Frederick Menzer, San Francisco.

Apparatus for Disintegrating Ores.—Almarin B. Paul, San Francisco.

Gang-Plow.—James W. Sursa, San Leandro, Cal.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Extension Bed.—F. Menzer, S. F., Cal. The object of this invention is to construct an improved extension bed with drawers, which is more especially useful as a bed for growing children, and where space is limited. It consists in making the bed with two sets of side rails, one set being attached to the head-board, and the other to the foot-board. The slats or supporters for the mattress are placed lengthwise and hinged together at a point, which enables a portion to stand perpendicularly against the head-board, when the bed is closed up. The mattress is also jointed, and when the bed is closed up may serve as a bolster, or may stand entirely out of the way like the bottom. Drawers are arranged at both head and foot of the bed so as to close beneath it and out of sight. The whole is a very neat and convenient article of furniture.

Metallic Wagon Standard,—J. Henry, Suisuu, Cal.—This standard is cut out of sheet or plate metal, and is bent at the sides so as to form three sides of a parallelogram, for the sake of strength. Braces extend from the top to the bolster, either being out from the same piece of metal as the standard, or being cut separate and riveted or welded to the sides. By means of side-plates and bolts the standard is attached to the bolster. The whole forms a very simple, light, strong and cheap contrivance, which is capable of standing great strains without injury.

Beverage.—L. F. Lastreto, S. F., Cal. The nature of this invention is to provide an improved beverage to be known as "Choca" which shall be a substitute for coffee, chocolate and beverages of that class, and which, while containing all the properties of either, as a stimulant, shall have an additional tonic effect, which renders it valuable for invalids and enables those to use it who cannot drink the others.

* * *

Mr. Vincent's lectures on Cromwell, and the times of Queen Elizabeth, this week, were rare treats. The lecturer's manner is very happy, his language fluent and well chosen, and his subject matter excellent. His lectures were well attended, and his audience were kept in close attention throughout. We are happy to have such as Mr. V. visit our city. They get the people into the habit of going where they can get good instruction. Would that we might rival Boston in the way of attending lectures.

* * *

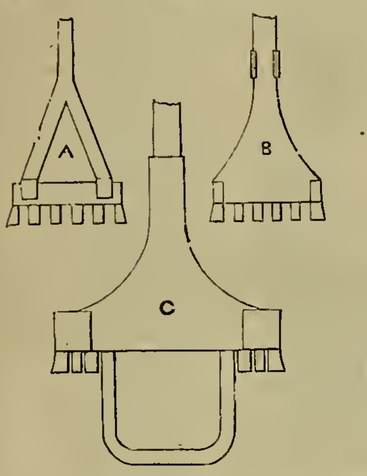
We lately had the pleasure of seeing a beautiful design of the building for the California Silk Manufacturing Co. at the office of A. H. Jordan, architect, No. 430 Montgomery street. The building is to be 50 by 230 feet.

Boring Large Shafts.

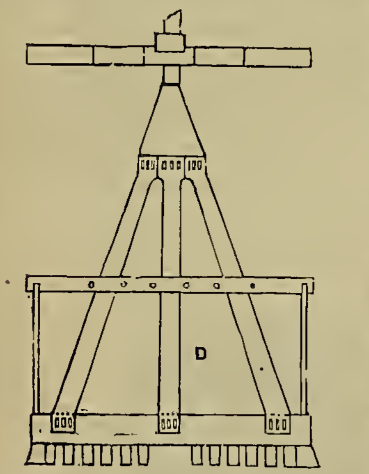
In the report on mining of the U. S. Commissioners to the Paris Exposition, the description of the boring tools and apparatus exhibited is very interesting, and indicates a new era in the art of boring. Formerly, pits sunk by such means were of small size, diameters of artesian wells not exceeding 12 inches. But French engineers have so improved on the methods, that, for instance, there is a well at Passy, near Paris, with a diameter of over 3¼ feet at the top, and 2¼ feet at the bottom, and it is known to be possible to sink shafts over 13 feet in diameter through strata of great hardness.

Shafts Sunk at L'Hopital.

As an example of what has been done, we quote from the description of the two shafts sunk by Mr. Kind and Chaudron, at L'Hopital, department of the Moselle, in the basin of Saarbruck. The coal occurs under strata composed of the sandstone of the Vosges, and the new red sandstone. These are at first very silicious and full of fissures, than becomes argillaceous, and near the coal are impermeable to water. In the new methods, called *a niveau plein*, the water is *not pumped out* of the shaft during the operation, thus saving much trouble and expense.



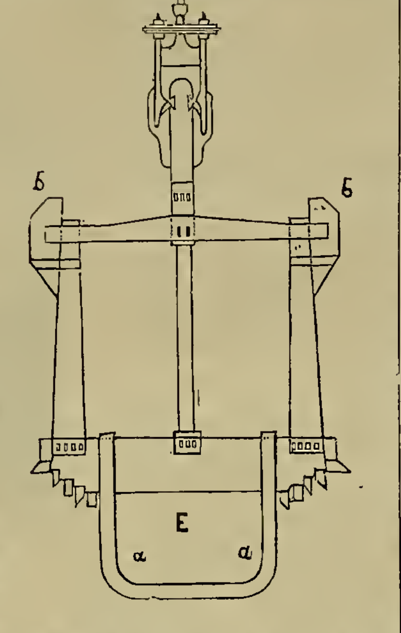
Of the two pits, one had diameters of 8.4 and 6 feet, and the other 13½ and 11 feet at the top and bottom respectively. Three engines were used, one for hoisting and lowering the boring tools, and lowering the tubbing or lining of the shaft, one for working the borer, and one for running a pump for hot and cold water, being indispensable for supplying the boiler as the others worked irregularly.



Boring the Pits.

Shaft No. 1.—A preparatory pit was sunk to a depth of 70 feet, and lined with masonry, on which rested the derrick, etc. The sinking was then accomplished by first driving a central pit of 4½ feet, and then enlarging this to 7½ feet, the *debris* of the enlargement falling into this first pit. For boring, the trepan, A, was first used. It weighed 4,587 pounds, and had teeth of cast steel or of iron faced with steel. The distance between the outer edge of the outer teeth was 4½ feet, and the fall 9.8 feet. Its daily progress through the upper sandstone was first 2.9, than 1.7, and then 0.9 feet, but at a depth of 443 feet, in strongly aggregated silicious red sandstone, this was only 0.36 feet, and three ruptures of the stem led to the substitution of the form, B, weighing 8,488 pounds, which progressed daily 1.3 feet, showing that heavy trepans are best for hard strata.

For enlarging the pit, a trepan similar to A, and weighing 8,756 pounds, was used. On account of the frequent breaking of the teeth it was lifted only 8 inches. Its daily progress was from 3.6 feet to 0.6 feet at the last, when its weight was found insufficient on reaching hard sandstone, and the form, C, was finally used. This weighed 17,600 pounds, was 8 1-5 feet in diameter, and made a daily progress of one foot.



The diameter of the pit was, at the surface, 8 4 feet; 440 feet down, 8 feet; 518 feet down, 7.4 feet. Then the little pit continued 23 feet further, and a circular curbing was fixed to receive the base of the tubbing. The work of sinking the shaft lasted 28½ months. The central pit required 346 days of actual work, and the enlargement, 320½ days. The mean daily progress of the small pit was 1.3 feet, of the enlargement about 1.4 feet.

Shaft No. 2.—The preliminary shaft was 69 feet deep, and lined with masonry. The central shaft was made by means of the trepan, A, to a depth of 485½ feet, at a daily average varying from 2.9 to 0.75 feet. This was then enlarged to 13½ feet by a larger two-bladed trepan (which, however, proved too light) to a depth of 397 feet. This first period lasted 448½ days, the small trepan being stopped only one day, and the larger, 22½ days.

Then the central shaft, 4½ feet in diameter, was carried down to a depth of 560 feet in 42 additional days with B; enlarged to 8.2 feet to a depth of 538 feet in 90 days with D; and still further enlarged to 13.4 feet in diameter to a depth of 512 feet in 173 days with E, which was, however, rather too weak for hard rock. The tubbing reached 521½ feet from the surface, and the work lasted 29½ months.

The rods used were 59 feet long, and 2.8 square inches in section. The jars are similar, at least, to those which have been described in previous works.

The stoppages and breakages of the weak parts of these trepans led Mr. Kind to build the form E. Here *a* is the guide which enters the central pit, and, with the guides, *b b*, keeps the enlarging tool vertical.

[CONCLUDED NEXT WEEK.]

A NEW POWDER, manufactured by the California Powder company, will be noticed more fully next week.

Our Home Industries.

Asphaltum Water, Drain and Gas Pipes.

Among the natural resources of California must be included its asphaltum deposits, which are quite numerous. This article has been used for several purposes, as roofing, pavements, etc., and as our State grows, and manufactures increase, its use will undoubtedly be extended, and the proprietors of the lands holding this article will find it ever in greater demand. One of the uses to which it has been put of late is in the manufacture of water pipes, and there is already a place in this city where these are made. Mr. J. L. Murphy has been at work some two or three years perfecting his processes, and is now able to produce a superior article, which is at once strong, durable and cheap. Asphaltum has been used for the various kinds of pipes for some time in Europe, and its advantages have been shown to be such that it is coming continually into more extended use.

Preparing the Asphaltum.

The raw article is taken from the neighborhood of Gilroy. As, however, in its natural state, it contains considerable earthy matter, it is necessary to first free it from this. The clarification is effected by heating it in kettles until the liquid mass is thin enough to allow the sediment to fall. When this has settled, the purer part is dipped out and permitted to cool and harden. As in the process some of the lighter oils are driven off, and the mass then would form too hard a substance, a little coal tar is added to soften it. The asphaltum is then shipped to San Francisco in blocks, which are broken up into small pieces and melted in large tanks set over a fire-place.

Forming the Pipes.

The liquid asphaltum is then put into a semi-cylindrical trough, where it is kept hot by a fire below. In this trough revolve two rollers, which are placed side by side, so as to be half submerged in the liquid. Above there is a roller or mandrel of the size of the interior diameter of the pipe to be made. This mandrel is previously covered with paper. In front of the trough are spools on which the burlaps used is rolled. It is proposed to have this cloth made in strips of a thickness equal to the length of the pipe (twelve feet). One end of the burlaps is passed through the asphaltum, around the under side of the rollers, and placed on the mandrel, where it adheres, as it is now saturated with asphaltum. Then the mandrel is dropped so that it rests on the rollers, and then all are revolved until the pipe has been formed of the required thickness. As the mandrel rests on the rollers, the pipe is made uniform. When it is of the proper size the cloth is cut, and the pipes thus formed of saturated burlaps is removed from the asphaltum by raising the mandrel and allowing it to cool. It is then revolved again in the hot liquid a few times, raised, removed from the mandrel—a process rendered easy by the paper first placed around this—and then rolled by hand on a table in coke-powder. It is then rolled on the table-top (without coke-dust) to get a proper surface, and the ends are cut so as to have a length of just twelve feet.

Glazing and Jointing.

The inside of the pipes is now glazed, to preserve a smooth surface, that there may be as little friction as possible for the water flowing through. This is effected by closing one end of the pipe with paper—which article is taken principally on account of its cheapness—a few dipperfuls of melted asphaltum poured into the other end, and the pipe rolled to and fro to cover the whole inside with a layer of the liquid. The excess of asphaltum is poured off, and, in this simple way a good glazed interior is obtained.

The pipes are jointed when laid in position. The ends of two lengths being brought together, a strip of burlaps, saturated in melted asphaltum, is wrapped around the joints. Then one-half of a cement collar, specially invented by Mr. Murphy, and which is moulded in two parts, is placed under the joint, and the spaces filled with melted asphaltum. The other half of the collar is then put on, and thus we get a solid joint, as strong as, if not stronger, than the rest of the pipe, as proved by hydraulic tests. So simple is the operation that one man can joint ten to twelve hundred feet of 4-inch pipe in ten hours.

Strength of Pipe, Etc.

All required sizes of pipe are made at this establishment. They are much stronger than one might think from merely seeing them, and Mr. Murphy asserts that he can easily make, for example, a 10-inch pipe which will stand a pressure of 500 pounds to the square inch. Repeated hydraulic tests have proved the strength of the pipe and of the coupling used. Water pipes of this manufacture were laid throughout Petaluma last June, and a mile of it has just been sent to Colusa for the water works there.

The great advantages claimed for this pipe are the small weight and consequent ease of handling and laying it, the insured purity of the water, its durability and its small expense. It costs, inclusive of couplings, a sum per inch equal to the product (in cents) of ten into the diameter of the pipe. Thus 2-inch pipe costs twenty cents per inch, 4-inch pipe forty cents, and so on; which is very cheap compared with iron. The manufactory, we should state, is situated on King street; and Mr. Murphy intends adding the manufacture of gas pipes in a short time.

SILK AND TEA CULTURE and other Asiatic Industries adapted to the Soil and Climate of California. By T. A. Kendo. San Francisco: A. Roman & Co., Publishers.

The above is the title of a very neat little volume of seventy-four pages, wherein the subject of silk-growing is quite carefully considered in relation to its introduction into California and its practice in Japan; the character of the soil and location required for the mulberry tree; the preparation and planting of the seed; feeding the worms; gathering the cocoons, and all other matters essential to the establishment of such business.

The culture of tea is also discussed at considerable length, and the adaptability of such culture to California conditions of soil and climate is considered; the conclusion being that this State is well adapted to such industry. Brief mention is also made of the vegetable wax and lacquer tree of Japan; of the Japanese chestnut and of the persimmon tree and fruit. The volume contains much information, briefly and clearly expressed, upon subjects in regard to which much attention is just now being attracted, and about which just the information here given is desired. Price, one dollar.

FIRE IN THE AMADOR MINE.—Last Monday smoke was discovered at the 844-foot level in the north shaft of the celebrated Amador mine. Efforts made to extinguish it with water carried down from the surface proved ineffectual, and the men were called up from their work. Then all the shafts were covered and water poured down in large amounts. The smoke finally decreased and had nearly ceased at six o'clock in the evening. The mine was kept closed tightly all night. The fire is now believed to be extinguished and the shaft was being explored at last accounts.

NEW STEAM COFFEE MILLS.—Descalzo, Lastreto & Co. have recently established a new steam mill, at 526 Washington street, for the preparation of chocolate and coffee, in all the various ways in which those articles are put up for table use. They are also the sole manufacturers in California, of the world-renowned "Cafe des Gourmets," by the Corcelet process.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street.......... ....San Francisc

(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

J. VAN C. HORNER,
DENTIST,
COR. J AND THIRD STREETS, SACRAMENTO.
☞ All work warranted. 7v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California an Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.
DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

REFERENCES.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

---

DR. MABON,
ORTHOPÆDIST,
(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the
MOST EFFICACIOUS INSTRUMENT
Yet invented for the cure of
RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment;

Office, No. 128 Kearny Street, near Sutter,
SAN FRANCISCO. 11v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,
DENTIST.
OFFICE, 313 BUSH STREET, NEAR MONTGOMERY.
Is a regular graduate, with twenty years experience in practice. 14v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Patent Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 CLAY STREET, bet. Kearny and Montgomery, San Francisco. 11v20-3m

---

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers,
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,
No. 341 KEARNY STREET.
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

H. G. STILLEY,
PLANE MAKER.
PLANES of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 BELDEN PLACE (near Bush street), below Kearny, San Francisco. 11v20-3m

---

W. C. & JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line promptly attended to.
SECOND DEPARTMENT.—Feed Ground, Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v20 6m

---

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

F. SCHOENER,
METAL SPINNER.
All kinds of Metal spun to order. Give me a call at No. 10 STEVENSON STREET, fourth story Pioneer Mills.
14v20-3m

California File Manuf'g Co.
437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER, M. HARRIS, J BURKE,
REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,
At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

---

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

---

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
GOLD PENS REPAIRED. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

---

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

Metallurgy and Ores.

S. W. HOWLAND. J. W. THURMAN.
S. W. HOWLAND & CO.,
Crushers and Samplers
— OF —
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

☞ All work done at the shortest notice. All orders promptly attended to.
REFERENCES—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co, Assayers. 7v20qy

---

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street, San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES. Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

---

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
☞ Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE..............................Manager.
J. A. MARS......................................Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

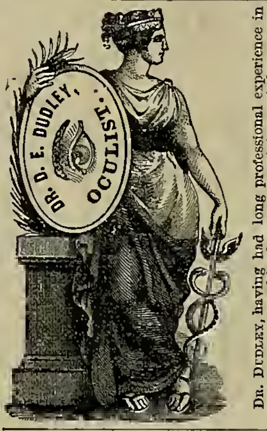
RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

---

ICE! ICE!
At Lower Prices than Ever Before Sold.
SUMMIT VALLEY ICE CO.,
No. 261 First Street, near Folsom.
Office at the Miners' Foundry.
J. L. MOULTHROP, - - - - - - AGENT.
☞ Office open at all hours of the day. 14v20-1m

SPAULDING & BARTO,
BOOK AND JOB PRINTERS,
Scientific Press Office,
NO. 414 CLAY STREET,
CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,
AND
PRINTING OF ALL KINDS FOR BUSINESS MEN
BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,
Neatly, Correctly and Promptly Printed.


DR. D. E. DUDLEY, OCULIST.

DR. DUDLEY, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: McFadden's Block, corner Montgomery and Market streets. Se habla Español. On parle Français. 15v20

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM
PRINTING ESTABLISHMENT.
Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞ Can compete in prices with any other dealer. 11v20-3m

---

FROM The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED
$65
WEED
TO $500
Machines work easier, simpler faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt.

To Owners of Horses.
WATSON'S EUREKA SYSTEM.
A GREAT IMPROVEMENT IN SHOEING. Lame, tender or flat-footed horses put in good condition to travel over any cobble stone pavement in the City, in from one to four months. In nine cases out of ten, of what is called Lame Shoulder, Chest Founder and Corns, it is no more or less than the result of bad shoeing, therefore, this system, which is based on scientific principles and practice, remedies the above, and is particularly adapted to all horses working on hard or rough roads, as it keeps the feet sound in all seasons. Quarter crack in any stage cured. No bar shoes used after one or two months. Charges same as other shops. Watson's Eureka Shoeing Shop, Main street, between Mission and Howard. 14v20

THE FIREMAN'S FUND INSURANCE COMPANY.

OFFICE,

S. W. Corner California and Sansome Streets,
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL	$500,000 00
SURPLUS	267,115 63
TOTAL ASSETS	$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.
13v20-3m

OCCIDENTAL Insurance Company,

OF SAN FRANCISCO.

Cash Capital, - - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary.
20v17

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2.500 secured for $6.

HOWARD & HOWE,

General Agents for the Pacific Coast.

No. 338 Montgomery street, corner California, Room 7.

☞Agents Wanted.☜ 14v20-3m

Pacific Bank.

PETER H. BURNETT.......................President.
FORD H. ROGERS..........................Cashier.

REMOVED

To its new Banking House, northwest corner of Sansome and Pine streets.

O. P. SUTTON, Secretary.
San Francisco, March 30, 1870. 15v20-3m

FRANCO-ITALIAN MANUFACTORY.

NEW CALIFORNIA

Chocolate and Coffee Steam Mills.

DESCALZO, LASTRETO & CO.,
526 WASHINGTON STREET.

MANUFACTURERS OF

Hygienic Chocolate of Every Variety,

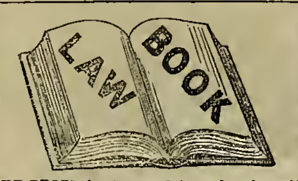
Ne Plus Ultra Ground Coffee,

And sole manufacturers in California of the world renowned Coffee,

"CAFE DES GOURMETS,"

CORCELET PROCESS. 9v20-q

Agents Wanted for



Chamberlin's New

FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

---

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

---

SCIENTIFIC PRESS.—Dewey & Co. are the publishers of this sterling paper. It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican*,

---

The Celebrated Studebaker Wagon,

Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

FIRST.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover. SECOND—They are made by experienced mechanics. THIRD—The lightest running and most durable Wagon in the market. FOURTH—Their Thimble Skeins never break, while all others do. FIFTH—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not. SIXTH—The only Wagon in which the SLOPE SHOULDER SPOKE is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying. SEVENTH—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction. EIGHTH—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road. NINTH—Last, but not least, Studebaker Brothers are practical men, attend to their business personalty, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others.

Sold by COPELAND & DEFREES, K street, between Seventh and Eighth, SACRAMENTO, CAL. ☞ PIONEER AGENTS FOR THE PACIFIC COAST. 15v20-3m

---

AMES & WOOLVERTON,

General Agents for the Pacific Coast

FOR THE CELEBRATED

STUDEBAKER

Farm and Team Wagons,

Manufactured at South Bend, Indiana.

OFFICE AND GENERAL DEPOT

— WITH —

THE KIMBALL MANUFACTURING CO.,
SAN FRANCISCO, CAL.

☞Orders and correspondence solicited. 15v20-3m

SOMETHING NEW

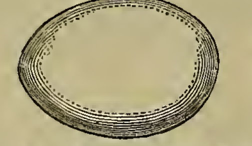
— FOR —

MINERS AND FAMILIES.

EAKINS'

EGG SUBSTITUTE.

TRADE



MARK.

One Can equal to three dozen Eggs,

And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.

Price, 35 Cents per Can.

MANUFACTURED BY ADAMS & CO.,
423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

---

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

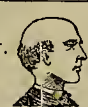
Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

---

WONDERFUL Scientific Discovery.

THE GREATEST EVER MADE,



Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

NO EXAGGERATION, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, JOHN STAPLETON,
California street, San Francisco.

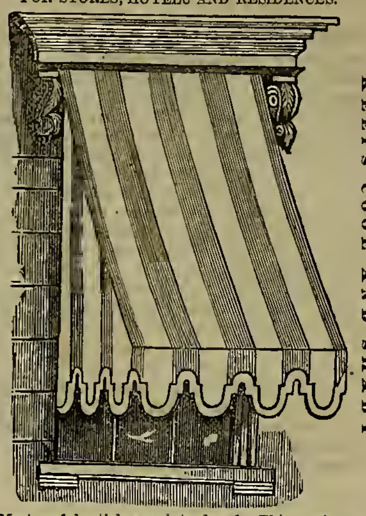
To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

---

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.

COMFORT AND ELEGANCE COMBINED.



KEEPS COOL AND SHADY

Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

---

SAN FRANCISCO Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. OLD GOODS of all kinds re-plated for hotels, restaurants, etc.

☞The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. A full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞All work done at the lowest prices. 1v20-3m

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

SAN ANTONIO PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of

STONE WARE,

Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also

Chemical Ware, of Sorts Made to Order,

We manufacture to order

Terra Cotta Equal to the Best French.

Samples on hand.

FIRE BRICK.

A No. 1 article made to order, warranted superior to any imported.

Flower Pots and Ornamental Vases

Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

☞Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.
8v20-tf

I. O. O. F.

THE NEW AGE,

A WEEKLY JOURNAL OF SIXTEEN PAGES.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

DR. ABORN,

Oculist, Aurist,

AND

CATARRH, THROAT

AND

Lung Physician.

No. 22 KEARNY STREET,

SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox, Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.
San Francisco (Cal.), Jan, 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street, San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.
San Jose (Cal,), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

TO WHOM IT MAY CONCERN.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.

WILLIAM BEARDSLEE.
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.

VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869 7v20-3m

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up IN TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

Notice to Miners,

Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
5v18 ly Stove Store, No. 1 Clay Street, below Davi

eport of Samuel S. Fisher, Commissioner of Patents.—1869.

[CONTINUED FROM PAGE 244.]

Annual Report.

Since the year 1843, a report has been bliched annually, containing an alphatical index of inventors, an index of the bject of invention, a list of expired patte, and the claims of the patents granted ring the year. In the year 1853, and nce, small engraved copies of a portion the drawings have been added to explain e claims; and of late years, it has been stomary to add a very brief abstract of e specifications, comprised, usually, in t more than four or five lines. The rert was a pamphlet of a few pages in 43; in 1867 it had swelled to four large lumes. The expense of producing it is w over two hundred thousand dollars r annum. It is true that this amount s not been paid out of the patent fund; e report has been published as a docuent by Congress. Nevertheless, as a porn of the expense of preparing it is borne the office, it is proper to refer to it here. I doubt if a sufficient advantage accrues the country from the publication of s report, to justify the expense. Its lk is such that it cannot be published til from eighteen months to two years er the expiration of the year in which e patents are issued. The claims are in st instances unintelligible, without the ecifications, even with the aid of the abacts and engravings; while the engravgs themselves are not and cannot be cop of all the drawings, or figures accomnying the patent. A large number of ents have more than one figure, somees twenty. In the printed reports, e or at most two, are given, for want of ace to do better. Such mere sketches of patents and drawings, in many cases, do re harm than good. They mislead the blic, instead of instructing it. It is true t it is desirable for some persons to ow, from time to time, what patents are nted; but the number of such persons limited, and the knowledge, to be valble to them, must be furnished simultausly with the issue of the patents. This ormation has, until a year ago, been pplies by certain mechanical journals. ey published weekly lists of claims, un the issue increased to such an extent as make it impossible for them to continue practice. The office then attempted to pply this want. A weekly list of claims has n published, and furnished to subscrip, since January, 1869; at the rate of five lars per annum. To this has since been led a pamphlet containing the Commisner's decision, which is issued at intere of from one to two months. This r these claims are being stereotyped, so t, at the close of the year, they may, h proper indexes, constitute the annual ort, without the abstracts or drawings. Congress should desire to strike off cop of these for gratuitous contribution, it ld be done at small expense, scarcely eeding one dollar per volume, whereas present reports cost twelve dollars and alf per set. It is submitted, however, t if these lists of claims are of value to y one, they are worth the small price ich the office now asks for them.

n addition to these weekly lists, I prose, as a substitute for the annual report now published, that a sufficient number copies of each entire specification and wings be printed in full, and that one l set be deposited in the capital of each te, and in each large city. This would nish nearly all the information to be ained by a visit to the Patent Office, and uld save inventors many journeys to ashington. It would enable counsel a distance to examine references, and to tain information, now practically inacsible, without a personal visit, or the ployment of the resident counsel. To Pacific coast, the west, south, and far rtheast, such collections would be inuable. Each annual set would be comsed in about fifty-two volumes. A suffint number of them for the purpose ted, and for office use, could be furnished, an annual cost not exceeding one bund thousand dollars, or about one half of e cost of the present annual report. To ke such a collection complete, the back awings and specifications of patents aldy issued should be published also. r this purpose, the balance already nding to the credit of the patent fund is bably sufficient.

Statutes of Limitations

The courts have decided that no statute ists limiting the time within which acns may be brought for the infringement letters patent. The action on the case the several States is variously limited to one, three, five, and six years. I submit that a limitation of five years, after the expiration of the patent, would be a proper provision.

Some provision is also needed limiting the time during which applications shall be permitted to lie in the Patent Office, after action, before the next step by way of appeal or amendment is taken. Much injury to the business of the country is likely to result from the construction lately given to the law by the Judge of the Supreme Court of this district, by inflicting patents upon the nation for inventions which have long been in public use. This is, in effect, to create a monopoly, instead of affording an encouragement to inventors.

There are hundreds of these cases in the office, many of which are being bought up on speculation, and vigorously pressed for issue. One of these, lately filed, was withdrawn in 1851, and has now been re-filed, after a lapse of nineteen years, when the substance of the invention which it seeks to monopolize has gone into use in nearly every form in which a well known agricultural implement is now manufactured.

[TO BE CONTINUED.]

Musical Education.—The San Francisco Musical Institute is doing a good work in a very quiet, unpretending manner. Already there are over a hundred pupils, and the orchestra and chorus classes are held weekly, affording students admirable advantages which can not be obtained in any other way. This opportunity of practicing in orchestral and chamber music, cannot be too highly appreciated, and is the perfection of instruction. Pupils have, moreover, opportunities of hearing the performances of skillful musicians, and thus seeing the particular points in which they excel. The whole system of the Institute is one which has been proved to be excellent, and is founded on those of the best schools of Europe and the East.

The first bar of California tin has been presented to the Society of Pioneers. It is eight inches long, four inches wide, and two inches thick; contains, by assay, 97.09 per cent. metallic tin, with some tungsten and traces of antimony, arsenic, sulphur and iron. On one side, there is engraved the following inscription: "First bar of tin ever produced in the United States from native ore; taken from the San Jacinto Tin Mine, San Bernardino county, California. Presented to the Society of California Pioneers, by O. P. Sutton, April, 1870.

City Foundry.—Messrs. Clerc & Co. have been quite busy all winter. They are now engaged on machinery for the La Grande and Occidental laundries and the laundry of the Grand Hotel; also, on machinery for the Franco-Italian Chocolate Factory. They are making also large punching machines for boiler work, jigsaws, castings for agricultural machinery, a new style of coffee-roaster, small three to five horse-power steam engines, and several other items.

Sportsmen desiring a superior gun or fishing tackle or any such apparatus would do well to examine the fine stock of Messrs. Barton & Rutter, 609 Clay street. This firm is, moreover, the sole agency for Alexander's pocket cutlery, which has attained such celebrity on this coast and elsewhere. As the house imports directly from the manufacturies and keeps none but the best goods, they are able to furnish an excellent, and at the same time comparatively cheap article.

Testing Ores.—Messrs. Morris & White, No. 30 Fremont street, have lately enlarged their works and have built a reverberatory furnace. They are now ready to test ore by amalgamation or chlorination and lixiviation, or will purchase. They have recently worked very successfully several large amounts of amalgamation tailings, and also quantities of crude ore for parties desirous of testing their mines and ascertaining the best manner of working their ores.

New Incorporations.

The following have filed certificates of incorporation with the County Clerk, San Francisco:

Mountain City M. Co.—April 4. Capital stock, $1,600,000; 16,000 shares, $100 each. Trustees: Moses A. Meader, Isaac F. Davis and Benjamin F. Page.

City Gas Co.—San Francisco. April 4. Capital stock. $10,000,000; $10,000 shares, $100 each. Trustees: J. B. Haggin, S. F. Butterworth, N. Luning, Lloyd Tevis and Thomas Bell.

The following have been recorded in the Secretary of State's office, Sacramento:

Bay Spring Water Co.—Alameda county. April 4. Capital stock, $50,000; 500 shares. Trustees: George W. Cook, Ira Marden and Charles W. Cook.

The Kimball Wagon and Carriage Company, and the California Powder Company have established agencies at Corinne for the supply of Utah, Montana and Idaho with their goods.

The Boy of the Period Journal, published at Washington, D. C., has been received. It is a remarkably smart effort on the part of Young America.

Choice Advertising

Pays the best. If you advertise in a newspaper, choose one of good and substantial character which is most patronized by the class you wish to reach. If you advertise by display cards, put them where they will be most seen by the best class of patrons.

We believe there is no other single conveyance from San Francisco that takes so many different passengers in each twenty-four hours as the steamer New World on the Vallejo route—her passengers go to Solana, Napa, Sonoma, Mendocino, Lake, Yolo, Yuba, and all the middle and northern mining counties of California and the State of Nevada. In fact, the best part of the travel northward and eastward goes by this short, popular and safe route.

This steamer makes two double trips, carrying four loads of passengers every week day, besides making regular trips on Sunday. The passengers have pleasant leisure aboard, such as to make a respectful advertisement placed before them available.

Observing this remarkable opportunity for effective advertising, Mr. A. Kronberg, the gentlemanly news agent on the route, has furnished a fine advertising frame, accommodating a number of choice advertising placards, which he rents at a reasonable rate per month to first class firms, who are the most likely to appreciate a "live" advertisement. He has the exclusive privilege on the New World—a good thing for himself and advertisers. *

A Valuable Book for Inventors and Artisans.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Press office, postpaid, for $1.—*New Age.*

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

The Portable Gas-Burner at P. J. Phillips & Co's, 650 Market street, below Kearny, is the only burner that does not smoke or smell, and that can be regulated to give any quantity of light desired. Call and see. County Right for sale. *

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

Mason's Bread of Life, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis and Sore Throat. Price, 25 cents per box. These lozenges are free from all dangerous properties. Compounded and put up by Dr. J. H. Mason, 750 Howard st. 16v20-3m

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Thomas O'Neil Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Microscopes for Scientific Investigation and Educational Purposes. Price list sent free. T. H. McAllister, Optician, 49 Nassau street, New York. 15v20-3m

Drs. Martinache & Smith, Oculists and Aurists, 313 Bush street, between Montgomery and Kearny. Hours for consultation, 12 to 3. 16v20-3m

Surveyors can have their instruments repaired at C. Muller's, 205 Montgomery street. *

F. Gruber, Naturalist, No. 626 California street, between Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

New Mining Notices.

Green Monster Copper, Gold and Silver

Mining Company, Inyo Mining District, Inyo County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
W H Baxter	12	12	$12 00
Sarah C Baxter	2 and 3	20	20 00
W K Flint	17	28	28 00
Henry Gerke	10	160	160 00
E L Goold	7	5	5 00
Mosse & Son	25	5	5 00
Hugh McCormick	33	12½	12 60

And in accordance with law and an order of the Board of Trustees, made on the tenth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the auction rooms of John Middleton & Son, No. 310 Montgomery street, San Francisco, California, on Monday, the second day of May, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

I. N. THORNE, Secretary.

Office, No. 16 Montgomery Block, San Francisco. ar16

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of April, 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the twenty-third day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, 408 California street, San Francisco. ap16

Miser's Dream Silver Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of April, 1870, an assessment of forty (40) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room No. 36, New Merchants' Exchange, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the seventeenth day of May, 1870, shall be deemed delinquent. and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fourteenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

W. F. R. SCHINDLER, Secretary.

Office, Room No. 36, New Merchants' Exchange, California street, San Francisco, California.

North San Francisco Homestead and

Railroad Association:—Location of Property: City and County of San Francisco, State of California.

Notice.—There are delinquent upon the followed described stock, on account of assessment levied on the ninth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B F Moulton	281	1	$7 50
John A Zoller	60 226	5	37 50
Prosper Huerne	98, 99 100	6⅔	50 00
Jno G Klumpke	143, 145 288	52	390 00
R Bayerque	146	30	225 00
Geo H Ensign	179 344	457⅓	3430 00
J B Richardson	246	10	75 00
M O'Neill	206	2	15 00
J G Shepherd	354	1200	9000 00
J W Hendrie	351	547	4102 50

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the fourteenth day of April, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessments thereon, together with costs of advertising and expenses of sale.

EDWARD C. LOVELL, Secretary.

Office, 415 Montgomery street, San Francisco. mar26

Postponement.—The sale of the above stock is hereby postponed until Monday, April 25th, 1870. By order of the Board of Trustees.

ap16 EDWARD C. LOVELL, Secretary.

Office of the Placer Gold Mining and Canal

Company.—Location of Works: Township No. Six (6), County of Placer, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the ninth day of April, 1870, an assessment (No. 1) of two dollars ($2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 802 Howard street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Friday, the twentieth day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the tenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. S. HALEY, Secretary.

Office of Company, 802 Howard street, San Francisco, Cal. Office hours: 6 to 8 P. M. apr16

Mining Notices--Continued.

Alban Gold and Silver Mining Company.—

Location of Works: Virginia City, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of March, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, or to Geo. Bordwell, Esq., President of said Company, at his office, No. 432 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Monday, the twenty-fifth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fourteenth day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. B. SMITH, Secretary.

Office, 432 Montgomery street, San Francisco. m26

Alameda Coal Mining Company, San Francisco and Alameda Counties, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the sixteenth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
F. T. McMahon	43	26	$7 80
Louis Peres	102	25	7 50
Louis Peres	103	25	7 50
I. Veiller	254	10	3 00
I. Veiller	255	10	3 00
I. Veiller	256	10	3 00
I. Veiller	279	50	15 00
I. Veiller	289	78	23 40
I. Veiller	299	6	1 80

And in accordance with law and an order of the Board of Trustees, made on the sixteenth day of February, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by Maurice Dore & Co., on the twenty-second day of April, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

M. PHILIPP, Secretary.

Office, 409 Battery street, San Francisco. apr2

POSTPONEMENT.—The above sale is hereby postponed until Saturday, the thirtieth day of April, 1870, at the same hour and place. By order of the Board of Trustees.

apr9 M. PHILIPP, Secretary.

Glenwood Mill and Mining Company.—Location of Works: Greenwood, El Dorado County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the fourth day of February, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Balch, S M	not issued	70	$17 50
McCarthy, M	not issued	70	17 50
Sharp, W H	not issued	70	17 50

And in accordance with law, and an order of the Board of Trustees, made on the seventh day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, on the twenty-seventh day of April, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. D. SQUIRE, Secretary.

Office, 418 California street, San Francisco. apr9

Kincaid Flat Mining Company, Tuolumne County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the fourth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
Ira P Rankin	33	10	$25 00
Ira P Rankin	34	10	25 00
Ira P Rankin	65	5	12 50
Ira P Rankin	99	5	12 50
James Nelson	31	10	25 00
James Nelson	32	10	25 00
Wm A Quarles	15	10	25 00
Wm A Quarles	16	10	25 00
S Card	10	10	25 00
S Card	39	5	12 50
Robert Christy	41	10	25 00
N Gartner	64	5	12 50

And in accordance with law and an order of the Board of Trustees, made on the fourth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of S. L. Jones & Co., auctioneers, 207 and 209 California street, San Francisco, on the twenty-third day of April, 1870, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.

Office, 220 Clay street, San Francisco. apr9

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

NOTICE.—There are delinquent on the following described stock, on account of assessment (No. 1) levied on the eighth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names,	No. Certificate.	No. Shares.	Amount.
I I Herr	unissued	2000	$50 00
R P Johnson	unissued	2000	50 00
H C Kibbe	unissued	2000	bal. 30 00
Thos G Taylor	unissued	2000	50 00

And in accordance with law and an order of the Board of Trustees, made on the eighth day of February, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, Room No. 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the fifth day of April, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, ogether with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.

Office, Room 5 No. 302 Montgomery street, San Francisco, California. mar19

POSTPONEMENT.—The above sale is hereyb postponed until Tuesday, the nineteenth day of April, 1870, at the same hour and place. By order of the Board of Trustees.

ap9 WM. H. WATSON, Secretary.

Yosemite Silver Mining Company, Humboldt County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the seventh day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm H Hedges	49	5	$ 5 00
Wm H Hedges	60	15	15 00
N M Hedges	61	35	35 00
L F Rowell	116	14	14 00
S Rosenthal	118	10	10 00
S Rosenthal	137	10	10 00
James Manning	119	20	20 00
E H Levy	152	10	10 00

And in accordance with law and an order of the Board of Trustees, made on the seventh day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of S. L. Jones & Co., auctioneers, 207 and 209 California street, San Francisco, on the twenty-third day of April, 1870, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary pro tem.

Office, 220 Clay street, San Francisco. ap.9

Pacific Pneumatic Gas Co.—Notice.—

A meeting of the stockholders of the Pacific Pneumatic Gas Company will be held at the office of the Pacific Iron Works, in San Francisco, on the FIRST DAY OF MAY, 1870, at 1 o'clock P. M., to consider the proposition to reduce the capital stock of said Company to the sum of two hundred and fifty thousand dollars ($250,000).

IRA P. RANKIN, }
J. J. FELT, } Trustees.
J. W. STOW, }
mar26 A. P. BRAYTON, }

Latawana Mining Company.—Near Hamilton City, White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of March, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, or at 526 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the tenth (10th) day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. mar26

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the second day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
L A Booth	12	40	$160 00
L A Booth	13	40	160 00
L A Booth	14	40	160 00
L A Booth	18	20	80 00
L A Booth	20	100	400 00
L A Booth	22	120	480 00
Joseph Sedgloy	24	40	160 00
E B Mott, Jr.	27	40	160 00
J M Shotwell	29	40	160 00
Joseph T Sanborn	33	20	80 00
Newton Booth	35	80	320 00
John O Earl	36	120	480 00
N D Burlingham	40	100	400 00

And in accordance with law and an order of the Board of Trustees, made on the second day of March, 1870 so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of John Middleton & Son, No. 310 Montgomery street, San Francisco, on Thursday, the twenty-eighth pay of April, 1870, at the hour of twelve o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. A. JENNINGS, Secretary.

Office, 419 California street, San Francisco, California.

WIESTER & CO.,

PATENT BROKERS,

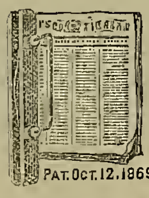
314 BUSH STREET,

SAN FRANCISCO.

Patents Bought and Sold on Commission.

For the benefit of those who live at a distance from he city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

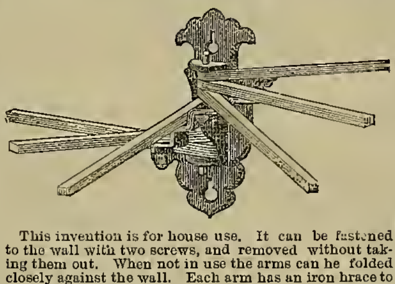
BURGESS' PATENT PAPER FILE.



PAT. OCT. 12, 1869

This is a recent patent, and one of no ordinary merit. It is light and complete, yet costs but little. In all file-holders before presented to the public, the papers are very liable to tear, or else the method of inserting them requires too much time and trouble. This device is easily adjusted, is not liable to tear the paper, nor let it loose. This patent is also used in combination with covers for forming music folios. Musicians who have seen it, speak in the highest terms of its value. No person can fully appreciate the Paper File or Music Folio without seeing one. The Legislature of California has taken 350, and we feel sure that hotels, private families, societies, legislatures, and reading rooms of every description, will have them as soon as they can be found in the market. Here is an opportunity for a manufacturing establishment to start a paying business on small capital. The Right to all the States and Territories west of the Rocky Mountains will be sold together and sold cheap. Manufacturers and others are invited to call at our office and examine this useful California invention.

HOTCHKISS' CLOTHES DRYER.



This invention is for house use. It can be fastened to the wall with two screws, and removed without taking them out. When not in use the arms can be folded closely against the wall. Each arm has an iron brace to support it. This is really a "good thing in a family." County or State rights for this will be sold very low. Full particulars given on application.

A neat and convenient CUPBOARD LATCH, that answers equally well for single or double doors. It is suitable for Wardrobes, Wash-stands, Cupboards, etc.

A LOCAL AGENT wanted in every town n the Pacific coast to sell patent goods

WEISTER & CO.

New Advertisements.

ICE. ICE.

On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.

AMERICAN RUSSIAN COMMERCIAL CO.
D. E. MARTIN, Superintendent,
16v20-qy 714 and 716 Battery street.

MARTIN'S

Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

DR. F. SCHULTZ,

NO. 114 KEARNY STREET,

SAN FRANCISCO.

OFFICE HOURS—From 8 to 11 A. M. and from 2 to 6 P. M.

PARTICULAR ATTENTION GIVEN TO

SORE EYES, NEURALGIA,

RUNNING SORES AND RHEUMATISM.

16v20-3m

LAND! LAND! LAND!

YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

40,000 Acres in Fresno County:
7,000 Acres in Sonoma County;
3,680 Acres in Tulare County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above.

YOUNG & PAXSON,
16v20-3m 424 Montgomery street.

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS, It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

The Equalizing Institute.

SOMETHING NEW.

THE EQUALIZER,

A GUIDE TO HEALTH.

Cures all Chronic Diseases BY VACUUM.

This treatment causes a thorough circulation of the blood throughout the system, creates new life, and reinstates perfect health. The following diseases can be cured by the above system: Paralysis, Nervous Debility, Neuralgia, Dyspepsia, Asthma, Curvature of the Spine, and other Spinal affections, Sciatica, Palsy, St. Vitus' Dance and Derangement of the Mind, and many other ailments, for particulars of which see our circular.

THE GUIDE TO HEALTH.

TESTIMONIALS.—P. Windsor, having suffered severely from four sun strokes, and in the last two years from four strokes of Paralysis and loss of speech, had recourse to the Equalizer as a treatment for same, and by means of the Equalizer was perfectly cured in the astonishing short period of four months; and as proof of the above, he can be seen at the Equalizing Institute, 650 Howard street, San Francisco.

SAN FRANCISCO, April 5, 1870.

Sunday being the Sabbath Day,

THE EQUALIZER

Will be devoted to the treatment of all chronic diseases, exclusively to the poor, between the hours of nine and four o'clock, (not including paupers), free of all charges.

PROPRIETOR EQUALIZING INSTITUTE,
16v20-qy 650 Howard Street.

Railroads and Steamers.

SHORT ROUTE.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
8:00 A. M.	12:50 P. M.	12:15 P. M.	2:00 P. M.
3:30 P. M.	7:15 P. M.	7:50 P. M.	9:00 P. M.
ON SUNDAYS.			
9:00 A. M.	12:30 P. M.	1:00 P. M.	3:45 P. M.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
6:00 A. M.	7:45 A. M.	7:15 A. M.	11:45 A. M.
1:00 P. M.	2:00 P. M.	2:45 P. M.	7:00 P. M.
ON SUNDAYS.			
10:30 A. M.	1:30 P. M.	1:30 P. M.	5:15 P. M.

FREIGHT—Leaving San Francisco (by steamer VALLEJO) at 4 P. M.—is carried through greatly in advance of all other lines, at **$2.50** per Ton to Sacramento and **$4** per Ton to Marysville.

TICKETS for sale at No. 313 Montgomery street, or on board steamer New World.

D. C. HASKIN, General Manager.
R. S. MATTISON, Superintendent.
Vallejo, April 1, 1870. 13v20-1y

Pacific Mail Steamship Company.—For NEW YORK, VIA PANAMA. PRICES GREATLY REDUCED.

Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

April 2..........................CONSTITUTION,
Connecting with Alaska.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

April 1—GREAT REPUBLIC, Capt. Cavarly.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.

13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation COMPANY,

Steamer	CAPITAL	CAPT. E. A. POOLE
"	CHRYSOPOLIS	CAPT. A. FOSTER.
"	YOSEMITE	— —
"	CORNELIA	CAPT. W. BROMLEY
"	JULIA	CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE,
13v12 President.

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

TO MILLMEN.

FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30-inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W. NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

NOTICE.

HYDRAULIC HOSE MANUFACTORY.

Hose made to stand any pressure—from 100 to 300 foot fall. Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

LOST.

Between Market street and the corner of Clay and Montgomery streets, a linen tracing of mechanical drawings representing an amalgamating pan. The finder will be rewarded with one year's subscription to the SCIENTIFIC PRESS—the most valuable illustrated weekly on the Pacific coast—by leaving the drawings at 414 Clay street,

DEWEY & CO.,
U. S. & Foreign Patent Agents.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, April 14, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 lbs.; Bar, 1@1⅛c ℔ lb; Sheet, polished, 3c ℔ lb; common, 1⅛@1¾c ℔ lb; Plate, 1⅛c ℔ lb; Pipe, 1⅛c ℔ lb; Galvanized, 2⅛c ℔ lb.

Scotch and Eng. Pig Iron, ℔ ton	$30 00	@$32 00
White Pig, ℔ ton	28 00	@ — —
Refined Bar, bad assortment, ℔ lb.	— 03	@ — —
Refined Bar, good assortment, ℔ lb.	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04⅛
Sheet, No. 10 to 13	— 04⅛	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05⅛
Sheet, No. 24 to 27	— 05	@ — 06⅛

Copper.—Duty: Sheathing, 3⅛c ℔ lb; Pig and Bar, 2⅛c ℔ lb.

Sheathing, ℔ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22

Tin Plates.—Duty: 25 ℔ cent. ad valorem.]

Plates, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℔ lb	— —	@ — 42
Steel.—English Cast Steel, ℔ lb	— —	@ — 15
Quicksilver.—℔ lb	— 55	@ — 60
Lead.—Pig, ℔ lb	— 7⅛	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℔ lb	— 10⅛	@ — 11
Borax	— —	@ — 45

Machinists and Foundries.

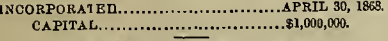
FULTON
Foundry and Iron Works.
HINCKLEY & CO.,
MANUFACTURERS OF
STEAM ENGINES,
Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.
N. E. corner of Tohama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON
Iron and Locomotive Works.
INCORPORATED..........APRIL 30, 1868.
CAPITAL..........$1,000,000.
Corner of Beale and Howard Streets,
SAN FRANCISCO.
Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.
Directors:
S. F. Butterworth, Wm. Norris, Lloyd Tevis, Joseph Moore, John N. Risdon, Wm. Alvord, Chas. E. McLane,
JOHN N. RISDON..........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..........Secretary.
24v17-qy

UNION IRON WORKS,
Sacramento.
WILLIAMS, ROOT & NEILSON,
MANUFACTURERS OF
STEAM ENGINES, BOILERS,
CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,
WILCOX'S PATENT WATER LIFTERS,
Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
Front Street, between N and O streets,
14v1 Sacramento City

GLASGOW
Iron and Metal Importing Company,
Nos. 25 and 27 Fremont street,
SAN FRANCISCO,
Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.
21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,


T. G. DURNING & CO.

No. 53 Beale Street, bet. Market and Mission,
SAN FRANCISCO.
J. C. THWING & CO.,
Successors to T. G. Durning & Co.
Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867. 2v17

R. SAVAGE. R. E. DORAN.
SAVAGE & CO.,
Empire Iron Foundry,
No. 294 Howard Street, near Beale.
Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices. 9v20-3m

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,
Howard st, between Fremont and Beale, San Francisco.
Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.
Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.
Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.
To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.
Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.
To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

MACHINERY
— AT —
GREATLY REDUCED RATES.
Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET,
SAN FRANCISCO.
This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA TOOL WORKS,
Blacksmith and Machine Shop,
143 Beale St., bet. Mission and Howard,
SAN FRANCISCO.
All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.
21v17-qy J. WEICHHART, Proprietor.

San Francisco Wire Works,
No. 665 Mission Street, near Third.
SAN FRANCISCO.
C. H. GRUENHAGEN & CO.,
Wire Workers and Wire Weavers.
Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

THOMPSON BROTHERS,
EUREKA FOUNDRY,
129 and 131 Beale street, between Mission and Howard San Francisco.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

CITY IRON WORKS COMPANY,
CLERC & CO.,
IRON FOUNDERS,
Steam Engine Builders and Makers of all kinds of Machinery.
16v16q No. 28 Fremont street, San Francisco.

CALIFORNIA BRASS FOUNDRY,
No. 125 First street, opposite Minna,
SAN FRANCISCO.
All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connecous of all sizes and patterns, furnished with dispatch.
☞ PRICES MODERATE. ☜
P. GALLAGHER. J. H. WEED V. KINGWELL.

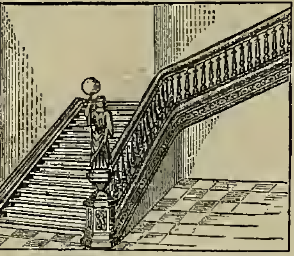
PARIS
Scouring and Blanket Cleaning
ESTABLISHMENT.
Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling.* Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.
Parties in the country can have their work done well and promptly by sending their goods with orders by express.
A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

HAYWARD & COLEMAN
IMPORTERS AND REFINERS
—OF—
Illuminating, Lubricating,
—AND—
PAINT OILS,
CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.
—ALSO—
Spirits of Turpentine and Alcohol,
Lamps and Lamp Stock!
An elegant and complete assortment.
SOLE IMPORTERS OF
Devoe's Illuminating Oil
PATENT CANS.
5v17-tf 414 Front street, San Francisco.

STEAM
FIRE-PROOF
SAFES
SANBORN'S PATENT.
Perfectly Dry in Use.
ACTUALLY FIRE-PROOF.
GET THE BEST.
The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.
☞ Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by ROSS, DEMPSTER & CO.,
105, 107 and 109 California street,
5v20-3m San Francisco.

Valuable Stock Ranch For Sale
IN ALAMEDA COUNTY.
The attention of miners, "new-comers," or others, who wish to buy desirable real estate, is called to
675 ACRES
— OF —
Excellent Pasture, Grain, Garden
— AND —
ORCHARD LAND
FOR SALE AT A BARGAIN.
TERMS EASY.
This Ranch comprises hill and valley, is supplied with an abundance of good living water, is well fenced, buildings good, and is stocked with implements and animals. It is one of the best DAIRY RANCHES in the State, and is near the Railroad. Inquire of
JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

HIBBERD, SANBORN & CO.,
STAIR BUILDERS.



South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

☞ ☞ ☞ ☞ ☞ ☞ ☞ ☜ ☜ ☜ ☜ ☜ ☜ ☜
TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. C. ALLEN & CO., Augusta, Maine. 5v20-3m

ECONOMY AND CLEANLINESS
Are to be found in the use of the
PATENT SPRING BED.
They are the cheapest and best in the market. Manufactory on Twelfth street, bet. C and D, Sacramento. Caveat filed Aug. 9, 1869. [15v20] G. B. DEAN.

USE
DR. S. GIRARD SMITH'S
ARAMIRACULAS
— FOR —
RHEUMATISM, GOUT AND NEURALGIA
CURES GUARANTEED.
Has cured Thousands. Has never been known
One bottle will relieve you.
OFFICE, No. 621 KEARNY STREET.

Agents Wanted in every City and Town.—Terms Liberal.
Dr. S. Girard Smith, 621 *Kearny street.*—Dear Sir It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,
ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.
Statement of an old and well-known Physician who has practiced extensively in Europe and America.
We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girsrd Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.
A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Ayer's
Hair Vigor,
For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a
HAIR DRESSING,
nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.
Prepared by Dr. J. C. Ayer & Co.,
Practical and Analytical Chemists,
LOWELL, MASS.
PRICE $1.00.
Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, Wholesale Agents, 26v18-1y

New York Metal Market.

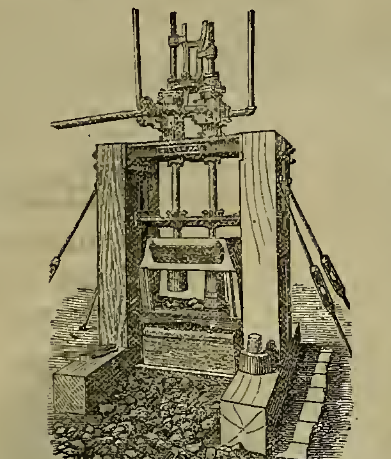
[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, March 26, 1870.

IRON.			
Pig, Scotch, No. 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No. 2..............	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common..........................	87 50	@	92 50
Refined..........................	95 00	@	— —
Rods............................	100 00	@	155 00
Horse-shoe.......................	115 00	@	— —
Hoop............................	125 00	@	180 00
Scroll...........................	110 00	@	145 00
Nail-rods, per lb..................	— 8¼	@	— 9¼
Spring...........................	— 9¼	@	— —
Tire.............................	— 9¼	@	— —
STEEL.			
Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast...................	— 23	@	— —
Sheet, second quality..............	— 20	@	— —
Sheet, third quality...............	— 18	@	— —
Saw-plates, circular...............	— 27	@	— —
Double-shear, warranted...........	— 23	@	— —
Single-shear......................	— 19	@	— —
Montague & Co. (cast bars)........	— 18	@	— —
Machinery, round..................	— 16	@	— —
German, best......................	— 16	@	— —
German, goat......................	— 13½	@	— —
German, eagle.....................	— 12	@	— —
Blister, warranted.................	— 16	@	— —
Blister, common...................	— 15	@	— —
Jessop & Sons, common............	— 17	@	— —
Double-refined....................	— 26½	@	— —
Stone-ax shapes...................	— 26½	@	— —

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

"The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

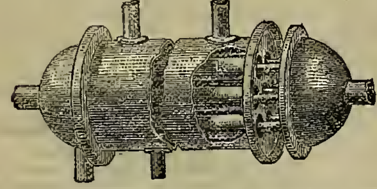
A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

CROSS' COMBINED
Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal

Crandall's Patent Spring Bed.

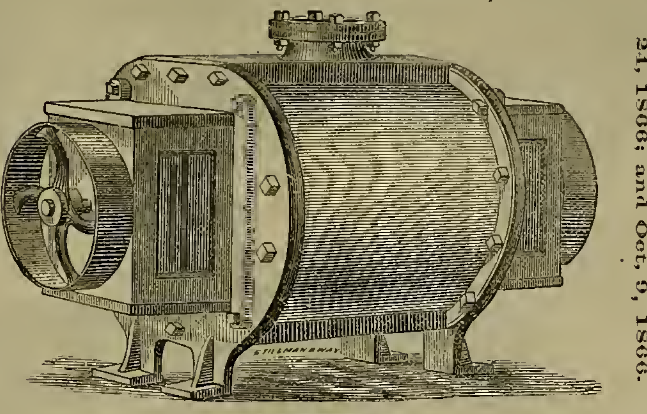
Manufactory, corner Front and M streets, Sacramento COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

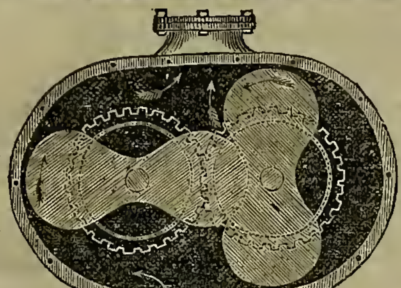
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.



REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

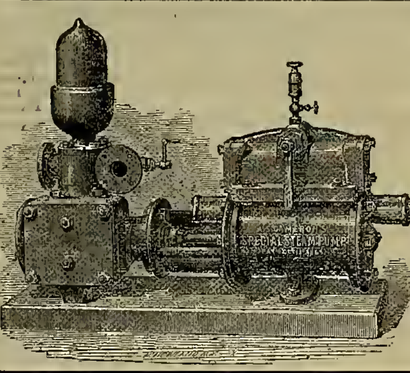
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



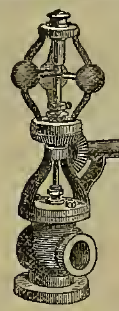
CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

GIFFARD'S
INJECTORS.

MARINE
ENGINES.

SURFACE
CONDENSERS.



DAVID STODDART,
BEALE STREET.

VARNEY'S
PATENT AMALGAMATOR;

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,
1v1 San Francisco.

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River,
State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

A gentleman who knows says emphatically that the Scientific Press will not commend any thing not known to be good; and that money will not buy its endorsement of an unworthy object. That is high praise, but he did say it.—*The Pastor, Mayfield, March 15.*

SPECIAL NOTICE.

TO DEALERS AND CONSUMERS

—OF THE—

H & L

AXLE GREASE

Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possible meet the market of our Chicago friends, we have made a great reduction in prices, and from our long experience we will satisfy you that there is none BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,
144 Natoma Street.

Depot, 320 Jackson Street.

N. B.—We are prepared to furnish Bulk Packages to contractors on equally liberal terms.

Our Home Physician.

AGENTS WANTED.—"OUR HOME PHYSICIAN."—New, complete, simple, reliable. The Pacific Medical and Surgical Journal says: "It is the best book on 'Popular Medicine' we know of." The Overland Monthly says: "The more generally this volume is introduced into families, the better it will be for them and the worse for quacks." Apply for circular fairly representing its character, at WESTERN PUBLISHING AGENCY, 411 Kearny street San Francisco. 6v20-3m

WHOLESALE DEALERS IN

DRUGS, CHEMICALS,

Patent Medicines,

DRUGGISTS' SUNDRIES,

TILDEN & CO'S

SOLID AND FLUID EXTRACTS,

Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.

SAPOINE

FRAGRANT SAPOINE FOR THE TEETH

THE GREAT MEDICAL DISCOVERY!

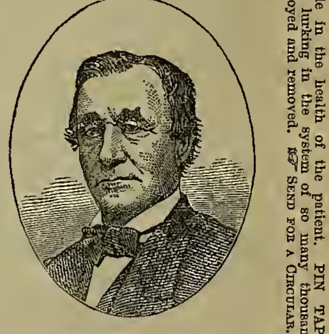
Dr. J. Walker's California

VINEGAR BITTERS.

More than 500,000 Persons

Bear testimony to their wonderful Curative Effects.

WHAT ARE THEY!



They are not a vile

FANCY DRINK,

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, free from all alcoholic stimulants. They are the GREAT BLOOD-PURIFIER and LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition. No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

R. H. McDONALD & CO.,

Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞ SOLD BY ALL DRUGGISTS AND DEALERS.

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ Send for a Circular. ☜

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.
Thomas Poyzer—California.
Philo B. Fox—Napa, Sonoma and Mendocino.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hudson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

MAGAZINES.	P.An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

BARTON & RUTTER,
Importers and Dealers in
Guns, Pistols, Fishing Tackle
Pocket Cutlery, Etc.
SPORTING APPARATUS OF EVERY DESCRIPTION.
609 Clay Street, near Montgomery.
— SOLE AGENTS FOR —
Alexander's Celebrated Pocket Cutlery
For the State of California.
JNO. C. BARTON. R. A. RUTTER.
16v20-3m16p

MANUFACTURING
Room to Let.

We have a large room, about 13 by 36 feet, in second story, at 414 Clay street, near Sansome, which we will rent low. Suitable for printing or manufacturing purposes.
DEWEY & CO.,
Publishers Scientific Press, 414 Clay st.

PLATINUM
Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes.
H. M. RAYNOR,
57 Bond street, New York.
Platinum Scrap and Ore purchased. 15v20-1y16p

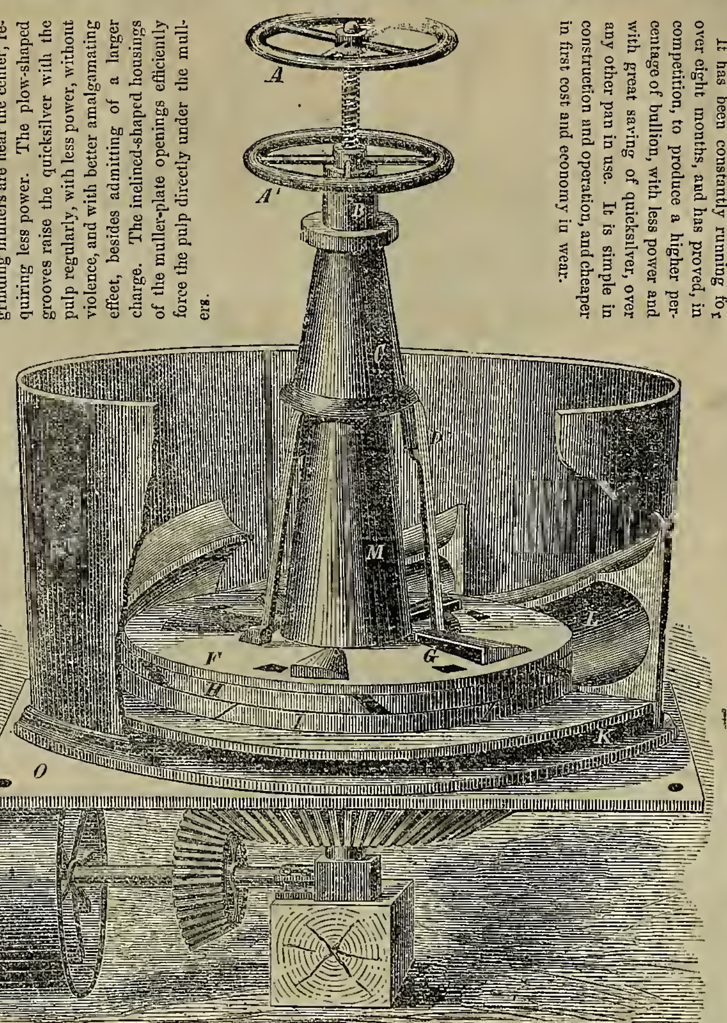
Caution.—All persons are hereby cautioned against using, or sending to others to be used, Governors for Steam Engines operated by direct action of the springs upon their arms, as such application of the springs is my invention, secured to me by Letters Patent of the United States, issued Jan. 12th, 1869.
G. T. PRACY.
San Francisco, March 24th, 1870. 14v20-1m

A gentleman who knows says emphatically that the Scientific Press will not commend any thing not known to be good; and that money will not buy its endorsement of an unworthy object. That is high praise but he did say it.—*The Pastor, Mayfield, March 15.*

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.

It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.



Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.,
Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, Gold Hill, State of Nevada, where the Pans have long been in constant operation.
15v20-1mr,1amtf

One Per Cent. per Month
Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.
THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

The Pacific Insurance Company,
No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80
ASSETS IN GOLD.	
Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.
J. HUNT, President.
A. J. RALSTON, Secretary.
☞Insurance effected on the most reasonable terms.☜
Office, 422 California Street.
9v20-qy16p

Carmen Island Salt Works
MANUFACTURE AND OFFER FOR SALE
TABLE, DAIRY, COARSE-FINE,
CARMEN ISLAND ROCK,
AND LIVERPOOL COARSE AND FINE
SALT.
Dealers and Packers supplied in quantities to suit, at the lowest market prices.
MILL, 249 STEWART STREET.
HOLLADAY & BRENHAM, Agents,
11v20-3m 325 Front Street, San Francisco.

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, &c., etc. Prompt execution and reasonable prices.
DEWEY & CO.,
No. 414 Clay street, S. F.

Important to Assayers.
Crucibles.
The Patent Plumbago Crucible Co.
Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT, Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass. GALLAGHER, WEED & CO., California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S. Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street. San Francisco

Sheffield Scientific School
Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology, and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v15-1y16p

---

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."
☞Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,
— IMPORTERS OF —
HARDWARE.
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
— ALSO AGENTS FOR —
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY
54 K Street, Sacramento.
7v20-ng

WILCOX'S
PATENT STEAM
WATER LIFTER.
Requiring no Engine.
Send for circular containing full explanations, price list, testimonials and references.
M. & A. WILCOX,
15v20-3m-nbxh 74 K street, Sacramento.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market.
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect,
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,
Manufacturer of LEATHER BELTING AND LACING, Made of Fuller Rawhide, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.
☞**Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** ns

---

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
— AND —
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
— ALSO —
HAMMERED IRON
Of every description and size.
☞Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.
☞The highest price paid for Scrap Iron 9v14-3m9p

THE CALIFORNIA
Silk Manufacturing Company.
Incorporated March 4, 1870.
OFFICERS:
JAMES T. DEAN..........President
JAMES MILBURN..........Secretary.
RODGERS, MEYER & CO..........Treasurers.
Company's office, 121 Post Street, San Francisco.
12v20-3m

SCIENTIFIC PRESS.

An Illustrated Journal of Scientific and Industrial Progress,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

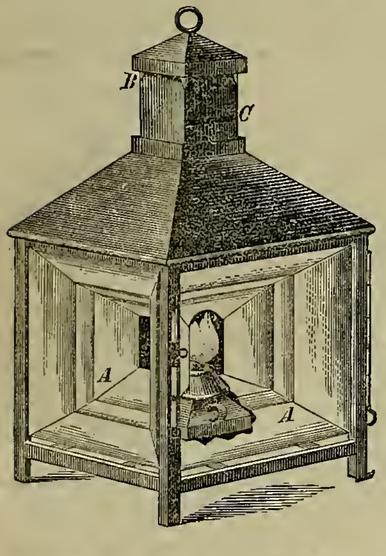
San Francisco, Saturday, April 23, 1870.

VOLUME XX.
Number 17.

The Central Reflector Lamp.

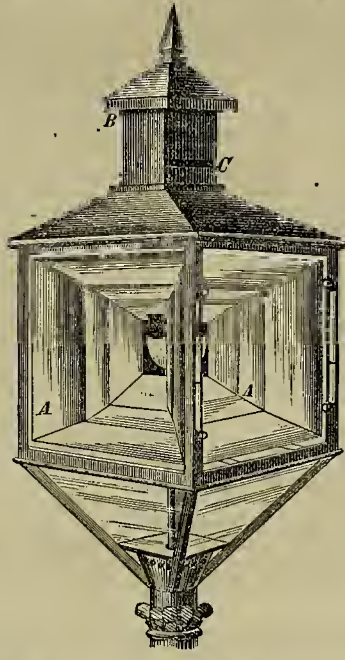
In our ordinary street lamps we lose the benefit of a considerable portion of the light which is produced. That which is diffused upwards, although by no means entirely lost, might still be better utilized by being thrown in a horizontal direction. Reflectors are employed to some extent and under certain circumstances, but a great objection to their general use is, that they throw the light only in a limited range and not around to all the points of the compass.

It is with a view of obviating these and other objections that the lamp, which we illustrate this week, was invented. It is designed with a view of economizing light by reflecting the rays in such a manner that none will be lost to utility. This lamp, it is claimed, will concentrate the light and give that direction to the rays which is most desirable for the purpose. The light is reflected horizontally in all directions, and also downwards, immediately around the post or standard, but not upwards. By its construction, the reflection is not objectionable on account of any dazzling brilliancy painful for the eye, while it is still none the less effective, and then again the flame will always be steady and undisturbed by high winds, strong draft or other similar causes.



The manner in which these objects are attained will be understood from the illustrations. The reflectors, A A, are made in the shape of three four-sided hollow pyramids combined, as often seen in crystals. The angles of the sides and their different sizes are in a certain proportion, which varies for different sizes of lanterns. Hence the rays of light do not all concentrate at a common focus, as in a common reflector, and the result of which is that the eye is dazzled and pained, but there are several foci, and hence the eye is assailed only by certain rays. Then the angles are such that the rays are projected, so that all shadows are avoided. When one is some considerable distance off, one sees more and a greater light, but on approaching, one eliminates one focus after another, and is not dazzled on getting close to the lamp.

In the figures, B denotes the ventilator-top. On the inside of this and directly under the openings, C, are the so-called guard-plates. These are plates which curve upward and inward. By this construction no wind can blow downward on to the flame, which will, consequently, always burn steadily, and by thus regulating the current of air, the more perfect combustion is obtained, and hence one gets a brighter light and at the same time economizes to a very considerable extent.



The lamp is made of different sizes and shapes, and the reflectors set at different angles according to application made. The device may be used for burning gas, oil or any illuminating substance.

The gas lamp consumes four feet of gas per hour and gives a light equal to 35 30-100 candles, where the common street lamp, consuming the same amount, gives a light equal to 11 34-100 candles. These numbers are given merely as examples, for the sake of comparison. One kind of gas will, of course, have a greater or less illuminating power than another.

The oil lamps are said, by actual test, to give a light equal to three common oil lamps, besides burning less oil. One gallon of coal oil will burn in these 124 hours.

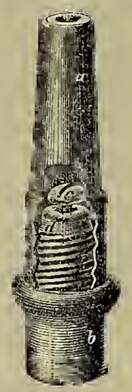
The proprietors are now manufacturing these lamps both for oil and for gas, and have flattering certificates as to the satisfaction given with regard to both light and economy. The reflectors are coated with a composition, we should state, which protects them from oxidation.

This lamp was patented April 5, 1870, by A. K. Grim and A. D. Moore, of San Francisco. Any person desiring further information can obtain the same by applying to A. K. Grim, room 23, Hayward's Building, California street, San Francisco.

Patent Regulator for Gas Burners.

Every house-owner who uses gas is periodically astonished when his gas bill comes in. The amount charged seems constantly on the increase, and he feels sure that he pays for more than he burns.

Such is, in fact, the case. To prove it, one needs only to burn gas in a room, where there are no strong drafts, for a couple of hours. On then coming into the apartment from the fresh air, one's olfactory organs will indicate the presence of unconsumed gases. The amount which thus escapes is very considerable, although differing according to circumstances. The owner of the patent, which we illustrate, claims, for instance, that with the common burner used in this city, from twenty to thirty-three per cent. more gas passes through the burner than is utilized.



Mr. M. B. Sturges, formerly connected with the St. Francis House, in this city, became satisfied that he could essentially reduce his gas bills by using a proper apparatus. After experimenting for some time, he invented his patent regulator, which he at once put up in all his rooms, and found that not only did he decrease his monthly indebtedness to the gas companies, but that he also had his house much better lighted. On applying for a patent, he found that he had been anticipated with regard to a part of his device by a man from the nutmeg State; but he purchased the rights of this person, and now holds the patent complete.

In the figure, *d* represents the socket of a gas burner which is screwed on the pipe in the usual manner. On the upper part, *b*, of this is screwed a common burner, *a*. In the middle of *b* is the regulating screw, *c*, the under surface of the head of which has a concave form. These different parts will be readily understood from the illustration.

Now the gas in issuing from the socket strikes against the concave screw head and is deflected down into the space between the socket and the burner, so that it then rises in a cone along the sides of the latter and then issues through the aperture. By this arrangement the pressure is removed from the said aperture to the regulating screw, and the gas flows from the burner in a steady and uniform manner, and not with such force that, as with the common burner, only a part has time to be consumed. By means of the screw, *c*, the amount of gas is easily regulated.

The owner of the patent intends going to work in a practical manner to introduce his device. As this can be put on any gas pipe, he proposes to affix it in any house, where the owner desires it, and let it be used without charge, when over a dozen burners are put on, for thirty days. Any person who is then not satisfied that he has gained by its use, can have them removed without expense on his part. From personal experience he has satisfied himself completely that his burner will save from 20 to 30 per cent. of gas, besides giving a stronger light and preventing the escape of the disagreeable and unwholesome gases.

Persons desiring further information may apply to M. B. Sturges, Bush Street House, 331 and 333 Bush street.

The "No-fence" Law.—A law designed to protect agriculture, and prevent the trespassing of animals upon unfenced private property, was passed by the Legislature of 1866, but made very limited in its application, as follows: To the counties of Marin, Yolo, and as much of Sacramento county as lies west and south of the Sacramento and Jackson road, the Third Supervisor District in the county of Solano, and the First Supervisor District in the county of Mono.

By a supplementary act of the last Legislature, this law is now made applicable, in addition to the above, to all of San Joaquin county south of the Calaveras river and all west of the San Joaquin; also, to the whole of Stanislaus county, and to all of Merced west of the San Joaquin. In all the regions named it is made the duty of owners of stock to keep the same within enclosures, making the owners responsible for any damages which cattle may do upon cultivated fields, whether such fields are fenced or not. The cattle themselves, when the owners cannot be found, may be sold for damage. Justices have jurisdiction.

European Patents.—Mr. Stevens, of Grass Valley, has applied, through the Scientific Press agency, for English patents on his improved grinder, concentrator and refiner, which has proved so successful with the copper ores of Lake Superior. This will be applied more particularly in England for treating tin ore, but can be used for slimes and tailings of all kinds of ore.

We have mislaid a clipping from the Central City *Register* inquiring about the advantages silver plating copper plates, but think that the questions asked have been answered in articles since published.

Agricultural Fair Appropriations.—The final action of the Legislature gave to the State Fair, at Sacramento, $3,000, and to each of the District Fairs $2,000.

Communications.

The New Copper Process.

[Written for the Scientific Press.]

Editors Press:—The reaction of iron chloride on copper oxide has long been known. I, myself, called attention to it in '55, through your columns, in reference to its bearing on pan amalgamation, and though then new to me, and to some chemists in San Francisco, it was not so to others, as was shown in a subsequent issue by "Delta." It had even then been applied to the extraction of copper at some place in Europe, the name of which I forget.

I made several experiments in the process, but experienced difficulty in the leaching, which Dr. Hunt appears also to have met with, and which arises in great measure from the precipitation of iron peroxide. It might be overcome by pressure. I have also tried the extraction of silver by the analogous process alluded to in your article; but, on account of the difficulty of leaching unroasted ore, and for other reasons, I have preferred to collect the silver with mercury.

It may be needless to remind your readers that these reactions are identical with those of the patio and fondo processes.

For those who think of trying to adapt Dr. Hunt's copper process to our ores, it may be well to remember that lead and lime oxides and carbonates decompose the iron chlorides, forming lead and calcium chlorides, which have no action on copper oxide unless, indirectly, in presence of SO^2 when the following reaction takes place:

$$CaCl + 2CuO + SO_2 = CaSo_4 + Cu_2Cl,$$

Forming lime sulphate and copper dichloride. In case sulphuric acid is not present in some form, the lead chloride will, in presence of excess of iron in the precipitating tubs, contaminate the copper with lead, which, however, can be redissolved by treating the cement copper with solution of copper dichloride. The reaction of solutions of neutral salts on the natural compounds of metals is a subject well worth the attention of metallurgists, and M. Terreil (*see Chem. News Am. Rep., June*, '67) has turned it to account in the proximate analysis of minerals, which is often even more important than the ultimate analysis, as it gives not only the elements present, but their state of combinators also.

Charles H. Aaron.

◆

The Mines of Havilah, Kern County.

[Written for the Scientific Press.]

Editors Press:—In your issue of the 2d inst. I noticed a small paragraph inquiring the reason of the depression of the mining interests in and about this place. Here all of the best leads are in litigation, but we are looking daily for the decision in reference to the McKidney mine. Col. Rand has, we learn, returned from the East, and will soon resume operations. The ore from this mine will yield from $60 to $150 per ton. Such mines are scarce and should be in operation. There are good mines at Kernville, but the most of them are idle on account of attempts at black mail. [Our correspondent expresses some disapprobation at the course of the County Judge in certain matters.—Eds.] Messrs. Elleworth and Doland have good mines, yet all are idle except two, which are daily yielding ore which paye from $60 to $80 per ton. A. Staples run the same mines from January, 1864, until August, 1866, took out upwards of $500,000; and, to my knowledge, cleared $175,000, besidee making great improvements. He owned the mines as well as in other places. Ellsworth and Deland have since put up very fine hoisting works in company with J. P. Mead of San Francisco, but by their expensive improvements in the way of new mills, fine offices, boarding houses, etc., and from a bad winter of 1867 and 1868, they are all of $30,000 behind, as I have been told by Mr. Ellsworth himself; but men with capital could, if things were properly managed, make money very rapidly out of these very mines, the deepest shaft on them being less than 300 feet deep and with but little water to bother as yet. I am an old resident here, and if this is worthy of your notice, let me know, and I will take more time and will try to post you more thoroughly in the future.

A Miner.

Havilah, April 11, 1870.

[Many thanks to our correspondent, from whom we should be most happy to receive further interesting letters.—Eds. Press.]

Letter from White Pine.

[continued from page 250.]

What is called the Base Range, however, is not productive of base metal only, nor are all the mines of Treasure Hill yielding nothing but "chloride." One of the best mines in the former,—the Brother Conover,—has no base ore, while the Imperial, the Farewell, the Rosebud, the Mary Rogers, and many others, situated on the spur of Treasure Hill, abound in the same. The Virginia, on the eastern slope of the hill, also has considerable base metal. Mines of chloride silver are being worked as far north of Treasure Hill as two miles, and as far south as five miles; and there are numbers of mines of base ore in intervening localities. The attempt to define or describe any regular "belt" of country producing either free or base ore exclusively, is, therefore, preposterous. No such "belt" exists in this district.

Base Metal vs. Free Ore.

One advantage which the mines of "base metal" have over those of "free ore" is, that they may be owned and worked by poor men. The yield of ore is more regular, the mines are more easily worked, and the ore is more saleable from the dump. The reason of this latter is, the value and the character of the carbonate ore, and of argentiferous galena, may generally be seen at a glance; while the chloride requires a working result by mill process to determine its value. Besides, smelting is the cheapest method of the two, and the profit is larger, even with the great difference in the yield of silver from the two classes of ore. Lead is worth $160 per ton in New York, and $150 in San Francisco; and, with the increased facilities of transportation which the continental railroad affords, returns can be made to the smelter from the separating works in either section of the country in a much shorter time than from Swansea. The cost of insurance, which shipment to the latter involves, may thereby also be saved.

Shipping Bullion.

Our smelters have discovered these facts, and arrangements have been made by the agency of the Bank of California at Hamilton to make advances upon crude bullion shipped by them to New York, either for separation at Newark, N. J., or at Swansea, Wales. The bulk of bullion, I think, will go to Newark, while a large portion will reach San Francisco. The Chicago people are also moving in the matter of erecting separating and smelting works in that city, with a view of securing a portion of the business. The cost of transportation is as low to Chicago as to San Francisco; and there is no reason why Chicago should not have a large share of the product of these mines.

The mines of Eureka district, forty-five miles from here, although of base ore, are richer in silver than those of White Pine. The miners and smelters of that district are shipping their bullion eastward for refining. So that, although the "star of empire" may still be taking its way westward, the riches of our mining districts seem to be taking to themselves wings for an eastward flight. Perhaps your transportation companies may be able to give a reason for this.

Considerable bullion from our mills also now finds its way to New York for refining, instead of to San Francisco.

There can be but one result to all this, and that one is injurious to the interests of San Francisco. If this eastward current of silver and lead increases in volume, the whole of Eastern Nevada will soon receive its supplies of all descriptions of merchandise from Chicago and other Eastern cities.

Increased Activity.

But to return from this digression, and to conclude for the present my observations upon the mines of the Base Range, I would say that these latter are to be the principal source of the yield of this district in the precious metal during the ensuing summer. Many valuable locations now covered with snow to the depth of six feet, will be thoroughly developed and their wealth brought to light. The success of the owners of the Alta, Cadiz, Bounty, Imperial, and others, will stimulate prospecting to a remarkable degree. Even now, the miners wade knee-deep in snow, over trails which their feet have made, to reach their mines, so as to get them fairly opened early in the season.

Much more than I have written on these matters I shall be able to give you in my next.

W. H. M.

Shermantown, Nev.

The Gold Fields of Victoria.—No. 4.

Prospecting.

Much of the prospecting in search of a lead, whether of alluvium or quartz, is done by boring, the apparatus for which costs about one thousand dollars. It costs, under contract, from $3 to $5 a foot. They bore from the surface down hundreds of feet; from levels hundreds of feet below the surface they bore in every direction until they find, or are satisfied they cannot find, the object of their search. At Pleasant creek, for instance, they had reached a depth of 620 feet with Ford's patent rock-boring machine.

The older deposits of gold are found in deep leads, which exist in various parts of Victoria. They have to sink through hard basaltic rock, drift sand, etc. In search of the lead, the White Horse Co., Ballarat district, passed through 2 feet of surface soil, 10 feet of basaltic clay soil, 54 feet of basalt, 37 feet of clay, 79 feet of basalt, 46 feet of clay, 45 feet of basalt, 12 feet of black clay, 12 feet of brown clay, 7 feet of drift and gravel, and 11 feet of wash dirt; total, 315 feet.

The Crosbie Freehold, Ballarat, let a contract to prove ground by boring at $3.89 per foot. After passing through 126 feet of basalt and 80 feet of drift and clay, the contractor gave up the contract and forfeited the percentage retained as well as their deposit money.

Tribute.

Many of the companies contract to have the ore extracted on "tribute." In some instances the miners receive all the product to a given amount (the estimated working expense) and a percentage of all over that amount. In others, the mine owners haul and crush the ore and receive one-half the yield. In others, the tributers pay a percentage on the gross product, the terms varying with circumstances.

Examples.—The Bell Reef Co., Tarranger. The tributers were to bear *all* expenses connected with operations, receiving on all yields under $6 a ton the whole of the gold, and to pay the company ten per cent. of gross yield on all stone yielding from $6 to $20 a ton, and 20 per cent. on all stone yielding more than $20 a ton.

The Denmark Co., Bendigo.—Lode 1½ to 2 feet wide; company to haul and crush the ore, and to receive one-half the gold. Ore crushed yielded about $10 a ton.

The Golden Age, Bendigo.—Let on tribute at 15 per cent. gross.

Castlemaine.—A new feature in alluviul working is here presented by *two enterprising miners*, who have taken up Dinah Flat, erected machinery, and arranged with 50 Chinese to work the claim on tribute.

Wages.

The wages of miners range from $12.50 to $15 a week; of laborers, $10 a week; engineers, $20; machine blacksmiths, $20.

Managers.

They employ two—a mine manager and a legal manager—at salaries ranging from $20 to $30 a week. The duty of the legal manager appears to be financial and general supervision. In some instances a legal manager, receiving $30 a week, is prohibited from attending to any other business. Besides managers, a storekeeper or clerk is employed, whose salary is less than either of the managers. They have a board of directors and a chairman, who, for certain services, are entitled to fees.

Fuel.

The cost of wood ranges from $3 to $5 a cord, and from 75 cents to $1.25 *a ton* of 50 cubic feet.

Machinery.

The "Homeward Bound," at Scotsman, Ballarat, made a contract for a battery of eight stamps, with engine and boilers also complete, to be furnished *and erected* according to plans and specifications for the sum of $2,400.

The Waterloo Co., Talbot, made a contract for a battery of ten stamps, with winding engine, poppet heads, etc., for $1,720; and for a building to enclose the machinery, including material, for $465.

At Beechworth, a battery of 20 stamps, with engine 18¼-inch cylinder, a boiler 6½x26 feet, cost $4,470.

M.

◆

Submarine Enterprise.—The American Submarine Company of New York is fitting out a vessel for the purpose of recovering $5,000,000 of treasure from the wreck of a Spanish ship which sunk in the Bay of Cumana, Venezuela, in 1815.

Report of Samuel S. Fisher, Commissioner of Patents.—1869.

[continued from page 260.]

Female Copyists.

Prior to July 1st, 1869, much of the copying of the office was done by females. About sixty-five were employed, who worked at their own homes, and who were paid at the rate of ten cents per hundred words for the amount actually copied. By an act approved March 3d, 1869, provisions were made for fifty-three female copyists at an annual salary of $700. As it was obvious that this force must labor within the office, in order to secure proper discipline and efficient work, six rooms were provided in the Patent Office building for the entire number. These rooms and clerks were placed under the charge of an efficient female superintendent. It soon became evident that although the number of copyists was reduced, there were still more than sufficient to do the work originally performed by the larger number. Additional work was therefore assigned to them from other divisions, and the force of male clerks was correspondingly reduced. Accurate time tables have been kept since July 1st, 1869, of the attendance of these ladies and a careful record has been made of their work.

The result of the experience of six months is that the attendance is nearly as good and the work is fully equal in quantity and quality to that of male clerks performing corresponding duties. The salaries of these ladies was originally fixed at $700 only, instead of $900. This, it is presumed, was an oversight, as they have labored as faithfully, and until November 15th, 1869, one hour per day longer than the female clerks of any other department. I know of no reason why their pay should not be equal to that of male clerks of like grades, except that there are, as nearly as can be ascertained, twenty-five applications for position by women to one from men. This division is the largest in the bureau and is under excellent discipline, yet the superintendent of it, because a female, has with difficulty been enabled to secure the pay of a first-class clerk. I recommend that the pay of the female clerks be raised to at least $900 per annum; that they be paid at tharate from the beginning of the present fiscal year, and that permanent provision be made for a female superintendent, at a salary of at least $1,400 per annum.

Salaries.

Principal examiners are now paid $2,500 per annum, while first assistant examiners receive $1,800, and second assistants $1,600. The difference between the assistants is but $200, while between the first assistants and principals it is $700. There is not a corresponding difference in duties, qualifications, or ability. I submit that if the salaries of first assistants were fixed at $2,000 the scale would be more equitable.

The character and necessary qualifications for the examinere and chiefs of divisions require adequate compensation to secure the best men. These positions ought to be filled by permanent incumbents, and a sufficient price should be paid to retain them in office. That this is not yet done appears from the fact that they voluntarily resign to accept other positions or to go into business as solicitors. Every second assistant examiner now in the office, twelve of the twenty-first assistants and seven of the twenty-two principal examiners were appointed during the year 1869; of these, twenty-five were appointed to fill places made vacant by voluntary resignations. In the other departments of the office, while it is doubtless true that many young unmarried men are amply paid, it is also true that experienced clerke of mature years are poorly compensated. Under the last appropriation bill not a single fourth-class clerk was assigned to the Patent Office.

[to be continued.]

◆

Frozen Giant Powder Dangerous.—The Alpine *Miner* of the 19th inst. says this fact was plainly shown a week or two since by Mr. McCuen, of Silver Mountain. Finding the powder more compact in the box than usual, he went to work digging it up, when it took fire and burned so rapidly that his house was entirely consumed. This changing the nature of Giant by freezing is now considered the greatest objection to it, and we hope some remedy may be found therefor. In the meantime let those who have anything to do with this powder be very careful to place it where it will gradually thaw out and become loose and soft before using or handling. Don't try to use it in the congealed state, or even handle it, except with great care.

Mechanical Progress.

The Most Economical Steam Pressure. At a late meeting of the Polytechnic Association of the American Institute, Mr. Chas. Emery exhibited a table which he had prepared to show the proportion of power lost in overcoming the back pressure in non-condensing engines. Although it is true that the higher the steam pressure the less in value becomes the back pressure, it does not follow that the economy increases proportionately. By the table it appears,—he says,—that "the savings due to an increase of steam pressure are important up to, say 90 or 100 pounds. Above that point, however, they are too small in my opinion to overcome the well known disadvantages due to high steam. There is a saving of only seven per cent. by increasing the pressure from 90 to 195 pounds, which will hardly equal the losses due to increased leakages, radiation, strain on boiler, etc., to say nothing of the popular feeling of greater danger. By still further raising the pressure to 300 pounds the increased saving would be only 2.4 per cent. On the contrary, it will be seen that carrying less than 80 pounds steam pressure in a non-condensing engine, as is too much the practice, is simply throwing away fuel. I have found, by careful experiments, that the best practical results are obtained with pressures varying between 80 and 100 pounds, and consider that higher pressures are of advantage only where light weight is of paramount importance."

Hamar's Anti-Carbonizer for Gas Retorts.—The accumulation of carbon in the retorts has been a nuisance to gas manufacturers, and efforts have been made to remove it; but all attention has been given to removing the accumulated carbon, not to preventing its accumulation. A recent invention of Mr. A. Hamar consists in introducing jets of steam into the retorts. The oxidation of the coke sets free hydrogen, which combines with the free carbon in the retorts, forming carburetted hydrogen, which is pushed off from the retorts by the surplus of steam, increasing the quantity of gas produced, and purifying it so as to add to its illuminating power. A three-quarter inch steam pipe is extended from the boiler along the top of the wall behind the stand pipes, provided with a stop-cock near the boiler and a waste-cock on the other end of the pipe. With this pipe are connected half-inch pipes, which extend to and penetrate the mouth piece of each retort far enough to allow an elbow to be attached, in which is screwed a pipe ten inches long, reduced at the end by a sharp angle to a quarter of an inch, for the purpose of forming a jet. All the pipes are provided with stop-cocks near the mouth-piece.

"Pebble" Gunpowder.—The English Ordnance Select Committee appointed to determine by experiment the gunpowder which is attended with the least risk of overstraining the guns, has fixed upon the above and advised its adoption provisionally. *Engineering* says of it: "The new powder has a density ranging from 1.79 to 1.82; it is produced by breaking up "press cake" of the specified density into lumps, which are retained between sieves of five-eighths and four-eighths in chmesh respectively. The lumps are afterwards submitted to the ordinary process. The name of the powder sufficiently describes its appearance. The introduction of a powder of this sort amounts to increasing the strength of our guns without augmentation of weight, and to increasing the power of our armaments without augmentation of cost."

Pointing Pins by Electricity.—As a substitute for grinding, C. Widemann suggests that pins may be pointed by making a bundle of them form the positive pole of a galvanic battery, which pole is then dipped into an acidulated liquid contained in a vessel into which the negative pole of the battery has been previously conveyed through the bottom. The bundle of pins or wires is not brought in contact with the negative pole, but a small space is left between. In a short time the current which passes through this space causes the action of the acid to produce points upon the ends of wires equal to those of the best English pins.

The Fluo-Titanic Process.

We condense the following notice of this new American discovery from *Van Nostrand* for April:

"This process has for its object the production of wrought iron and steel from crude cast-iron, by the use of fluxes, and without manual labor. There has been the want of a process economical as to cost and certain as to results, that will produce superior qualities of wrought iron and steel from pig irons that are too poor for the Bessemer process (and which comprise over 90 per cent. of the pig-iron produced), and from which better results are to be obtained than by puddling. These conditions are fulfilled in the new process, which consists in the combined use of fluor-spar and titaniferous iron ores with liquid cast iron, for removing carbon, silicon, sulphur and phosphorus. This differs from other processes in the respect that it is reducing as well as oxidizing, and is not attended with waste; on the contrary, the iron in the titaniferous ore is rendered metallic by the reactions of the oxygen in the ore with the carbon in the pig iron,—causing, in fact, a slight gain in weight.

Several modes of application have been tried with success. In one, granulated cast iron was charged into a furnace in admixture with the ore and spar, both pulverized. When the iron melted, the heat dissolved the spar, which combined with the titanic acid in the ore; and, by reason of the affinities of these two for carbon, silicon, sulphur and phosphorus, these substances were taken from the iron in the form of vapor and slag, leaving the resulting wrought iron in the liquid state, to be run off into ingots to be hammered or rolled. Another method is to mix the ore and spar, rendered plastic by means of heat or by mucilaginous substances, and to run the molten cast iron in upon them. In order to produce steel of any required grade, it is only necessary to vary the proportions of spar and ore and the grade of the pig iron."

Compound Engines Want New Boilers. We take the following from "Scotch Notes" in a late number of *The Engineer*:—"The ordinary type of engine appears to have got into the background for a time. I am inclined to think, however, that it is only for a time, The compound engines in the mercantile marine have unquestionably given wonderful results of late in respect to great development of power on small consumption of fuel; and if they would continue to do so, it might be said that the compound engines must prevail. But it is a question of time. When the boilers are new, pressure of 80 lb. or 90 lb. may be borne with safety; and with steam of such pressure, and cylinders steam-jacketed, expansion may be carried out to an extent that will exhibit remarkable results. But a few years will tell severely on those high-pressure boilers. Notwithstanding their use of fresh water, other destructive agencies are at work—arising from the use of surface condensers—of baneful character as affecting the longevity of marine boilers; and engineers have been baffled to find an antidote. When such boilers are under Government inspection such high pressure will soon be disallowed. Year after year the inspector will take off 10 lb., 20 lb., or 30 lb. per square inch of the load on the safety valves, in proportion as the boiler shows decay. And then how fare the compound engines? Take away their high steam, and they are crippled. Expansion becomes impracticable in proportion as the pressure is reduced, and so the engines become ineffectual."

Electro-Deposition of Iron.—We find the following in the London *Mining Journal* of March 19th; Mr. W. C. Robarts, the chemist of the Mint, has achieved something surprising with his specimens of electro-deposited iron. The source of the deposit is a solution of sulphate of iron and sulphate of magnesia; the rate of deposit is about the same as with copper, and the iron thus obtained is so hard that it will scratch glass. Among Mr. Roberts' specimens, exhibited at the Royal Society, were bank-note plates, medallions, mouldings, and raised work of various kinds; and one plate had been converted into steel by a process which was not revealed."

Prof. Ward's Museum.—It seems that this was fully insured, and has been paid for. Prof. W. is as ready as ever to furnish casts of fossils to colleges. A large portion of the moulds were saved. He is on the point of leaving again for Europe to renew his collections.

Scientific Progress.

Relation Between Light Produced and Gas Consumed.

The January number of the *American Journal of Science and Arts* contained a paper read by Prof. Silliman at the August meeting of the American Association, in which "Farmer's Theorem" was discussed. This theorem, so named because first demonstrated by Mr. Wm. Farmer, of New York, is as follows: "The intensity of gas flames—*i. e*, illuminating power—increases (within the ordinary limits of consumption) as the square of the volume of the gas consumed." It has heretofore been customary to compute it as increasing directly as the volume of gas consumed, instead of as the square of that volume. Prof. S. details a number of experiments with different coal gases and various forms of burner, and says that the results point clearly to the general truth of the theorem. Prof. Wurtz fills a large part of the space devoted to the *Chemical Repertory* for April 2d with notes and communications upon the subject. Among the latter is one from H. H. Edgerton of the Fort Wayne (Ind.) Gas Works,—referring to and reproducing a letter written by him in 1868, enunciating the same proposition and stating that his experiments had satisfied him of its general truth as opposed to the ordinary method of estimation. Prof. Wurtz says: "No doubt can reasonably be held that we have here another of those extraordinary cases, so numerous in the history of scientific discovery, of independent travelers simultaneously pushing on in precisely parallel paths and arriving at identical stand-points."

Origin of Diamonds.—In 1864, Dr. Göppert, in an essay which gained a prize at the Haarlem Academy, argued in favor of the formation of the diamond by the wet way. He now publishes,—says the *Quarterly Journal of Science*,—an account of certain diamonds containing organic structures tending to confirm his views. Two diamonds in the Royal Mineralogical Museum in Berlin were found to inclose numerous green cells closely resembling those of many algæ. One of the diamonds, weighing 263 milligrammes, contains a very large number of perfectly round green granules, which appear to be isolated cells not unlike those of *Protoccus pluvialis.* The new species is accordingly named *P. adamantinus.* In the second diamond, weighing 345 milligrammes, the cells are less rounded and more elongated in form, while they frequently unite so as to form a loose parenchymatous tissue; they find their best representatives in *Palmoglea macrococca*, and Göppert has accordingly ventured to name the new diamond plant *Palmaloeites adamantinus.*

Vegetable Parasites.—The following is from a paper read by Dr. N. S. Davis before the Illinois Microscopical Society; "It is a fact worthy of note that vegetable parasites have been found only in connection with diseases of such structures as are covered with epithelial cells, like the skin and mucous membrane, or on suppurative surfaces, where the organic cells are undergoing more or less degeneration. This suggests the question whether all these parasitic forms are not the results of what Erasmus Wilson has styled *Phytiform*—degeneration of cells and granules of animal matter? Whatever may be the differences of opinion in relation to the nature and mode of development of these simple parasitic bodies, found in connection with epidemic and some endemic diseases, all agree that their production and rapid multiplication are directly dependent on the co-existence of three things—viz.: organic matter capable of undergoing degeneration or decay, moisture, and a temperature generally above 60° F. If, with these, we have coincidently the exclusion of sunlight, we have the conditions most favorable for all vegetable parasitic formations."

Prof. Hunt on Volcanoes and Earthquakes.

The following is quoted, somewhat condensed, from Prof. T. Sterry Hunt:

"Judging from the known properties of the rocks with which we are acquainted, solidification should commence not at the surface, but at the center of the liquid globe, a process which would, moreover, be favored by the influence of pressure. This augments the melting temperature of matters, which, like the rocks and most other solids, become less dense when melted, while it reduces the melting point of those which, like ice [or bismuth], become more dense by fusion. Pressure, moreover, increases the solvent power of water for most bodies, whose solution may be described as a kind of melting down with water into a compound whose density is greater than that of the mean of its constituents. The theory adopted by Hopkins and by Scrope, is briefly as follows: The earth's center is solid, though still retaining the high temperature at which it became solid. At an advanced stage in the solidifying process the remaining envelope of fused matter became viscid, so that the descent from the surface of the heavier particles, cooled by radiation, was prevented, and a crust formed, through which cooling has since gone on very slowly. There were thus left between this crust and the solid nucleus, portions of yet unsolidified matter (or even perhaps a continuous sheet), and it is in this that we are to find an explanation of the phenomena of volcanoes and earthquakes.

This theory is an approximation to the one which I adopt, though differing from it in some important particulars. While admitting the existence of a solid nucleus and a solid crust, with an interposed stratum of semi-liquid matter, I consider this last to be, not a portion of the yet unsolidified igneous matter, but a layer of material which was once solid, but is now rendered liquid by the intervention of water under the influence of heat and pressure. When, in the process of refrigeration, the globe had reached the point imagined by Hopkins, where a solid crust was formed over the shallow molten layer which covered the solid nucleus, the farther cooling and contraction of this crust would result in irregular movements, breaking it up, and causing the extravasation of the yet liquid portions confined beneath. When at length the reduction of temperature permitted the precipitation of water from the dense primeval atmosphere, the whole cooling and disintegrating mass of broken-up crust and poured out igneous rock would become exposed to the action of air and water. In this way the solid nucleus of igneous rock became surrounded with a deep layer of disintegrated and water-impregnated material, the ruins of its former envelope, and the chaotic mass from which, under the influence of heat from below and of air and water from above, the world of geologic and of human history was to be evolved."

Areas of Preservation.—This term now replaces that other, "Centres of Creation," which belongs to the language of the past. Prof. Gray says: "The conclusion tardily reached, 'that the present geographical distribution of plants was in most instances a derivative one, altered from a very different former distribution,' has been followed by the conviction that the present species themselves are equally derivative, and have a changeful history, some steps in which may be dimly surmised by the study of cognate forms, extant or fossil. At the point now reached, if not by general yet by large consent, the problems we are led to consider are such that it is indispensable to have a term of wider application than "species;" and Mr. Bentham here appropriates to this use the word *Race*, to denote either permanent variety, or species, or groups of two or more near and so-called representative species."

Fertilization of Plants.—Professor Hildebrand states that plants intermediate between the *Papaveraceæ* and the *Fumariæ* gave the greatest quantity of seeds when impregnated with the pollen of another individual of the same species; less when the pollen was from another flower of the same individual, and least when the impregnation took place within the flower itself. For *Eschscholtzia Californica*, the proportion of seeds in these three cases was twenty-four to nine to six. Professor Fewzl says that he obtained abundance of seeds from two species of *Abutilon* by fecundation with pollen from other individuals, and that these operations are best performed between eight and nine A. M.—*Nature*.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Items.—*Miner*, 9th: Good Hope prospects cheerful....Leviathan matters are said to be assuming a go-ahead shape; a gentleman from London being here looking over matters.....The manager went to Reno last week to attend the experiment on the first lot of Exchequer ore by Stetefeldt furnace. In regard to the most important question—the success of the furnacs for our ores—reports unite in saying it is all the most sanguine could expect. The rumors as to product of the ore are more conflicting; varying from $100 to $1,400 per ton.

AMADOR COUNTY.

The Butte Canal.—*Ledger*, April 16th: In view of the undoubted completion of this ditch by August 1st, a large amount of mining ground along the route of survey has been already taken up and recorded. We think this fall will witness livelier times in Amador than we have seen for a number of years.

BUTTE COUNTY.

The Prospect.—Oroville *Record*, 16th: These are better than for years. Hewitt's claim, White & Co's, Gallinger's, Moore's, Young's and others, are in successful operation.

The Kennedy Flume Co.—This company, which purchased 40 acres of the eastern portion of the Fernandez grant, have placed a flume in a ravine extending nearly through, and are opening up a claim in the west bank, which shows two or three strata of excellent dirt. We believe this is the only placer claim in the State where the miners own the title in fee. It is known that the whole body of their purchase will pay for working. The first clean up will take place about the first of May.

Cherokee Flat.—The surveys for the Spring Valley canal are progressing, and the rich placers of Cherokee and of Table Mountain will soon be supplied with water.

CALAVERAS COUNTY.

Mining Items.—*Chronicle*, 16th: Kiler & Boughton's new hydraulic, on Sport Hill, is running; another claim is to be opened shortly....Overton & Co., who discovered new diggings near Rich Gulch Flat, are taking out "the stuff" in quantities; several other claims are successfully worked....Mining operations at the Buckeye are as brisk as usual....Paul & Co. have adjusted their difficulties, and work in the mine has been recommenced....The Harkins mine keeps up its reputation of being the best in the county; the yield is enormous....Brackett reports plenty of good gravel; Shaw ditto....Nothing new in quartz; the mills in this vicinity are pounding away with fair results....We understand that negotiations are pending for the purchase of the Woodhouse mine. The "Coffee Mill" machinery, recently purchased by Lewis Bros. & Co., is being taken down for removal to their mine near Railroad Flat.

Railroad Flat.—Cor. of same: Harris' mill is crushing rock from the vicinity of Independence. At West Point, the miners, as a general thing, are in placer mining, and the majority are doing well. Mr. Thoss lately worked some rock from the Petticoat mine which yielded beyond anticipations. At Independence, the claim of Reynolds, French & Kerr, after a lengthy run, produced a handsome yield. The claim of Snndermyer & Co. is paying well. Poe's vein is being worked, and although it is small, some of it is very rich rock.

Monitor Camp.—Cor. of same: The Merrimac Co. are driving a gangway to their shaft which will tap the mine 90 feet from bed-rock. As soon as this is completed a six-inch force-pump will be put into the shaft. On Central Hill things are looking up. Staples & Smith are rigging up their hydraulic, and in a few days will commence operations. Benson & Bright, with about 70 feet pressure, are running off gravel at a 2.40 rate. Van Regan & Clouse washed up Saturday. Their claim has paid well from the start, and a few days ago they obtained $10 to the pan. A. Brown is taking out good pay gravel. The Jackson boys have been washing their tailings; they resume work in their claim next week. The Davis shaft is now 40 feet deep, and shows a ledge eight feet wide. Free gold can be seen in most of the rock. The Tyrone tunnel is thought to be near the channel.

Rich Gulch.—We have these items from a private source: The 15-stamp French mill will start up in two weeks. The Frank Barney lead has been leased to Clerc & Co. for three years, and work was commenced on the 1st inst. The tunnel is in 320 feet, and the lead is 7½ feet wide. Shaft down 50 feet; 60 feet more to reach tunnel. Sixteen tons of rock worked $1,135. The Lewis lead, near the Frank Barney, also worked well.

EL DORADO COUNTY.

Quartz Hill.—Placerville *Democrat*, April 16th: Mr. Fiske struck his first prospect 25th of February, since which time, though 60 years of age, and working alone most of the time, he has taken out, according to his own statement, and no one doubts it, $3,000. This amount has been taken from a hole sunk upon the ledge not deeper than eight or ten feet, nor more than twenty feet in length. Hodge & Co., whose claim is north of his, have taken out as much as $100 to the pan. They have done but little work in getting out rock, but have been removing top dirt.

A telegram of 16th says: There is a great quartz excitement in Placerville. One hundred dollars to the pan have been realized in the claim of L. C. Fiske. Over 500 claims were staked off this afternoon. Hodge & Co. have taken out over three pounds of gold to-day. Fiske has taken out over $400 to-day. People are crowding in from the adjacent country.

[The last of the two accounts of same date given above seems mixed. For divers reasons we prefer the first.—Eds. Press.]

Gold Dust.—By express from Placerville during the week, $15,834; from Coloma, 2,000, making $17,834 in all.

INYO COUNTY.

Cerro Gordo.—Los Angeles *News*, April 9th. The steady flow of bullion from Cerro Gordo district continues.

KERN COUNTY:

The Joe Walker Mine.—Visailia *Delta*, April 13: One day last week we saw five large teams and some twelve or fourteen wagons pass through town, loaded with new machinery for the Joe Walker mine, consisting of hoisting works and a powerful pump.

MARIPOSA COUNTY.

Mining Notes.—*Gazette*, April 15th: Benton mills are thundering away at the Pine Tree rock. Douglass has struck good rock at 300 feet depth in the Mary Harrison mine, and has set a force at work on the Melvina. Ralph Jones, on the extension of the Melvina, has taken out good rock showing free gold. Several parties are preparing to commence or renew mining operations. Negotiations are in progress for the purchase of the Marble Springs mine.

NEVADA COUNTY.

Star.—*Transcript*, April 12th: A rich ledge was struck by the contractors on Friday in the Sanford incline. The ledge is large and the rock rich. This is the second good ledge struck since these parties took the lease, and they propose to commence running the mill about the first of June. They have 300 tons of rock on hand.

A Big Thing.—Same of 16th: A elaty looking ledge of rock 300 feet wide, which crosses Marker's new road, was located some years since by John Pattisou, and has been worked yearly enough to hold it. The last test made was at the North Star mill, and the yield per ton was $26. The work required this year to hold the ground has just been done, and a tunnel of 75 feet run. As the hill is precipitous and the lead runs directly across and through it, backs of any depth may be obtained, and the softness of the rock and the tremendous size of the ledge would make it pay by mill process if the yield were only $2.50 per ton.

A Gang of Celestials.—Same of 17th: John Hawke has 56 Chinamen employed in his claims on Deer creek, under an agreement by which he is to pay them 20 per cent. of the yield.

The Mulberry Ledge.—Stiles' mill commenced crushing rock from the Mulberry, belonging to Burnell and others. The rock looks rich. The crushing was thirteen tons, and the yield $16.80 per ton.

Contract.—Hawkins & Co. have taken a contract to sink 100 feet upon the shaft of the Pittsburg for $25 per foot. The Co. is now taking out first-rate rock.

Consummated.—The sale of the Buckeye Hill and Sweetland creek claims has been consummated. Evans, Stidger & Co. sell to the Sweetland creek miners, a corporation organized under the laws of the Kingdom of Great Britain and Ireland. The amount paid was $200,000.

Orleans Mine.—A contract has been let by the Co. to run a tunnel 80 feet upon the ledge. The rock looks well and the sulphurets are rich. An assay of the latter yielded $768 per ton.

Heavy Sale.—W. B. Bourne, of San Francisco, has purchased three-fourths of the Empire mine. The other fourth is owned by Captain Lee, Supt. Mr. Bourne owns half of the Pittsburg, has $75,000 in the North Star, and three-quarters of the Empire.

Eureka.—Grass Valley *Union*, 13th: Yesterday the regular melt of gold took place. The proceeds of twelve days' run of the mill were put into bars worth, in the aggregate, $25,500. This does not include any gold from sulphurets.

Grass Valley Consolidated.—Same of 14th: Good judges say that the rock now being taken from the ledge will yield, by mill process, over $100 per ton.

Greenhorn.—Same of 15th: This mine for a month has yielded 320 ounces of gold—or over $5,000 in coin. In this time 298 tons were crushed. The cost of taking out and crushing was about $7 per ton.

PLACER COUNTY.

Clark & Hazelton.—Grass Valley *Union*, 17th: This ledge, on the south side of Ahurn ravine, just across from the town of Ophir, is showing well. Four tons of quartz have been crushed, and the yield was nine ounces of gold, or about $36 per ton. The shaft is down 15 feet, and the ledge is about a foot thick. Prospecting is active in the vicinity of Ophir and is growing more so every day.

SAN BERNARDINO COUNTY.

Heavy Suit.—*Guardian*, 16th: A suit has been instituted by Richard Garvey against the Pittsburg Co. for damages of $40,000. Mr. G. lately obtained a judgment against that company for the gold mines at Holcombe Valley. He has now a good mill upon the property, has 15 men engaged, and the rock is known to be rich.

SAN DIEGO COUNTY.

The New Mines.—The San Francisco *Bulletin* of the 18th has seen private letters giving these items: The discovery shaft on the Stonewall Jackson ledge, in Quillmac district, has been sunk 30 feet, developing a well-defined ledge, four feet in width, of very rich quartz. Free gold in abundance can be discovered on the entire surface, and specimens from any part of it, pounded roughly up, yield an excellent prospect. Two hundred feet north another shaft has been sunk, striking the ledge at a depth of 10 feet, and displaying very rich decomposed quartz. The boulders and dirt above it were covered with small particles of free gold to such an extent that it is supposed it would pay to sluice the stuff off for surface digging. The extension has been taken up, and prospectors are trying to find it. Julian district is progressing well. The Washington has been opened to a depth of 30 feet, and shows a vein of very rich stuff 3½ feet wide. The owners ask a most extravagant price for a small interest.

SIERRA COUNTY.

Mining Items.—Downieville *Messenger*, 16th: The Caledonia Co. is running toward the Star Co's ground, expecting every day to strike rich gravel deposits. The Pioneer Co., of Grass Flat, through their contractors, Stover & Co., are hammering away at their bed-rock in their main tunnel. They are now 1,500 feet in. The Union Co. at Port Wine have dirt which pays from four to six dollars per car load. The Monte Cristo Slope Co. are still driving towards their rich dirt along the Union Co's line. At Council Hill, Messrs. Hughes, Howell & Co. are working their rich diggings. Boyce & Bro. are piping very rich bottom dirt. The Sear's Union Water Co. are raising their shaft. At Union Hill, Miles, Evans and Daniels are doing well in their hydraulic diggings. Lafferty & Co., in Poverty Hill, sold one-half of their claims and tunnel for $26,000, and are driving their tunnel fast. They are opening hundreds of rich claims, their tunnels coming in from Gold Run ravine.

The Iowa Co., near Mt. Pleasant ranch, have a 30-horse power engine on the ground, and will sink their shaft to the bed-rock next May.

SISKIYOU COUNTY.

Quartz on Scott Bar.—Yreka *Union*, 16th: On Saturday, Thos. Ryan and two others, with an ordinary hand mortar, pounded out over $800, which they sent to this city by express. The discovery of the ledge has created an intense excitement in the neighborhood.

TRINITY COUNTY.

Dutton Creek.—*Journal*, 16th: Dixon & Co. have run back into the hill 60 or 70 feet, and find better prospects than ever. They are now putting up a hydraulic and building a wagon road. Two interests have been sold for cash. The first, Peter Mooney to John Hurst, for $300. The second, Dan Connor to Charles Schopps, for $600

McGillivray's.—Stoddard & Lovett are opening a new claim below Smiley, on Trinity river. Faubel has opened another claim, which, from all accounts, must be remarkably rich.

Lewiston.—Miners have been making good use of what water they have had. Blagrave brothers will make considerable money. Cunningham & Kellogg, on Bolt's hill, have been working extraordinarily rich ground.

YUBA COUNTY.

Bateman Mine.—*Appeal*, 16th: J. F. McKean, of Camptonville, sold the Bateman mill and mine yesterday to W. H. Gleason, of San Francisco, who intends to start it in the course of a few weeks.

Marysville telegram, 18th: Silas Edgmon has discovered a rich quartz ledge on Rich gulch, in Eastern Yuba; one pan of decomposed quartz yielded $100.

Indian Ranch.—Cor. of *Appeal*, 19th: Several extension claims have been taken up and recorded on the Edgmon ledge, and times look lively.

Arizona.

Big Bug.—Prescott *Miner*, April 2d: At latest dates Gray & Co's ten-stamp mill was working on ore from the Eugenie extension. The placer miners had commenced operations in the old Mexican gulch.

Walker District.—The Eureka ten-stamp mill, after having run a short time on ore from the Box Elder, was shut down for repairs. Some good looking ore from the Pine Mountain was being hauled to the mill. All the arastras, and the hydraulic claims of Wells, Bowers & Bean, were running. Water was getting scarce.

Lower Lynx Creek.—One of the Bashford and two other men took out in four days $52, with a very small head of water. Burns & Co.—three men—on the opposite side of the creek, were making four dollars a day, with rockers. Another Co. of five men were digging a ditch to carry water on "Frenchmans Bar," in which they had found large beds of gravel. Lower down, opposite the old Mexican Camp, one of the miners had taken out a piece worth $13.75. Joseph Revoirs and another man, above Jackson & Co., took out seven ounces last week.

Hassayampa District.—The Sterling mill was started several days ago. Wormser and Tompkins say it is the *easiest* running mill in the Territory. Some 30 or 40 placer miners are doing well.

Colorado.

Briggs Mine.—*Register*, 6th; At Hussey's, yesterday, was a retort from the Briggs, the product of the mill for March. It weighs 407 ounces; currency value, $7,500. The amount of smelting ore sold was sufficient to pay all the expenses of mine and mill.

Items.—Same of 18th: Moody & Dowell are panning and rocking from the Cassius lode, in Russell gulch, an average of $25 a day....Richard J. White, in Russell gulch, took out 20 ounces with three men last week....Drake & Sons, working the "Williams," Lake gulch, are about 100 feet deep and report a 15-inch pay-vein, and a 4½ feet crevice. A 15 pound sample taken as an average of the entire pay-vein yielded in England about $200 gold and silver, per ton.

Idaho.

Idaho City.—Cor. of *Statesman*, April 14th: Miners in Boise basin are beginning to get to work in earnest, ground sluicing and starting work generally.

Warren's Diggings.—Cor. of same: Two tunnels have been run into the Rescue ledge, tapping the vein at the depth of 130 feet. This lead averages $46 per ton in gold. A new mining camp has been struck 10 miles north, consisting of placer diggings. Thus far claims yield from five to twenty dollars per day to the hand. New diggings have been found on the South Fork of Salmon river, 10 miles south of here, the richness of which is greater than I dare write until further confirmation.

Owyhee.—*Avalanche*, 16th: Only 10 men are employed on the Poorman. Upon an average, one ton per day to each man is taken out. There are over 200 tons of good looking ore on the dump. A larger force of hands will soon be put to work. Dan Monroe is foreman on the Empire, which is worked night and day. The vein is two and a half feet wide and shows well in silver. The Baxter has been leased to Wilford, France & Co. The main shaft is down 240 feet. The hoisting is done by a whim worked by a mule. Exceedingly rich silver ore, mixed with ruby, is being taken out 70 feet north of the bottom of the shaft. The vein varies in width, sometimes three feet and at other times six inches. A blast is seldom required. About 70 tons of ore are on the dump that will yield a handsome dividend. Ore immensely rich in gold is being taken from the Corduroy, now incorporated under the name of Mahogany. The rock in the Golden Chariot is as rich as ever, and the vein averages two feet. In the Ida Elmore the ore is getting richer in the fifth level, where the ledge is from twenty inches to three feet in width.

Montana.

Red Mountain City.—Correspondent of the Virginia *Times*, April 8th: The Langworthy Flume Co. are constructing a derrick and hydraulic works. The Red Mountain Co. will have a derrick rigged shortly. On the Nevins hill things are brightening. The Only Chance Co. have put on a stronger force of men, and have gone to work at their arastras. The Nevins tunnel is within 8 or 10 feet of the lode. On Gold Hill, Dickey & Co. are taking out rich ore from a five-foot crevice, and the St. Peter Co. are pushing work with energy. Harvey & Day, Moose creek, are getting a big pile of silver ore on top of ground.

Pioneer.—*New North-West*, 8th: Pemberton & Kelly have 3,000 feet of hydarulic pipe on Glasgow Bar. They own 2,400 feet of the Bar, and will run from four to six hydraulics during the summer, depending on the amount of water.

Cariboo.—We learn that 75 inches of water was flowing in the gulch on Monday. The snow is all off the flats, and mining will commence next week. There are only 12 or 15 men in the gulch, and there is work for 40 or 50 more.

Cable City.—Deer Lodge *Independent*, 9th: The machine of the Cameron Co. will be in place in a few days, and the Co. will then employ nearly 50 men.

Operations.—Silver Bow, Rocker City. and Butte, will be resumed this week. Spring Gulch ditto.

Highland.—Dickey & Carter, on Gold Hill, have a 5-foot crevice, containing rock which will mill on the average $40 per ton. The incline is down 30 feet. Fifty tons ore now on dump. They will erect arastras.

Cedar Creek.—Cor. of Helena *Gazette*, April 4th: The boys are getting good prospects on every claim in Barret district, above and below discovery, wherever they have found bed-rock. Every man here seems to be well satisfied with the camp. Claims in the upper part of Cedar gulch, anywhere in Barret district, are held at figures ranging from $600 to $6,000. Several claims have sold lately for $1,000 each. Manhart, Vanhoose & Co. bought No. 25, 26 and 27 above discovery, to-day, and paid $1,800 for the three.

The *Capital Times* gives part of a Cedar Creek letter, in which the writer says: "Yesterday I was offered $4,000 for No. 4 above discovery, which I refused. Claims are selling at from $1,000 to $4,000, and difficult to be had. It is an easy thing to wash out from 25 cents to $5 to the pan in the district of which I am recorder." The *Times* thinks this should be taken with a grain of salt.

Nevada.

HUMBOLDT.

Battle Mountain.—Galena cor. of *Register*, 16th: The Mary Ann and Alaska are yielding rich ores, and are considered next to the Little Giant. Six miles from Battle Mountain two smelting furnaces are being erected by Martin, Bruce & Co. A considerable portion of the material is now on the ground. The works are made more extensive than at first contemplated for the purpose of smelting copper ores, immense veins of which exist in Copper Cañon, a short distance from the works. Two miles from the furnaces is Galena. The mines are all around town, and blasts are heard at all hours. But a limited amount of labor has as yet been expended on the veins, although we can speak with certainty of the richness of the ore. New ledges are being discovered almost daily.

Railroad District.—The Grass Valley *Union* of the 16th gives extracts from a letter to John Bradley of that place. We quote: "Chunks of galena weighing from 500 to 1,000 pounds can be taken from the Visalia mine. But the chief of the district is the Wisconsin Chief. This is the 'old be' copper mine, and appears to be a regular ledge, in width from two to twelve feet. The ore generally comes out in large green blocks, weighing from 500 to 600 pounds. We had one lot worked in San Francisco, and the yield was 40 per cent. of copper and $70 per ton of silver. We have had assays as high as 60 per cent. of copper and $225 per ton of silver. The Mountain Boy is a better class of ore. The piece we send you is about 60 per cent. copper, with silver at the rate of $87 per ton. The Boomerang is also a copper mine and has good ore. The New Year's Gift is rich in silver."

WASHOE.

Gould & Curry.—Gold Hill *News*, April 16th: Daily yield, 95 tons; average assays, $52. The ore body in the El Dorado section is yielding well. The drift from the El Dorado tunnel to intersect the Potosi will reach it in two weeks.

The Monitor mill, below Johnston, was burned on Sunday night. The value was $12,000.

Alaska.—This is the district discovered three months since. In the first ledge found, Norris, McCloud and Reed have sunk a shaft 85 feet deep. They find the ledge from two to three feet in width, of a fine white quartz, containing streaks of black sulphuret silver ore, pronounced the best of that character in the State outside the Comstock, assaying from $60 to $360 per ton.

WHITE PINE.

Review.—*News*: The representatives of two English companies are now here, and Chicago, Philadelphia and New York have their agents on the lookout for investments. Outside districts report no changes, save that good mines have been found in Ely, six miles from the Pioche ledge. Silver Park has one mill running and another will start up toward the end of the week. Chicago is about investing heavily in Shoshone. Cooper is turning out rich ore, both from the Blue Lead and chloride belt. Clifton district (Deep creek) is opening well.

Items.—The Stanford mill, 30 stamps, started up on the 15th on ore from Aurora South. Hauling has been going on steadily since the mill shut down for want of water, and there is a large supply of ore at the batteries....Alsop smelting establishment is making a successful run, and up to last evening had turned out 1,300 bars of bullion, of the average weight of 90 pounds—making 117,000 pounds....Trench mine has opened into a splendid vein at a depth of 33 feet. The vein is six feet wide, all rich ore. Forty tons has been extracted, which is estimated at $1,000 to the ton.... We are indebted to Fred Hatch for a large boulder of horn silver from the Bradshaw mine, Red Hill, Silver Park....Gen. R. M. Wilson writes from Eureka: "We have been running for the last 10 days, averaging three tons of metal per day. The furnace stands well. Prospects on every side are encouraging."....Work has been commenced in Robinson district. Cummings is quarrying rock to build a smelting furnace. Forty assays from one mammoth vein show an average of $266 per ton in silver....Late accounts from Kern district are encouraging. The shaft on the Mother Ledge has been sunk 50 feet, and a drift run across the vein 21 feet, through good smelting ore all the way, except three feet next the hanging wall, which belt is milling ore of great richness....Experienced miners estimate the ore in sight in the Hidden Treasure at from 25,000 to 40,000 tons, and that it will average over $100 per ton, by mill process. Nevertheless, only low grade ore is being sent to mill....Aurora South extracts 35 tons ore per day....Wabash is getting good ore....Eberhardt is looking better than ever. The lower tunnel shows ore, some of which goes $600 to the ton.... Aurora Consolidated ore is not assorted, yet mills $53 per ton....Bourbon is taking out good ore.

Yellow Pine.—Mr. Chas. Scott, one of a company of eight which left San Francisco some time since to work the Excelsior lead, has returned with some smelting ore for reduction, which, so far as tested, yields $60 per ton in silver.

New Mexico.

Items.—*Press and Telegraph*, April 1st: The Montezuma Co. on Red river have run a tunnel 180 feet into the mountain at a depth of 100 feet. The silver vein struck is wide....A clean-up at the Chester mill from one cord of the Great Eastern lode quartz, netted 4 oz. and 16 dwts. in gold....The Atlantic Co., Orleans Flat, are down 90 feet, and find the quartz richer....The Monarch lode, Bell & Co., has two shafts; one 70 and the other 25 feet in depth, with a five-foot crevice and paying quartz.

Wyoming.

The Big Horn Expedition.—A Cheyenne telegram of the 15th says that Judge Howe's mission has been successful and that the exploration will be permitted to go. The object is the exploration of the country to the north of the Union Pacific Railroad, in Wyoming Territory, from the base of the Black Hills to the Big Horn Mountains.

San Francisco Mining Stock Market.

MISCELLANEOUS STOCKS.

Comparatively few transactions have been effected in the miscellaneous market since our last issue.——San Francisco Gas is in better favor than for some weeks past, realizing $89@90 per share.

The following quotations have been carefully revised by Woods & Cheesman, Brokers:

Federal, State, County and City Bonds.

Name.	Bid.	Asked.
U. S. Bonds, 5-20s—1865, '67, '68	97½	98½
U. S. Bonds, 5-20s—1864	98	99
U. S. Bonds, 5-20s—1862	99	99½
Legal Tender Notes.	89¼	89¾
California State Bonds, 7s, 1857	99	100
San Francisco Bonds, 10s, 1851	par & int'st.	
San Francisco City Bonds, 6s, 1855	95	100
San Francisco City and County Bonds, 6s, 1858.	90	95
San Francisco School Bonds, 10s, 1860	100	—
San Francisco School Bonds, 10s, 1861	par & int'st.	
San Francisco City and County Bonds, 7s	90	92
Sacramento City Bonds	37	39
Sacramento County Bonds, 6s	75	80
Marysville Bonds, 10s	—	90
Stockton City Bonds	85	90
Yuba County Bonds, 8s	85	—
Santa Clara County Bonds, 7s	78	80
Butte County Bonds, 10s, 1860	—	85
San Mateo County Bonds, 7s	80	—

San Francisco and Miscellaneous Stocks.

Name.	Bid.	Asked.
California Steam Navigation Co	43½	—
San Francisco Gas Co	88	90
Sacramento Gas Co	—	—
Spring Valley Water Co	67	—
Omnibus Railroad Co	64	66
Central Railroad Co	70	75
North Beach and Mission Railroad Co	69	70
Front Street, Mission and Ocean Railroad	—	—
Do do preferred	17	—
Fireman's Fund Insurance Co	98	100
Pacific Insurance Co.	108	110
Merchants' Mutual Marine Insurance Co	112	114
California Insurance Co	1,400	—
Union Insurance Co	97	99
Home Mutual Insurance Co	—	—
Occidental Insurance Co	94	95
People's Insurance Co	95	100
The Bank of California	133	135
Pacific Bank	97½	100

MINING SHARE MARKET.

A very fair business has been done in the Stock Board during the past week, however the very marked recession in a number of prominent stocks has had the tendency to circumscribe speculation somewhat, and to check the actions of the more legitimate dealers. Gould & Curry, Amador and Savage sold to a large extent and under a sharp fall, while other prominent stocks have been well maintained, and some exhibiting a slight advance. As a general thing, the mining share market lacks bouyancy.

Hale & Norcross—received moderate attention at shading prices. For the week closing April 16th, 1,115½ tons were extracted against 1,120½ tons the previous week. They have on hand at dumps 6,169½ tons, of which amount 2,485 tons is low grade. On the 17th, they sent down $27,433 in bullion. The seventh station is now completed, and on the 19th inst. the drift had been carried forward twelve feet, had reached the ore of the vein, which is pronounced to be of good quality. This station is on the west side of the shaft in hard rock, and will probably not require repairing for years. The winze is down 55 feet below the sixth station, continuing in good ore. In this winze they have not yet reached the east or west wall, and they have no idea of the width of the vein at any point in it. At the north end, between the fifth and sixth levels, all the ore of any value is worked out. The greatest portion of the ore obtained from the sixth level is now taken from that portion of the mine lying between a point 85 feet south of the shaft to a point 50 feet north of the shaft, and most of the vein in this locality is as yet unworked. In the old mine the ore breasts are large, and continue to look favorable, yielding from fifty to sixty tons of ore per day.

Gould & Curry—was in the market to a considerable extent, at a very material decline. During the week ending April 18th, 654¾ tons of ore were extracted; previous week, 675 tons. To drift No. 3, running west from the seventh station, twenty-three feet have been added, running through porphyry and clay. Cross-cut No. 2 continues in very hard and flinty quartz, nine feet only having been made during the week. The old ore-chambers show a more promising appearance. On the 19th inst., $13,322 in bullion came to hand. Philipp Deidesheimer has been appointed Superintendent at the mine, in place of Isaac L. Requa, resigned.

Chollar-Potosi—has been in active demand, at well maintained rates. For the week closing April 15th, 1,400 tons of ore were extracted, against 1,300 tons the previous week. All ore-producing sections have an encouraging appearance, and the ore is yielding better returns. From the new shaft, in the west drift, they have commenced a branch to the north, to connect with the fifth station of the Potosi shaft, and have carried it twenty-four feet toward the north drift. On the 19th inst., $32,150 in bullion was sent forward to the office in this city. The average assay of the latest ore-yield has been $81 23 per ton.

Overman—evinced considerable animation toward the close, at a lessened price. During the week ending April 17th, 1,135 tons of ore were extracted from the following localities: Upper tunnel, 638; lower tunnel, 406; and 500-level, 91 tons. In previous week, the aggregate yield amounted to 1,094 tons.——**Sierra Nevada** shows a yield of 359¼ tons for the week ending April 14th; previous week, 390 tons.——**Ophir** changed hands to a large extent, at a recession from opening rates. On the 19th inst., the drifts at shaft No. 1 were going ahead well, and the water was steadily decreasing. Shaft No. 2 is being timbered, and they have commenced the third station drift. At the first station, the face of the breast does not look as well as it did the day previous.——**Occidental** levied an assessment of $6 per share.

Kentuck—continues quiet, at a slight decline. During the week closing April 15th, 355½ tons of ore were extracted, the 65 per cent. assay-value being $5,250 68—equal to $14 79 per ton.——**Crown Point** ruled at a lessened price. For the week ending April 15th the yield amounted to 528½ tons, the 65 per cent. assay yield being $6,077 35, or $11 31 per ton.—*Commercial Herald.*

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages, of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alameda Coal, Feb. 16, 30c	March 30	April 30*
Alban, Storey co., March 21, 5c	April 25	May 14*
Cherokee Flat B. G. April 14, $5	May 16	June 2
Eagle Quicksilver, March 14, $20	April 16	May 2*
Green Monster, Inyo co., March 10, $1	April 18	May 2*
Glenwood, El Dorado, Feb. 4, 25c	April 6	April 27*
Hormiguera, L. Cal., March 11, $2.50	April 15	May 6
Hidden Treas. Cons., March 28, 25c	May 3	May 24
Imperial, Storey co., March 7, $10	April 11	May 3
Julia, Storey co., March 12, 60c	April 15	May 3
Kincaid Flat, March 4, $2.50	April 5	April 23*
Lady Bryan, Virginia, March 17, $2	April 18	May 19
Latawana, W. P., March 19, 15c	April 23	May 10*
Meadow Valley, Ely Dist., Mar 26, 75c	April 28	May 20
Mountain City, Elko co., April 8, 50c	May 23	July 11*
Miser's Dream, W. P., April 14, 40c	May 17	June 14*
N. Bloomfield Gravel, March 28, $2.50	April 30	May 17
Ophir, Storey co., March 7, $3	April 11	May 3
Pocahontas, El Dorado, March 2, $4	April 2	April 28*
Peytona, Va. Dist., March 18, $1	April 19	May 4
Placer G. & C., Placer co., April 9, $2	May 20	June 10*
Rising Star, Idaho, April 6, 50c	May 14	June 4
Sterling, Arizona, March 9, $5	April 18	May 17
San Jacinto Tin, March 4, 5c	April 4	May 4
Segregated Belcher, S. co., March 2, $2	April 6	April 29
Sierra, Douglas co., March 29, $2	April 29	May 20
Tecumseh, Calaveras co., March 21, $5	April 21	May 5
West Point, W. P., Feb. 22, 50c	March 26	April 18
Yellow Jacket, March 16, $7	April 18	May 19
Yosemite, March 7, $1	April 7	April 23*

MEETINGS TO BE HELD.

Best & Belcher	Meeting April 30
California Silver	Annual Meeting May 2
Cayuga Chief	Annual Meeting May 2
Exchequer	Meeting April 30
Gould & Curry	Meeting April 25
Independence	Annual Meeting May 2
New Idria	Annual Meeting April 25
Noonday	Annual Meeting April 25
Oneida	Annual Meeting May 2
Original Hidden Treasure	Annual Meeting May 3
Pocotillo	Meeting April 23
South Aurora	Annual Meeting May 3

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable April 11, 1870
Eureka, div., $7.50	Payable April 7, 1870
Golden Rule, div., 50c	Payable March 26, 1870
Hale & Norcross, div., $6	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

Latest Stock Quotations.

AT THE S. F. STOCK AND EXCHANGE BOARD]

Thursday, April 21, 1870.

	Bid.	Asked.		Bid.	Asked.
WASHOE.					
Alpha Con.	$ 14	$ 15	Gold Hill Q M C.	$ —	$ 20
American	—	—	Hale & Norcross.	—	133
Belcher	22	22½	Imperial	39	40
Bullion	—	—	Justice	—	—
Crown Point	19	19½	Julia	—	—
Cole, Va.	—	—	Kentuck	—	70
Confidence	20	22	Lady Bryan	4½	5
Chollar-Potosi	25	26	Occidental	—	9½
Con. Virginia	10	11	Ophir	22	22½
Caney	—	5	Overman	68	70
Empire	—	22½	Savage	36½	37
Exchequer	—	10	Sierra Nevada	7	7¼
Flowery.	—	—	Seg. Belcher	—	6
Gould & Curry	125	130	Yellow Jacket	49½	50
WHITE PINE.					
Aurora Con.	$ 5½	$ 6	Noonday.	3	3¼
Brodt	—	—	Orig. Hidden Tr.	21	22
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	1¾	Silver Wave	4¼	4¾
Mammoth	2¼	2½	Virginia	—	4½
CALIFORNIA.					
Amador	$215	$218	Eureka	$—	$280
IDAHO.					
Golden Char't.	$ —	$ 13	Silver Cord	$—	$—
Rising Star	—	—			

San Francisco Prices of Copper Ores.

San Francisco, April 21, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	26 65	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

The Gold-Bearing Rocks of Nova Scotia.—Prof. Hind has lately made a preliminary report on the rocks, representing the Laurentian system of Sir W. Logan. He considers these rocks to consist of sedimentary deposits, altered by metamorphic action, and that their crystalline structure was produced before the deposition of the gold-bearing rocks which lie uncomformably upon them. Gold is found and worked in the Laurentian rocks in Canada, as at the Madoc mines, and it is not improbable that mines may yet be opened in the Laurentian of Nova Scotia. The area occupied by the Laurentian in Nova Scotia is, probably, not less than one-half that part of the country which has hitherto been represented on geological maps as Lower Silurian. The Laurentian being auriferous inferentially, may yet turn out to be as valuable in mineral wealth as the Silurian deposits now worked. In Canada there are, besides gold, beds of magnetic iron ore, of sulphurets of iron and copper, and of titaniferous iron ore in these rocks, which may also be found in the Laurentian of Nova Scotia, and being in close proximity to the coal fields, may yet prove a great source of wealth.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Iron for Peach Trees.

Much complaint is made in various parts of California about the early decay of the peach tree, and we believe the greatest trouble in the mountains is experienced in the small valleys and ravines, where the soil is composed of a rich, black mold, comparatively free from the red dirt of the hills, the color of which is due to the notable amount of oxide of iron which it contains, while the trees growing in the red soil are more healthy and longer-lived. The reason for this difference has generally been attributed to what is supposed to be the too vigorous growth of the tree in the valleys, whereby its vitality is exhausted. We are inclined to believe that the decay is, in a large measure, due to a lack of iron in the soil.

At a recent session of the New York Farmers' Club, this question of the value of iron to the peach tree was discussed, and the general impression seemed to be in its favor. A gentleman from Long Island exhibited specimens of different peach trees, which five years ago were badly infested with borers and affected by the "yellows;" but which were now vigorous and healthy. This change, he claimed, had been wrought by the use of iron. He had applied iron filings, etc., about the roots, and the borers and other insects had ceased to infest them, while the "yellows" had disappeared. He would give his peach trees a mulching of ten-penny nails, if no other form of iron could be obtained. Another gentleman, Mr. Crane, also gave in his testimony for iron. He had a large experience in peach-growing, and had seen the good effects of iron in the soil, upon both tree and fruit. He had found the muck from a bog meadow, into which flowed iron springs, a most excellent fertilizer for the peach. Mr. Bruen had cultivated peaches twenty years; had used iron in every shape, and in unlimited quantities; but where trees received good culture and were kept free from borers, he had not found iron to benefit. Of course, good culture, otherwise, might take the place of iron; and, as a general thing, the borer will be *drowned out* of a peach tree, by its sap, if it is kept in a thoroughly vigorous condition. It is seldom that a borer will attack a really healthy and vigorous tree. The instinct of the creature tells him what will be his probable fate if he does so.

There can be little doubt about the value of iron to a peach tree, and we feel confident that it might be advantageously applied throughout the Sacramento and coast valleys. Tons of a very good material might be gathered up about the foundries in this city. In the interior, fruit-growers might throw all their old scraps of iron into a shallow vessel of water, where, by evaporation, or drawing off of the same, the iron might sometimes be exposed to the action of the atmosphere to hasten its oxidization. The water saturated with the oxide of iron should be applied to the surface of the ground about the tree; or scraps of iron might be buried in the ground about the roots. The former would be much the best plan. The slag from iron furnaces might no doubt be ground up and used to advantage.

Prof. Horsford of Cambridge has found phosphate of iron on the upper surface of leaves and in the skin of fruits. If fruits require iron, and none or very little is in the soil, it must be added by the orchardist. Copperas—sulphate of iron—should not be used, or only very sparingly, and then always with lime.

W. H. Seward, Horatio Seymour and Jay Crooke own farming lands in Iowa.

Brain-work on the Farm—Figures for Farmers.

Those who think there is any necessity that lands should grow poor as they grow old are laboring under a very serious error, and may find food for reflection in the fact that not many years ago the average yield of wheat in England was about ten bushels per acre, while the yield is now over *thirty* bushels! Brain-work has accomplished this improvement.

The average yield of wheat on *new* lands in California exceeds that of the present average yield in England; while the yield of our *exhausted* land is but little, if any, greater than the average there before the introduction of their present improved system of agriculture. Our general average here is twenty bushels to the acre, at which rate of yield it will not pay to raise wheat in England.

But little, if anything, can be made by raising wheat at prices now ruling, with our present mode of culture on the worn out lands of California. The only mode of successful cultivation of such lands is by adopting here, perhaps in a modified form, the improved mode of culture now employed in Europe. We feel thoroughly impressed with the idea that money judiciously spent in that way will return one hundred fold more to the California farmer. The cost of fencing, plowing, seeding and harvesting an acre of land that yields only fifteen bushels is just as much as that required for an acre that yields thirty bushels; while the net income from the latter is from five to six times as much as that from the former. A statement of the case may be made as follows:

LAND PRODUCING FIFTEEN BUSHELS TO THE ACRE.		
Fifteen bushels, say at $1 each		$15 00
Seeding, harvesting and cultivating	$10 00	
Thrashing and sacking, 15 cents	2 25	12 50
Net profit per acre		$2 75
LAND PRODUCING THIRTY BUSHELS TO THE ACRE.		
Thirty bushels at $1 each		$30 00
Seeding, cultivating and harvesting	$10 00	
Thrashing and sacking, 15 cents	4 50	14 50
Net profit per acre		$15 50

The above figures show a profit of more than five fold from good or highly-cultivated land over that which has been worn out or badly tilled; and hence the importance of securing a large yield to the acre. The question then comes up as to the extra cost for fertilizers, and the improved mode of preparing the soil, which will be hereafter considered. The best way, however, is for each farmer that is in doubt to experiment for himself, which he can readily do by measuring off a single acre for careful cultivation and comparing its yield with the ordinary crop or with that of another field similarly situated by its side.

Experiments in the Use of Manures for Wheat.

Carefully recorded agricultural experiments are rare; in fact are almost unattainable. One of the most persistent experimentors in this direction is Mr. J. B. Lawes, of England, who has been engaged for 23 successive years upon the same land. In one of his reports upon the advantages of manuring land for wheat, he gives the following comparative results for the years 1863, 4, 5 and 6:

	1863.	1864.	1865.	1866.	
Unmanured	17¼	16	13½	12½	bushels
Farmyard manure	44	40	37⅜	32⅝	bushels
Artificial manure	55⅝	49¾	43¼	43⅞	bushels

The average of the same field for fourteen years, from 1852 to 1865, was—unmanured, 15½; farmyard manure, 35¾; artificial manure, 39¼.

Mr. Lawes says that the progressive decline which is shown in this statement is due to the variation of the seasons, and not to the gradual deterioration of the land, as might at first be supposed, as the full returns for the entire term of fourteen years abundantly prove. Unfortunately, Mr. L. does not give the amount or value of the manure he employs.

The secret of successful farming is, beyond all question, hidden in the manure heap; and it is found not so much in the quantity as in the quality of the fertilizer employed, although it sometimes happens that failure is produced by an overdose of high-seasoned stimulants, such as guano, highly-concentrated poudret, compost from the hen-roost, etc. As a general thing a cubic yard of highly-concentrated manure, evenly and properly spread, is about the right quantity for an acre. Of common barnyard manure, well rotted and properly composted, about 160 cubic feet, or one cord and a quarter, should be employed. Europeans accomplish wonders by the use of liquid manures. The Chinese do the same, as may be seen by carefully watching their operations in their gardens about this city. About one gill to the square foot of such manure is generally employed.

In California.

One of the most ready means by which California might arrest the present rapid deterioration of her lands, is that of the introduction of diversified farming, which would involve rotation of crops and give us greater facilities for the manufacture of stable manures. In the absence of that, fallowing and plowing in green crops is perhaps a better resource than any large importation of mineral fertilizers, unless, perhaps, we except the article of gypsum, which can be furnished here very cheap as soon as there is any considerable demand for it. Gypsum, in addition to its direct value to growing crops, will also be found highly advantageous as a stimulating agent in the growth of green crops for plowing under.

Those who have practiced fallowing and plowing in green crops have already learned its benefits, and will be slow to give it up. We propose to devote a column to this subject in our next issue, in continuation of the present article.

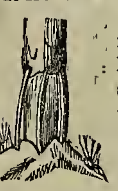
Shoeing Plows.—A planter near New Orleans finding that he used up plows faster than he could afford to replace them—a somewhat paradoxical condition in agricultural economy—determined to turn Yankee for once and invent something to meet his wants. He has done so. His invention consists in covering plows of any kind with a thin plate of steel on their turning faces and landsides in such a manner that it may be easily taken off and replaced. Plows that formerly wore off rapidly at the point may now have their lives indefinitely prolonged by putting on a new face. They are made in New Orleans, and the South now proposes to rejoice in release from absolute dependence on the North for plows. Californians, above all others, ought to be able to appreciate an improvement of this kind, which is so familiar and useful to them in their mining practice; but which we believe is now, for the first time, introduced into agricultural economy.

A New Plum.—Judge Hanaan, of Luray, Clark county, Missouri, describes, in the St. Louis *Journal of Agriculture*, a new, native plum, which he says "has not failed to bear a very full crop, annually, since it began, eight years ago. It seems to belong to the Chickasaw family. *Fruit*—small, about one inch in diameter, round, yellow, sweet; the best equal to the green gage, in the opinion of many; firm and acid until mellow,—colors long before it is ripe. * * * It withstands the attacks of the curculio, with me, while the green gage, etc., by its side, are entirely destroyed."

Norway Oats in California.—A shipment of the famous Norway oats has recently been received at Marysville, for seed. This crop is said to yield remarkably well, and also to be superior for feed. Its straw, whether threshed or cut before ripening, for hay, is also said to be superior to the ordinary varieties. If all is true that is claimed for this new cereal, its introduction here must be regarded as a great gain to the State. It may possibly have an especial adaptation for California.

Girdled Trees.

Badly girdled trees may be easily saved by the process herein described when all other methods might possibly fail. The accompanying engraving will enable the reader to more perfectly understand the description. The engraving is copied from *Moore's Rural New-Yorker*, and was originally designed to meet an especial case, where a large number of peach trees had been badly girdled by mice; hence the wound is represented as at the extreme butt of the tree. It will apply, however, equally well to any portion of the trunk. The *modus operandi* is described as follows: Cut from the trees branches of green wood the length required to connect the bark above and below the injured space, then sharpen them at each end to the shape of a wedge, drive a narrow, sharp chisel into the bark above and below the girdled space and press each end of the sharpened twigs firmly into the cuts made by the chisel. Then wax the gnawed space well, or coat it with gum shellac, or bind about it with cloth and string, fresh excrement from the cow stable. Care must be taken to have the bark on the body of the tree, and that branches therein driven meet or coincide. It is very easy to save trees in this way—peach, pear or apple. Attend to it at once. Do it thoroughly, and the trees will scarcely show that they have been injured.



The Standish Steam Plow.

It will be recollected that we gave an account a short time since of some work being done by this plow in Petaluma. The *Argus*, which at that time noticed the exceedingly perfect manner in which the work was done, has since made the following reference to the effect which the thoroughness of the work has exerted upon the crops growing upon the ground prepared. We copy as follows:

One of the most convincing proofs of its utility is to be seen in a comparison of the growing crops on land plowed in the ordinary manner and by the steam plow. An examination shows that the latter has a most decided advantage. While, as above stated, the ground worked by the steam plow is found level, smooth, and thoroughly pulverized, and the grain standing at this time some six inches in height, and evidently distributed throughout, in a field immediately adjoining, and of the same character of soil, but plowed with an ordinary plow, the grain is scarcely three inches high, very unevenly distributed, nearly choked with weeds, and the field generally presenting but a sorry figure when compared with its neighbor. The superiority is due to the thorough pulverizing of the soil to a uniform depth, the destruction of all weeds deleterious to the growth of the crop and the even surface of the ground after the plow has performed its work.

The scene of operation of the plow is within sight of our office, and as we have from the first felt an interest in its practical working, and have from time to time spoken of it, we feel that this further recognition of its merits is now due. The inventor, from causes which it is not necessary to name, was unable, with this imperfect machine, to make his work perfect; but he has studied with the closest care and attention all its defects, and, having secured abundant means, is now at the East, engaged in constructing an improved plow which will possess these advantages: 1st, it will plow and plant forty acres per day, at an expense of one-fourth that required to perform the same work in the ordinary manner; 2d, it can be run night and day, and, owing to the rapidity of its work, will enable the farmer to put in a large crop in a few days, when the soil is in proper condition to be worked; 3d, by its use land that would otherwise be nearly worthless, can be reclaimed and made to produce good crops; 4th, it pulverizes the soil to a uniform depth, leaves the surface smooth, and insures the complete destruction of the weeds that often outgrow and choke down the crop; 5th, it does its work in a manner every way superior to that done by horse-power and must ultimately supersede the latter on level land; 6th, by detaching the plows, the machine can be used as a reaper and thrasher, or for any other purpose for which steam power is required.

Potatoes Improved by Grafting and Hybridizing.

Until quite recently new varieties of potatoes have been produced by planting the seed contained in the potato balls. Lately, however, successful experiments are said to have been made in improving this valuable tuber by a new process of hybridization, which involves the mixing of the juices of two kinds or more, so as to modify, and perchance improve both, or unite the desirable qualities of two in one. It is said that absolutely new varieties have been thus produced.

In grafting a true scion upon a tree or woody stock, we merely substitute the grafted scion for the original stock; no new variety is thus produced, although some modification in the habits of a tree may be brought about, as when a tall, straight growing one is grafted or budded into a dwarfish, spreading tree. But in grafting the potato there is no production and continuance of woody fiber; the result is merely a commingling of juices and sap of the two kinds, resulting in a change in the nature of the tuber produced by the union—a sinking of a bad quality, the production of a new one or the commingling of those already existing. Generally the qualities, good or bad, are retained, but more or less modified. The amalgamated product is, of course, capable of continuing its kind by future planting. The mode of conducting this operation is described in the Canada *Farmer* as follows:

Take any two sound potatoes of different varieties, whose good qualities you wish to retain; cut out all the eyes of one of them entirely with a common pocket knife; then cut out a piece of the potato in the form of a wedge, and substitute for the bit so removed, a piece having a good eye or two, nicely sprouted, about half an inch long; then tie firmly together with a piece of bast matting, or string, having first run a couple of ladies' hair-pins clear through both potatoes. These hair-pins will prevent the tie from slipping off the potatoes, as well as assist in holding both parts together. The fit must be a good one, and the bark or rind of each must meet as in any other mode of grafting. The operation must be performed quickly, and the grafted set must be planted as soon as possible, as the sap would dry up if exposed for any length of time to the air. The trench should be opened and manured, ready to receive the grafted tubers, and they should be placed therein and covered up quickly with the soil. Rounds may be grafted with Kidneys or *vice versa*, or Rounds may be grafted one on the other. Let it be perfectly understood that not every one can graft potatoes successfully, and because you fail don't blame the system. The operation should be performed by a person who thoroughly understand grafting fruit trees; then there is a chance of success; but even he may fail in it.

Another Plan.

Another system is to take two potato plants, growing close together, of different kinds; when the plants are well sprouted, remove the earth, and take care that you have only a single stem from each potato; put the stems close together; graft the stems by inarching, binding the stems together with a soft elastic bandage, and covering the bandage with wet clay or grafting wax spread on cloth, so as it may be removed when the stems have united. The result (if the operation is successful) is, that the tubers on each plant will show a great variation from the original kind; and as these variations, in the present state of knowledge on the subject, will be entirely chance-work, you will have to select from the produce, and try the tubers the second year, before the benefits, or otherwise, can be ascertained.

This process, might, no doubt, be applied to other tubers than the potato, and possibly, by the "inarching" process, to other than tuberous plants. Why might not this latter "inarching" process be advantageously applied to the various kinds of fruit, the union to be continued from both roots, until fruit is produced, or until scions can be taken for ingrafting into standard stocks? Would not such a reunion, by a mixing and amalgamating of saps, produce a joint variety, which might be subsequently continued by budding or ingrafting in the ordinary way? Inarching, as usually employed, is only another form of engrafting, and used only when the cut scion is not to be easily united to the desired stock. We are not aware that experiments have been made by keeping up the union of the two roots until fruit has been produced, although it may be that such experiments are familiar to others.

A correspondent of the *Journal of Agriculture* questions the statements of the *Farmer* correspondent as to the results claimed from the above process. It *has* rather an unreasonable look; but the details are so fully given, and in a journal of such high standing, that we have thought some of our readers may feel inclined to try the experiment and report results.

Hybridization Proper.

Whatever there may be in the above, there is no doubt about the experiment in our neighboring town of Oakland, in hybridizating the potato, in the ordinary manner of such a process, as described in a late number of the Oakland *Transcript:*

"Mr. Pryall, who lives out on Broadway extension, has recently been making some very beautiful horticultural experiments, all of which promise to culminate most successfully. One of these experiments, and the only one which we shall mention now, was undertaken for the purpose of obtaining a new variety of potatoes, by a system of hybridizing. Some of the potatoes raised by this method have a most beautiful, clear appearance, and we are assured that the flavor is vastly improved. The varieties experimented upon were the peach-blow and pinkeye, both of which are highly valued as articles of food. The product of these two varieties partakes of the character of both, containing, as it does, the best qualities of the parent kind. In fact, it is an improvement on either. The way in which the specimens exhibited to us were obtained was this: Both varieties were planted on the same plat of ground, but in different rows. After the potato vines commence to bloom, the pollen or fecundating dust of the pinkeye is gathered and sprinkled on the blossoms of the peach-blow, which is then covered until the two qualities are thoroughly united. The result is, that the potato is a sort of a mongrel, but superior to either of the species from which it is propagated."

New Tomatoes.—The currant tomato is noticed as among the new garden vegetables recently introduced into the New York market. It is said to be the most ornamental of all the varieties of this vegetable. It is a veritable tomato, and produces its fruit upon *racemes* or strings, like currants, from which fact it takes its name. The fruit is of a bright red color, about the size of the common cherry currant; and by reason of the peculiarity named, it is very interesting and ornamental.

Still another tomato is described among the fruit novelties of 1870, called the Trophy tomato. The *Practical Farmer* says: "It is the result of twenty-three years propagation and selection, which will no doubt secure permanency in its good properties, whatever they may be. Single specimens have weighed one and a half pounds, besides being very early, well flavored and well shaped; and in proportion of seed and water are said to be singularly small. The fruit cuts solid, like a round of beef."

Fungi on Orange Trees.—A disease has recently made its appearance on the orange tree in some of the Southern States. The leaves are attacked with a species of fungus, and the fruit is also discolored. The disease appears to be akin to the "mildew" on the grape, and it is recommended that it should be checked in the same way—by the use of sulphur.

Steam Plowing at the South.—Mr. Effingham Lawrence, of Louisiana, having used the steam plow for two years, concludes that it saves nearly one-half the labor in plowing, and, owing to the deeper working of the ground, the crop is nearly 50 per cent. better than on ground tilled in the ordinary way. He thinks steam plows will do much towards solving the labor question in the South.

What I Know of Farming—No. 14.

Plowing—Deep or Shallow.

Rules absolutely without exception are rare; and they who imagine that I insist on plowing all lands deeply are wrong; for I hold that much land should never be plowed at all. In fact, I have seen in my life nearly as large an area that ought not as I have that ought to be plowed; by which I mean that half the land I have seen may serve mankind better if devoted to timber than if subjected to tillage. I personally know farmers who would thrive far better if they tilled but half the area they do, bestowing on this all the labor and fertilizers they spread over the whole, even though they threw the residue into common and left it there. I judge that a majority of our farmers could increase the recompense of their toil by cultivating fewer acres than they now do.

Nor do I deny that there are soils which it is not advisable to plow deeply. Prof. Mapes told me he had seen tracts in West Jersey whereof the soil was but eight inches deep, resting on a stratum of copperas (sulphate of iron), which, being upturned by the plow and mingled with soil, poisoned the crops planted thereon. And I saw, last summer, on the intervale of New river, in the western part of Old Virginia, many acres of corn which were thrifty and luxuriant in spite of shallow plowing and intense drouth, because the rich, black loam which had there been deposited by semi-annual inundations, until its depth ranged from two to twenty feet, was so inviting and permeable that the corn-roots ran *below* the bottom of the furrow about as readily as above that line. I do not doubt that there are many millions of acres of such land that would produce tolerably, and sometimes bounteously, though simply scratched over by a brush harrow and never plowed at all. In the infancy of our race, when there were few mouths to fill and when farming implements were very rude and ineffective, cultivation was all but confined to these facile strips and patches, so that the utility, the need of deep tillage, was not apparent. And yet, we know that crops often failed utterly in those days, plunging whole nations into the miseries of famine.

The primitive plow was a forked stick or tree-top, whereof one prong formed the coulter, the other and longer the beam; and he who first sharpened the coulter-prong with a stone hatchet was the Whitney or McCormick of his day. The plow in common use to-day in Spain and Turkey is an improvement on this, for it has an iron point; still, it is a miserable tool. When, at five years old, I first rode the horse which drew my father's plow in furrowing for or cultivating his corn, it had an iron coulter and an iron share; but it was mainly composed of wood. In the hard, rocky soil of New Hampshire, as full of boulders and pebbles as a Christmas pudding is of plums, plowing with such an implement was a sorry business at best. My father hitched eight oxen and a horse to his plow when he broke up pebbly green-sward, and found an acre of it a very good day's work. I hardly need add that subsoiling was out of the question, and that six inches was the average depth of his furrow.

I judge that the best steel plows now in use do twice the execution that his did with a like expenditure of power—that we can, with equal power, plow twelve inches as easily and rapidly as he plowed six. Ought we to do it? Will it pay?

I first farmed for myself in 1845 on a plat of eight acres, on what was then the open country skirting the East river, nearly abreast the lower point of Blackwell's Island, near Fiftieth street, on a little indentation of the shore known as Turtle Bay. None of the avenues east of Third were then opened above Thirtieth street; and the neighborhood, though now perforated by streets and covered with houses, was as rural and secluded as heart could wish. One fine spring morning, a neighbor called and offered to plow for $5 my acre of tillage not cut up by rows of box and other shrubs; and I told him to go ahead. I came home next evening, just as he was finishing the job, which I contemplated most ruefully. His plow was a pocket edition; his team a single horse; his furrows, at most, five inches deep. I paid him, but told him plainly that I would have preferred to give the money for nothing. He insisted that he had plowed for me as he plowed for others all around me. "I will tell you," I rejoined, "exactly how this will work. Throughout the spring and early summer, we shall have frequent rains and moderate heat; thus far, my crops will do well. But then will come hot weeks, with little or no rain; and they will dry up this shallow soil and everything planted thereon."

The result signally justified my prediction. We had frequent rains and cloudy, mild weather, till the 1st of July, when the clouds vanished, the sun came out intensely hot, and we had scarcely a sprinkle till the 1st of September, by which time my corn and potatoes had about given up the ghost. Like the seed which fell on stony ground in the Parable of the Sower, that which I planted had withered away, "because there was no root;" and my prospect for a harvest was utterly blighted, where, with twelve inches of loose, fertile, well pulverized earth at their roots, my crops would have been, at least, respectable. When I became once more a farmer in a small way on my present place, I had not forgotten the lesson, and I tried to have plowed deeply and thoroughly so much land as I had plowed at all. My first summer here (1853) was a very dry one, and crops failed in consequence around me and all over the country; yet mine were at least fair; and I was largely indebted for them to relatively deep plowing. I have since suffered from frost (on my low land), from the rotting of seed in the ground, from the ravages of insects, etc.; but never by drouth; and I am entirely confident that deep plowing has done me excellent service. My only trouble has been to get it done; for there are apt to be reasons—(haste, lateness in the season, etc.)—for plowing shallowly for "just this time," with full intent to do henceforth better.

I close this paper with a statement made to me by an intelligent British farmer living at Maidstone, south of England. He said:

"A few years ago there came into my hands a field of twelve acres, which had been an orchard; but the trees were hopelessly in their dotage. They must be cut down; then their roots must be grubbed out; so I resolved to make a clean job of it, and give the field a thorough trenching. Choosing a time in autumn or early winter when labor was abundant and cheap, I had it turned over three spits (27 inches) deep; the first being merely reversed; the second reversed and placed near the bottom; the third being reversed and placed above the second. The soil was strong and deep, as that of an orchard should be; I planted the field to garden peas, and my first picking was very abundant. About the time that peas usually begin to wither and die, the roots of mine struck the rich soil which had been the first stratum, but was now the second, and at once the stalks evinced a new life—threw out new blossoms, which were followed by pods; and so kept on blossoming and forming peas for weeks, until the first crop far more than paid the cost of trenching and cultivation."

Thus far, my English friend. Who will this year try a patch of peas on a plat made rich and mellow for a depth of at least two feet, and frequently moistened in summer by some rude kind of irrigation? —*Horace Greeley.*

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, April 21, 1870.

Flour, Extra, ℔ bbl.	$5 00	@$5 50
Do. Superfine	4 50	@ 4 75
Corn Meal, ℔ 100 lbs	2 00	@ 2 25
Wheat, ℔ 100 lbs	1 30	@ 1 65
Oats, ℔ 100 lbs	1 15	@ 1 40
Barley, ℔ 100 lbs	90	@ 1 10
Beans, ℔ 100 lbs	2 50	@ 3 50
Potatoes, ℔ 100 lbs	1 75	@ 2 00
Hay, ℔ ton	11 00	@17 00
Live Oak Wood, ℔ cord	9 00	@14 00
Beef, extra, dressed, ℔ lb	7	@ 12½
Sheep, on foot	2 50	@ 3
Hogs, on foot, ℔ lb	5	@ 9
Hogs, dressed, ℔ lb	8	@ 8½
GROCERIES, ETC.		
Sugar, crushed, ℔ lb	13	@ —
Do. Hawaiian	8	@ 11
Coffee, Costa Rica, ℔ lb	18½	@ 19
Do. Rio	—	@ 17½
Tea, Japan, ℔ lb	75	@$1 00
Do. Green	60	@ 1 25
Hawaiian Rice, ℔ lb	8	@ 10
China Rice, ℔ lb	6	@ 7
Coal Oil, ℔ gallon	40	@ 42½
Candles, ℔ lb	16	@ 18
Overland Butter	20	@ 30
Ranch Butter, ℔ lb	20	@ 28
Isthmus Butter, ℔ lb	25	@ 28
Cheese, California, ℔ lb	14	@ 20
Eggs, ℔ dozen	25	@ 30
Lard, ℔ lb	15	@ 16
Ham and Bacon, ℔ lb	15	@ 16
Shoulders, ℔ lb	9	@ 10

Retail Prices.

Butter, California, fresh, ℔ lb	40	@ —
do. pickled, ℔ lb	35	@ —
do. Oregon, ℔ lb	25	@ —
Cheese, ℔ lb	20	@ 25
Honey, ℔ lb	25	@ 30
Eggs, ℔ dozen	45	@ 50
Lard, ℔ lb	20	@ 25
Hams and Bacon, ℔ lb	22	@ 25
Cranberries, ℔ gallon	1 00	@ 1 23
Potatoes, ℔ lb	3	@ 7
Potatoes, Sweet, ℔ lb	—	@ 2
Tomatoes, ℔ lb	—	@ —
Onions, ℔ lb	3	@ 5
Apples, No. 1, ℔ lb	4	@ 5
Pears, Table, ℔ lb	5	@
Plums, dried, ℔ lb	10	@ 12
Peaches, dried, ℔ lb	10	@ 15
Oranges, ℔ dozen	50	@ 75
Lemons, ℔ dozen	—	@ 1 00
Chickens, apiece	75	@ 1 00
Turkeys, ℔ lb	—	@ 25
Soap, Pale and C. O.	10	@ 13
Soap, Castile, ℔ lb	18	@ 20

Scientific Press.

W. B. EWER..........................SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance................$4 00
One copy, six months, in advance................ 2 60
Delivered by city carriers, per month.......... 50

Rates of Advertising.

One square (ten lines agate), one week.........$ 1 00
One square, one month........................ 3 00
One column, one month........................ 40 00
One column, one year........................ 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

Thomas Poyzer is now visiting Los Angeles and neighboring counties on business for this office, receiving subscriptions, etc. He is an old and worthy agent of the Press.

San Francisco:

Saturday Morning, April 23, 1870.

Table of Contents.

The Central Reflector Lamp—Ill....................265
Patent Regulator for Gas Burners—Ill..........265
The New Copper Process266
The Mines of Havilah..266
Letter from White Pine.266
Gold Fields of Victoria.266
Large Planer and Matcher—Ill....................273
Hercules Powder........273
Patent Commissioner's Report....................266
Blossom Rock—Ill......272
Academy of Sciences....276
The Eden Dale Co......276
To Correspondents.....272
Separating Gold and Silver by Chlorine Gas......273
New Incorporations.....276
S. F. Metal Market..... 278
New York Metal Market.279
S. F. Shareholders' Directory....................269
S. F. Stock Market......269
FARMING AND GARDENING.—Iron for Peach Trees; Brain-work on the Farm—Figures for Farmers; Girdled Trees; Standish Steam Plow; Potatoes Improved by Grafting and Hybridizing; What I Know of Farming; New Tomatoes, etc......270-1
MECHANICAL PROGRESS—The Fluo-Titanic Process; The Most Economical Steam Pressure; Hamar's Anti-Carbonizer for Gas Retorts; Pebble Gunpowder, etc...............267
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Idaho, Colorado, Nevada and Oregon...268
SCIENTIFIC PROGRESS—Relation Between Light Produced and Gas Consumed; Origin of Diamonds; Prof. Hunt on Volcanoes and Earthquakes; Vegetable Parasites; Areas of Preservation, etc..............267

Notices to Correspondents.

G. S., of Petaluma, thinks that the "robin redbreast of Europe" is identical with the "robin" of California, and asks whether such is not the fact. In answer, we would say that the common robin of this country is quite a different bird from the robin of the Eastern continent. It is possible that the robin which is occasionally met with in Petaluma may be a wanderer from Asia, across Behring's Straits; if so, the fact will be new to naturalists, and will be one of considerable interest. If our correspondent will send one to our address—dead or alive—we will answer his query definitely, so far as the specimen sent is concerned. We owe an apology to our correspondent for the delay in replying to his query.

STIFLE.—As the query of our correspondent, "C. E. S.," as to the best method of curing "stifle," has not been answered by any of our other correspondents, we shall next week give the method provided in the case to which "C. E. S." refers, and, perhaps, some others, as No. 3 of our series of "Diseases of Horses." We propose to make that series of articles a feature in our agricultural department, and should be pleased to receive hints or communications from any of our readers who may be able to communicate valuable facts on a subject of so universal interest.

L. L., of San José, proposes to try the experiment of raising opium, and asks several questions about its culture. He will find all his questions fully answered in the SCIENTIFIC PRESS of February 12th and 19th and April 2d.

S. H. H., on "Grape Growing near the Coast Range," will appear next week. Our readers will find, therein, some valuable hints with reference to the ravages of the "mildew" upon the grape and vine.

R. W. T., Nevada.—You will find the answer to your query under the "Notices of Recent Patents" in our issue of April 9th.

OUR pioneer agent, William H. Murray, who has long traveled for the SCIENTIFIC PRESS, is now on his way to Idaho, through the State of Nevada. We recommend him as one of the best of travelers, and bespeak for him many new friends in the districts he is about to visit for the first time. Our distant friends may know him by his long gear, dark hair and eyes, sharp features and dark complexion.

The Martin Patent Engine.

This engine is said to be rapidly coming into use, and receiving flattering testimonials as to its value. It is exceedingly simple, cheap and apparently durable, and admits of very extensive application, since it can be used, with a few modifications, as a steam engine, a hydraulic engine, an air or a force-pump. These engines require little attention after setting up, and will run day in and day out without being touched, except for oiling. They are used as force-pumps by the White Pine Water Company, and these raise the water 670 feet with one lift, giving "the most perfect satisfaction." They are used at the water works of the State Prison at San Quentin, and of their effectiveness, Gov. Haight and Lieut. Gov. Holden, as Directors of the institution, give the strongest testimony. They are to be used at the Amador mine, and, in fact, orders are coming in from various other places. We find the following in the Sacramento *Union*, from its Plumas county correspondent: "A Martin hydraulic engine of seventy-horse power has just been put up for the Indian Valley Mining Company, and, I am glad to say, proves an eminent success, and will, through the numerous advantages it offers where a high pressure of water can be obtained, be of incalculable benefit to the mining interest of this coast, if it does not revolutionize it altogether through the cheapness it will bring about in the price of reduction." This machine is a California invention, and one of the best. Any one in the city wishing to see it in operation, can easily satisfy himself by calling on H. B. Martin, No. 13 Fremont street.

◆

THE Liverpool metal market is still rather unsettled, according to Messrs. J. Lewis & Son's report. The amount of copper stock at Liverpool and Swansea is estimated at 16,494 tons fine. The market is, however, inactive, holders being firm and smelters refusing to purchase, having previously supplied their wants. Copper is quoted at $3.25 per unit. Antimony has improved and regulus is quoted at $360 per ton. Tin is firm. Spanish quicksilver was not to be obtained for shipment; nominal price, $34.25 per flask. Spanish manganese is still quoted at $17.50, and Californian at $12.50 for 70 per cent.

◆

STATE GEOLOGICAL SURVEY.—On Wednesday a party under Mr. Hoffman and Mr. Greenleaf started off to go down the San Joaquin Valley to Visalia and over the Sierras to Owens Valley and the Owens river region up to Mono Lake, to get up the topography and geology of these districts. Very soon another party will start out for the mountains to investigate the mines, under Mr. Bowman, and Mr. Wackenreuder will complete the topographical work on the Sierras from Plumas to Tuolumne counties.

◆

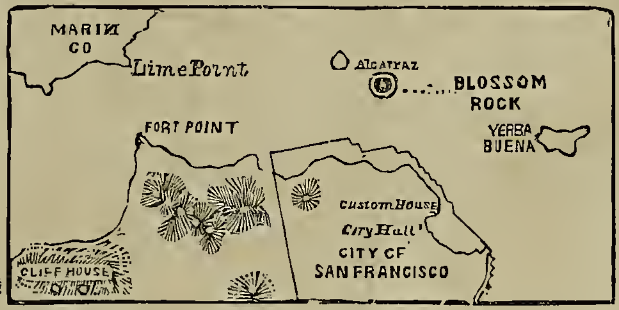
SPRINGS IN STEAM HAMMERS.—A new English three-ton steam hammer has springs composed of layers of wrought-iron plates, between the cylinder and the legs, to partly absorb the force of the blows and prevent breakage, which had before been frequent in hammers of that description. The device is said to be completely successful.

Blossom Rock.

The grand explosion is to come off to-day (Saturday) at half past one o'clock, and will undoubtedly be witnessed by thousands from the hilltops. This rock has long been an obstacle to our commerce, situated, as it is, directly in the course which vessels are often obliged to take and being covered, at low tide, with five feet of water. Moreover, the currents are such and so strong that if a vessel gets near the rock it can escape only by a miracle, almost, from striking it.

Government has attempted several times to remove the rock by exploding torpedoes on it, but without success; and last year the Department advertised for proposals for its removal, appropriating therefor the sum of $75,000, in currency. Col. A. W. von Schmidt, well known as a most successful engineer and the constructor of the Dry Dock and other important works, happened to suggest a plan, when in Washington, for destroying this obstacle, and was urged to elaborate this and apply for the contract, which he obtained. Of the method of working, several accounts have already appeared, all of them, however, more or less incorrect. We hope hereafter to give a full description, with illustrations; but at present the Department is unwilling to have anything of the kind published. We may repeat, however, what has been before stated, that the general plan is to excavate the center, making a large cavity and leaving a crust, which is finally removed by being blown up with powder when the remainder of the work has been completed.

As the public generally appear to have rather indefinite ideas as to the location of Blossom Rock, we give a rough diagram denoting its relative position. It lies north of Telegraph Hill, and east of the Golden Gate. It is to be hoped that on Saturday night this dangerous obstacle to commerce will have been effectually removed. It is said that 23 tons of powder, manufactured by the California Powder Co., which are inclosed in sheet-iron cylinders and barrels, will be used. These will be fired by means of a galvanic battery, from a vessel anchored a considerable distance off. Mr. Valentine, who had charge of the cannon at the Musical Festival, will take charge of this department here.



◆

ODD FELLOWS' PIC NIC.—The Odd Fellows of this city will celebrate the 51st anniversary of the establishment of the Order by a pic nic excursion to Saucelito, on Tuesday next. The fine steamer "Capital" will be put on the route on that day, in addition to the company's regular steamer "Princess." A fine time may be expected. Tickets for the round trip $1; children half price.

◆

MINES AND MILLS OF COLORADO.—In Mr. Paul's concluding letter two errors occurred. In regard to the mills at Central City the number of stamps should be from ten to eighty, instead of thirty; and in the milling loss, it should read that "80 per cent. goes down the creek."

◆

COAL DISCOVERY IN INDIA.—While boring for water at Midnapoor, Bengal, a bed of coal was struck. Further explorations will be carried on.

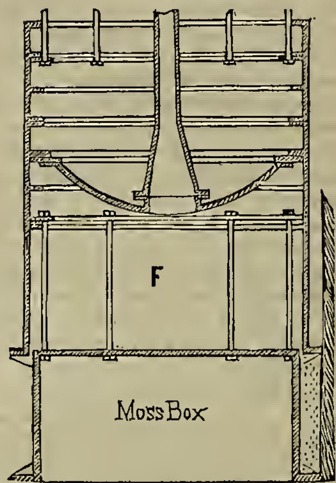
Boring Large Shafts.

[CONTINUED FROM PAGE 267.]

Tubbing the Shafts.

This is accomplished by lowering into the pit a metallic cylinder which rests on a foundation cut at the bottom. The cylinder, F, is made smaller than the pit, and the space between it and the walls filled in with concrete. The concrete used was made of one-fourth Vassy or Rsppe cement, one-fourth hydraulic lime, one-fourth sand, and one-fourth powdered trass.

The tubbing is formed in sections, made of cast iron, which are added one after another at the top, as the cylinder sinks, and bolted together. The outer surface is quite smooth, but the inner is strengthened by horizontal ribs. The joints are made tight by a lead packing. To secure a tight packing at the bottom of the shaft a "moss box" is used. This is merely a section with a flange at the bottom projecting outward. The bottom of the tubbing has a similar flange. The space between the two flanges are filled with moss, held in place by a net drawn tightly around it. The whole is suspended by iron rods, as shown in figure F, as it is lowered, but when the bottom is reached, the whole weight of the tubbing presses on the moss, by means of the upper flange, and it is compressed till it completely fills the space and forms a water-tight packing.



The operation of lowering the tubbing is easily performed. Upon the lower edge of the last section but one of the cylinder, a hemi-spherical shaped bottom is attached, by bolts and flanges. This has a central opening into a cast iron column, called the equilibrium column, rising within the tubbing, and at distances of about 25 feet pierced with holes, 0.4-inch in diameter, for the purpose of admitting water into the tubbing as fast as the latter is sunk into the pit. These holes are closed by screws, and as the tubbing is lowered, the water rises around it and within the column, until enough is displaced to cause the tubbing to float. By removing some of the screws closing the holes, water is admitted into the interior, and the cylinder is made to sink. The apparatus is lowered by means of six suspending iron rods, terminated in long screws. The rods are made up of lengths, which are added as the tubbing descends. When this was finally in place it was allowed to fill with water for two days, in order to gradually obtain the maximum compression of the moss. The descent in this case lasted 40 days.

In concreting the first pit three sets of men were employed 25 days, and 10,031 cubic feet of material were used. The concrete was allowed to harden one month. Lastly, the water was pumped out, and the false bottom and equilibrium column removed. The moss box was found in good condition. The second shaft was finished in a similar manner.

Conclusion.

The entire expense of sinking the first shaft was about $51,000; of the second,

$88,090. The work lasted 3½ years. "The successful boring of these shafts proves the advantages of the system *a niveau plein*, viz.: complete insulation of the watered strata; great strength of the lining of the shaft; avoidance in great measure of the slides and broken strata caused by pumping out the water in the old method, which produced excavations in the sides; considerable reduction of expense; economy of time; and possibility of traversing all kinds of strata of whatever thickness or description."

◆

Separating Gold and Silver by Chlorine Gas.

This process, invented by Mr. F. B. Miller, seems to have been tested on a large scale with satisfactory results. It consists in melting the bullion in a crucible and passing into this, through a pipe in the cover, chlorine gas, as long as this is absorbed by the silver, which is thus converted into chloride of silver. This can then be poured off, in a fused condition, from the gold, which solidifies more quickly on cooling. The chloride of silver can be reduced in several ways. One method, devised by Dr. Leibriss, is highly spoken of, and consists in reducing by plates of zinc combined with slabs of chloride into a galvanic arrangement. In twenty-four hours the chloride is completely reduced to the state of spongy silver. No acid is required, and the zinc consumed is only 25 per cent. of the chloride reduced.

The experiments at the Sydney mint, Australia, were so favorable that the process is to be introduced there. Two thousand ounces of gold were readily refined in five hours with three melting furnaces, 98 per cent. of the gold being delivered ready for coinage the same day. The gold can easily be obtained 995 fine. The ultimate loss in gold is given as 0.019 per cent.; of silver, 0.240 per cent. The cost of refining, inclusive of this, but exclusive of "rent of premises and expenditure," is stated as five farthings (1¼ cts.) per ounce.

◆

The Trade of the Pacific.—Henry G. Langley, the well-known publisher of the San Francisco and the Pacific Coast Directories, will issue about the first of June the first number of "The Trade of the Pacific," a quarterly advertising journal devoted to the interests of the Pacific coast. This is intended as a vehicle for the dissemination of correct and important information connected with the resources of the coast and a reliable medium of communication between manufacturers and traders here and in adjacent foreign countries. It will be in quarto form, will contain matter of import to all branches of business, besides its advertising patronage, and will be regularly forwarded, *free*, to all merchants, traders, mill-owners and superintendents in all States and countries of the Pacific Ocean. That it will be a success and get a large support is guaranteed by the reputation of the enterprising proprietor. For the insertion of advertisements, at moderate terms, address Henry G. Langley, 612 Clay street, San Francisco.

◆

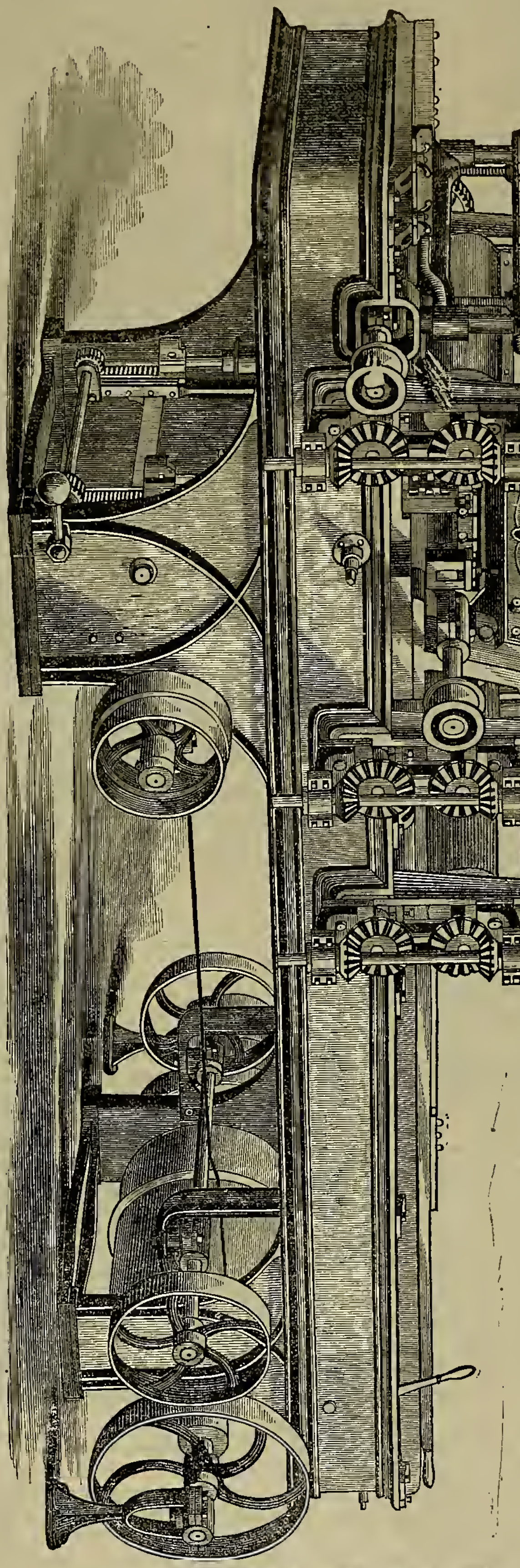
Tunnel at Detroit.—It is proposed to tunnel under the Detroit river, in order to accommodate the traffic on the Michigan Central and Great Western Railroads. The tunnel will extend from Detroit to Windsor, and will be one and three-fifths miles long. It is said that there will be two tunnels, each eighteen and one-half feet in diameter, and each with a single track, instead of one large tunnel with a double track. The grade is one in fifty each side of the river with a thousand feet of level line under the river. Estimated total cost, $2,650,000; time necessary, two years.

◆

Coal Mining in France.—M. de Simony, in a recent work on the carboniferous basin of the Loire, states that in this district, which yields a quarter of the coal in France, there are 51 mines which together produce over 3,000,000 tons annually.

Large Planer and Matcher.

There is a large variety of Woodworth planers. They are extensively used, and, as an illustration of a well-known and standard article, the engraving here given will be viewed with interest by those who are both familiar and unfamiliar with the operation of the tool represented. The principle in them all is the same—that of the revolving horizontal cylinder, upon which the cutters are fastened. The Woodworth planer is now known by this feature alone, in contradistinction from the "Daniels planer," where the knives are fastened to a disk which revolves on an upright arbor.



THE WOODWORTH PLANER AND MATCHER.

The above is a good representation of a heavy planer and matcher (single or double cylinder), which has been introduced the past year into this market by Berry & Place, of this city.

These machines are built of entirely new patterns, and are peculiarly adapted for heavy lumber mills. They have Richardson's patent extension feed gears, which are claimed as the most simple and durable of any expansion gears, and by which the power is applied directly to the rolls; patent self-oiling boxes; wrought-iron cylinder heads with cast-steel arbors, the upper one having three and the lower two knives, and will surface twenty-six inches wide; gun-metal matcher heads, capable of grooving sixteen inches wide, or planing the thickest lumber.

This machine has also the improved patent matcher attachment, a simple and complete device attached to the lower part of the matcher arbors, so arranged that one-half turn of a crank will lower the arbors below the bed-plate, and a reverse motion will raise them. In this operation the connection is not broken with the rod at the end of the machine for adjusting the matcher heads to different widths stuff, *a point of great advantage.* The machine has six heavy feed rolls, and weighs 8,700 pounds.

Berry & Place, general dealers in wood-working machines, have one of these planers on exhibition at their warerooms, 112 California street. They have sold several of these large machines to go to the mills around Puget Sound, where the heaviest machines are required for dressing lumber, and we are assured they have given the best satisfaction.

◆

Hercules Powder.

Hercules powder is a new explosive manufactured by the California Powder Works. It is a mixture of carbon, sulphur and nitre, reduced to a fine powder and incorporated with nitro-glycerine so as to form a stiff paste, in which condition it is safe to handle and transport. It will not explode on contact with fire, but burns quietly, and it may be hammered on hard wood without danger of explosion. It will explode, however, on being hammered on an anvil, or on being ignited in a strong vessel with no aperture for the escape of the gases. In use it is exploded by means of a copper cap, heavily charged with fulminate of mercury or other quick explosive, placed on the end of the fuse and inserted into the powder. The holes may be loaded with cartridges or with the paste therein in pieces, and tamped with a wooden rod. In blasting under water, great care should be taken to keep the cap dry, as on this depends the success of the blast. Like other nitro-glycerine compounds, Hercules powder freezes at about 42 degrees Fah., and above 200 degrees decomposes and gives out noxious fumes. If frozen it should be thawed out gradually in a warm room.

The object aimed at in this composition is to produce a powder which will combine the quickness of any of the recently-invented explosives, and the lifting force of the best blasting powder. The company feel sure they have attained this, and for its successful use refer, among others, to the following localities: R. L. Crary, Sucker Flat, Yuba county; Keystone mine, Downieville; Church M. Co., El Dorado county; J. O'Brien, Smartsville; L. L. Robinson, Hunter's Valley; Hope M. Co., Silver City; the Sutro Tunnel, the mines on the Fremont Grant, and also to other mines in Mariposa county and in Colorado and Nevada. It can be obtained in bulk or in any sized cartridges, by ordering directly from the office, 314 California street, San Francisco, or from any of the agents of the company.

◆

The Studebaker Wagons.—The general agents for this wagon are Messrs. Ames & Woolverton, who are connected with the Kimball Wagon Factory of this city. These gentlemen have an agency also for the sale of the Strayer grain drill and Oliver's chilled plow. Concerning the firm, we find the following in the *Register*, published at South Bend, Indiana, whence the gentlemen hail:

Messrs. Ames & Woolverton will operate both in California and Oregon, and we predict for them an extensive trade. They are young men of undoubted integrity, excellent business qualifications, and none in this community stand higher than they do. They also have the advantage of being personally acquainted with the manufacturers of the articles they sell—articles which have a reputation second to none whenever used—and can conscientiously recommend them. South Bend has already furnished California many of her best business men—the Crockers of the Pacific Railroad, Gen. J. F. Miller, etc.—and she now sends two others who will not be long in making their mark in the business circles of San Francisco. Success attend them.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,

423 Washington street.......... ....San Francisc (Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

DR. KNOWLES, Dentist,

HAS REMOVED FROM MONTGOMERY to **331** Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

J. VAN C. HORNER,
DENTIST,
Cor. J and Third Streets, Sacramento.
☞ All work warranted. 7v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California an Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,

Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

References.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

Dr. J. H. PAINE, Dentist,

Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,
DENTIST.
Office, 313 Bush Street, near Montgomery.

Is a regular graduate, with twenty years experience in practice. 14v20-3m

DR. MABON,
ORTHOPÆDIST,
(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the

MOST EFFICACIOUS INSTRUMENT

Yet invented for the cure of

RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and modo of treatment.

Office, No. 128 Kearny Street, near Sutter,
SAN FRANCISCO. 11v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.

Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Paten Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.

Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 Clay Street, bet. Kearny and Montgomery, San Francisco. 11v20-3m

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers,
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO,

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.

Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. Meerschaums Mounted with Silver. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

H. G. STILLEY,
PLANE MAKER.

Planes of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 Belden Place (near Bush street), below Kearny, San Francisco. 11v20-3m

W. C. & JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.

Job work of all kinds in the Drug and Spice Line promptly attended to.

Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

F. SCHOENER,
METAL SPINNER.

All kinds of Metal spun to order. Give me a call at No. 10 Stevenson Street, fourth story Pioneer Mills.
14v20-3m

NOTICE.
HYDRAULIC HOSE MANUFACTORY.

Hose made to stand any pressure—from 100 to 300 foot fall. Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

California File Manuf'g Co.
437 Brannan Street, bet. Third and Fourth.
W. Wusthoff, L. Kramer, M. Harris, J Burke.
REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.

Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

Metallurgy and Ores.

S. W. HOWLAND. J. W. THURMAN.
S. W. HOWLAND & CO.,
Crushers and Samplers
— OF —
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

☞All work done at the shortest notice. All orders promptly attended to.

References—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co., Assayers. 7v20qy

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street. San Francisco

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.

☞Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE..................................Manager.
J. A. MARS...Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.

Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM
PRINTING ESTABLISHMENT.
Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf

The California Powder Works
No. 314 CALIFORNIA STREET.
SAN FRANCISCO.
Manufacturers and have constantly on hand
SPORTING,
MINING,
And BLASTING
POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

FRANCO-ITALIAN MANUFACTORY.
NEW CALIFORNIA
Chocolate and Coffee Steam Mills.
DESCALZO, LASTRETO & CO.,
526 WASHINGTON STREET.
MANUFACTURERS OF
Hygienic Chocolate of Every Variety,
Ne Plus Ultra Ground Coffee,
And sole manufacturers in California of the world renowned Coffee,
"CAFE DES GOURMETS,"
CORCELET PROCESS. 9v20-q

☞ ☞ ☞ ☞ ☞ ☞ ☞ ☜ ☜ ☜ ☜ ☜ ☜ ☜

TO THE WORKING CLASS.—We are now prepared to furnish all classes with constant employment at home, the whole of the time or for the spare moments. Business new, light and profitable. Persons of either sex easily earn from 50c. to $5 per evening, and a proportional sum by devoting their whole time to the business. Boys and girls earn nearly as much as men. That all who see this notice may send their address and test the business, we make this unparalleled offer: To such as are not well satisfied, we will send $1 to pay for the trouble of writing. Full particulars, a valuable sample, which will do to commence work on, and a copy of *The People's Literary Companion*—one of the largest and best family newspapers published—all sent free by mail. Reader, if you want permanent, profitable work, address E. C. ALLEN & CO., Augusta, Maine. 5v20-3m

Scientific Press.—Dewey & Co. are the publishers of this sterling paper It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican*

THE FIREMAN'S FUND

INSURANCE COMPANY.

OFFICE,
S. W. Corner California and Sansome Streets,
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL..............................$500,000 00
SURPLUS..............................267,115 63
TOTAL ASSETS..............................$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.
13v20-3m

OCCIDENTAL

Insurance Company,

OF SAN FRANCISCO.]

Cash Capital, - - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 20v17

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2,500 secured for $6.

HOWARD & HOWE,
General Agents for the Pacific Coast.
No. 338 Montgomery street, corner California, Room 7.
☞Agents Wanted.☜ 14v20-3m

Pacific Bank.

PETER H. BURNETT..............................President.
FORD H. ROGERS..............................Cashier.

REMOVED

To its new Banking House, northwest corner of Sansome and Pine streets.

O. P. SUTTON, Secretary.
San Francisco, March 30, 1870. 15v20-3m

SOMETHING NEW
— FOR —
MINERS AND FAMILIES.

EAKINS'
EGG SUBSTITUTE.

TRADE MARK.

One Can equal to three dozen Eggs,

And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.

Price, 35 Cents per Can.

MANUFACTURED BY ADAMS & CO.,
423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

MITCHELL & BELL
Carpet Dealers
606 Clay St.

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞Can compete in prices with any other dealer. 11v20-3m

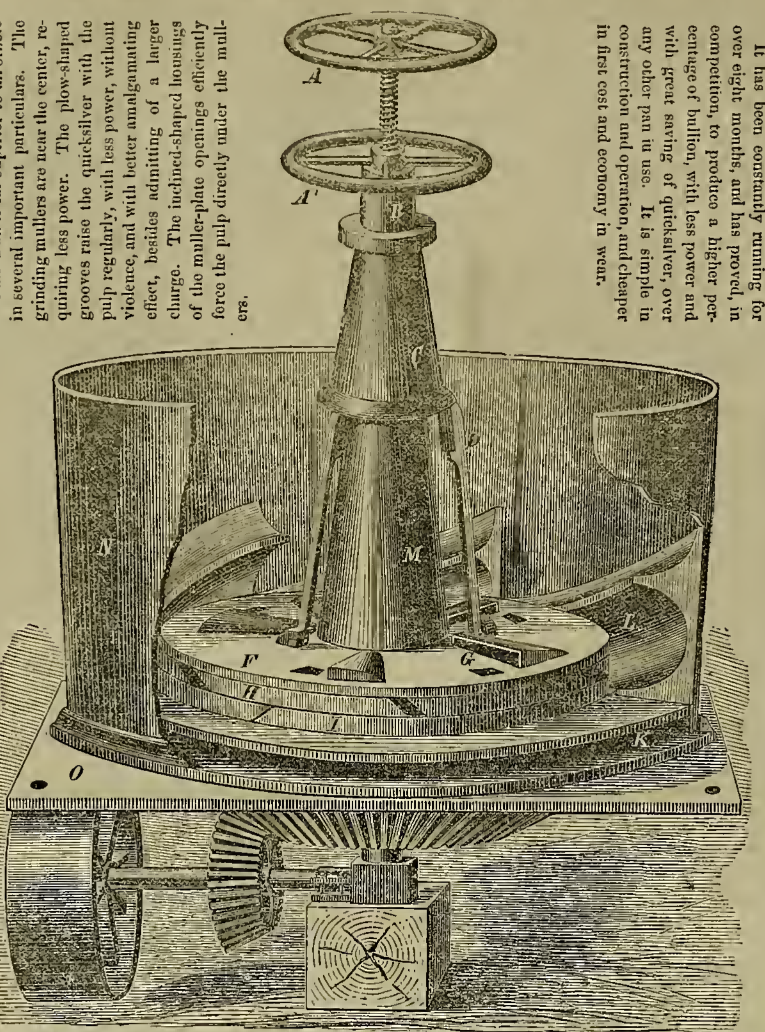
ICE. ICE.

On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.
AMERICAN RUSSIAN COMMERCIAL CO.
D. E. Martin, Superintendent,
16v20-qy 714 and 716 Battery street.

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.

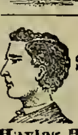
It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

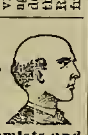


Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.,

Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, Gold Hill, State of Nevada, where the Pans have long been in constant operation.
15v20-1mr,1amtf

Dr. Dudley, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: No. 12 Montgomery street, opp Lick House. Hours from 10 to 3. ☞ Se habla Español. On parle Français.





WONDERFUL
Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor: I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

FROM The WEED Sewing Machines—the $65 WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED

WEED

Machines work easier, simpler faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO $500

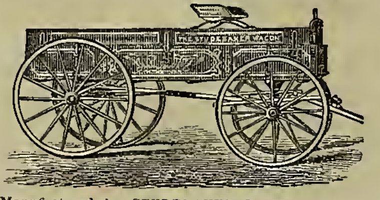
LAND! LAND! LAND!

YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

40,000 Acres in Fresno County;
7,000 Acres in Sonoma County;
3,680 Acres in Tulare County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above. YOUNG & PAXSON,
16v20-3m 424 Montgomery street.

The Celebrated Studebaker Wagon,



Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

First.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover. Second—They are made by experienced mechanics. Third—The lightest running and most durable Wagon in the market. Fourth—Their Thimble Skeins never break, while all others do. Fifth—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not. Sixth—The only Wagon in which the Slope Shoulder Spok is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying. Seventh—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction. Eighth—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road. Ninth—Last, but not least, Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others.

Sold by COPELAND & DEFREES, K street, between Seventh and Eighth, SACRAMENTO, CAL. ☞ Pioneer Agents for the Pacific Coast. 15v20-3m

AMES & WOOLVERTON,

General Agents for the Pacific Coast

FOR THE CELEBRATED

STUDEBAKER

Farm and Team Wagons,

Manufactured at South Bend, Indiana.

OFFICE and GENERAL DEPOT

— WITH —

THE KIMBALL MANUFACTURING CO.,

SAN FRANCISCO, CAL.

☞Orders and correspondence solicited. 15v20-3m

ICE! ICE!

At Lower Prices than Ever Before Sold.

SUMMIT VALLEY ICE CO.,

No. 261 First Street, near Folsom.

Office at the Miners' Foundry.

J. L. MOULTHROP, - - - - - - AGENT.

☞Office open at all hours of the day. 14v20-1m

DR. ABORN,

Oculist, Aurist,
AND
CATARRH, THROAT
AND
Lung Physician.

No. 22 KEARNY STREET,
SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox, Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.
San Francisco (Cal.), Jan, 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street, San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.
San Jose (Cal,), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

To whom it may Concern.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.
WILLIAM BEARDSLEE.
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.
VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869. 7v20-3m

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in tin cans only, with full directions. Take no other. Giant Cement and Miners' Rubber Cement are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List to Giant Cement Manufacturing Co, 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

Notice to Miners,

Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.
M. PRAG.
3v18 ly Stove Store, No. 125 Clay Street, below Davis

The Eden Dale Company, for Tropical Fruit Raising.

The Eden Dale Company, of San Francisco, which recently filed its certificate of incorporation, has now issned a prospectus, from which we learn that it is the design of the Association to engage in the business of raising semi-tropical frnits, and snch other fruits and prodncts as may he fonnd hest adapted to the climate and soil in the sonthern part of the State; and to that end they will huy, sell, lease or rent land and its appnrtenances. The amount of capital stock, $360,000. The officers of the Associatiou are: Henry Gihhons, President; John Archihald, Vice President; W. J. Taylor, Secretary; Treasurer, the London and San Francisco Bank; Directors: H. Gihhons, J. Archihald, A. Giorgiani, R. T. Rundle and J. E. Eaton.

We understand that all kinds of tropical fruits will he experimented with, and the enterprise will he conducted on a large scale. An undertaking of this kind, properly conducted, as we presnme this will he, cannot fail to prove of great importance in this State. We shall prohahly have occasion to refer to this enterprise, more fully, at another time.

Academy of Sciences.

At the regular meeting on the 18th inst., several specimens of fossils were presented to the cabinet of the Society, also a collection of American ferns and a number of scientific works. The Academy decided to memorialize Congress in favor of an appropriation of $100,000 forCapt. Hall's proposed expedition to the Polar Sea.

Our Coal Formation.

Prof. Whitney corrected some statements which have heen made hy Mr. Rohert Brown, of Edinhurgh, to the effect that the coal of this State is inferior to that of British Columhia, and that we might expect to depend on that province for our future supplies; also, that the coal heds of British Columhia belonged to the true carhoniferous formation. The coals of that district were not superior to those fonnd southward, and the formation described hy Mr. Brown was not later than the cretaceous.

State Boundary—Increased Size of Lakes.

Prof. Whitney also made some remarks on the California and Oregon houndary line. This had heen accurately determined hy Maj. D. G. Major. But the California and Nevada line, although probably accurate enough for the purpose of the State Survey, mainly prosecuted to determine in which State Honey Lake Valley was situated, was not exact enough for all purposes. In this connection the Professor aaid that Goose Lake, on the northeastern line, had materially increased in volume of late. It formerly had no outlet, hut now is pouring a considerable quantity of water into Pitt river. All the lakes in this region have increased in size of late, and the Geological Survey, wheu it reached the locality, would endeavor to collect accurate information on the point.

After discussing the earthquake subject, a committee was appointed to inquire as to the hest instrument for recording earthquake phenomena.

Iodine Spring.

Mr. Hanks atated that he was engaged in the analysis of some water obtained from a apring near this city, which contained so much iodine that, without condensing, it gave a strong reaction when the proper test waa applied. A full statement of the analyais will he made to the Academy.

Experiments with Ice.—The French ateamship company, Les Messageries Impériales, having to ship a quantity of ice to Suez for the uae of its steamers in the Indian Ocean, and desiring to find the best quality for their pnrpose, auhjected 100 kilogrammes (220 pounds) of several kinds to the same conditions of temperature, with the following reaults: 1. Natural ice from Switzerland lasted 107 hours; 2. natural ice from Norway, 115 hours; 3. artificial ice made hy the Carré machine, 130 hours; 4. natural ice from Boston, Mass., 138 hours; 5. artificial ice made hy the Tellier machine, 144 honra. Artificial ice then appears to be aa solid as natural ice.

Meat Imported into England.

The retnrns with regard to English importations of cattle, sheep and hogs, and of fresh and preserved or salted meats, made hy the Board of Trade, show that during the first six months of 1869 there were imported into England as follows: 57,334 full-grown cattle; 14,784 calves; 208,176 sheep; 17,616 lamhs; 13,656 hogs and swine. Of preserved meat: 457,133 cwts. of hacon and ham; 168,747 cwts. of salt heef; 104,845 cwts. of salt pork; 37,474 cwts. of meat not described; 7,209 cwts. of heef fresh or slightly salted; 12,557 cwts. of pork fresh or slightly salted, at the computed value of four millions and a half pounds sterling—$22,500,000. Late accounts from England and Australia refer to experiments heing made with a view to perfect a system of preserving meats fresh, and there appears to he good reason to helieve they will accomplish the ohject. By one mode, the animal is made to inhale a vapor hefore having its throat cut—the kind of vapor is a secret. This appears to he the only treatment. Mr. Patrick Hayes, of Footcray, Victoria, exhihited a saddle of mutton which had heen killed ssven weeks, and was quite fresh—the vapor was the only treatment. We clip the following from the *Illustrated News:*

In our scientific column last week a paragraph was devoted to ths discussion of the principal means propounded for hringing to this country, from cheap sources ahroad, an ahundant supply of heef, mutton, and other meat; and a hope was expressed that, with the attention which is being given to the suhject, and with the issues at stake, means would soou he discovered for hringing large supplies of good meat from distant parts of the world at a moderate cost. This hope seems to he in a fair way of heing realized. On Tuesday the first of a series of sales of Australian meat, to he held on the first Tuesday of each month, took placs at the Hop and Malt Exchange, in Southwark street. The quantity of meat suhmitted was 100 tons, consisting chiefly of mutton, cured in carcass, hind-quarters, hams and rolls, packed in pure fat, which realized from 3½d. to 6d. per pound; harrels of sheeps' tongues, packed in pure fat, realized 8d. per pound; 1,000 smoked sheeps' tongues realized from 1s. to 1s. 1d. per dozen, and 300 smoked ox tongues averaged from 1s. 1d. to 1s. 2d. each; 60 cases of mutton, in tins of 7 lbs. each, fetched 6½d. per pound. Of the many forms in which Australian meat has heen introduced for consumption in this country, that which has heen found most generally satisfactory is the cooked mntton in tins supplied by Coleman & Co., St. Mary-at-hill, in the city. This meat is positively a delicacy, eaten either cold or warm. The only point necessary to be borne in mind, when serving the meat in the form of stew, is to thoroughly cook the vegetables and other ingredients hefore adding the meat. As one pound of the Australian cooked meat is equal to a pound and a half of uncooked butchers' meat, and as it is sold for 7d. or 7½d. per pound, the economy in using this article of food is considerahle.

In consequence of the great expense attending the importation of meat, the retail price in London is almost as high as it ia in San Francisco! It might be quite as dear did the hutchers' compel their customers to pay for the hones and tallow trimmed from a roast or hroil.

India Ink, or, more properly, Chinese ink, is mannfactured npon a very large scale at Shanghai. The real secret of the art of making this article is said to be in the manner of preparing the lamp-hlack, in which the Chinese excel. The agreeable odor is imparted hy a small admixture of musk and camphor. The gilded letters are first formed hy the mould, then, when the cake is dry, traced over with a solution of gelatine dissolved in water, and then the gold or copper is laid on with a fine hrush.

Sulphur Deposits—Reports come of the finding of two inexhaustible deposits of sulphur on the shores of the Red Sea, near the entrance of the Gulf of Suez. The storiea told are pretty large: a hill 600 feet high, composed entirely of sulphur which is hlasted like the rock in a common atone qnarry, etc.

New Incorporations.

The following have filed certificates of incorporation with the County Clerk, San Francisco:

Tem Piute M. Co.—Tem Piute Mining District, Lincoln county, Nevada. April 14th. Capital stock, $1,880,000, divided into 2,880 shares. Trustees: C. D. O'Sullivan, Robert J. Tohin and John O'Farrell.

Consolidated Silver Wedge M. Co.—White Pine. April 15th. Capital stock, $2,000,000, divided into 20,000 shares. Trustees: Marion J. McDonald, Louis Vesaria and Orlando H. Bogart.

Cocomongo Co.—April 18th. The ohjects are to purchase a tract of land in San Bernardino county, heing a portion of the Cocomongo Ranch, to sell, lease, rent or cultivate the same, and to use, sell or lease the water privileges thereof. The capital stock is $33,600. Directors: John Archibald, Henry Gihhons, A. Giorgiani, R. I. Rundle and Charles J. King.

Crescent G. M. Co.—Grass Valley. April 20th. Capital stock, $400,000, divided into 4,000 shares. Trustees: Geo. B. Reeve, N. K. Masten and J. W. Toard.

Sidney Brooks Tunnel and Lode Co. White Pine. April 20th. Capital stock, $500,000, divided into 10,000 shares. Trustees: L. R. Meyers, J. M. Robertson, A. W. Von Schmidt, James Bowman and D. B. Northrop.

The following have heen recorded in the Secretary of State's office, Sacramento:

Von Humboldt M. Co.—Sierra county. April 15th. Capital stock, $95,000, divided into 425 shares. Trustees: John Ramin, John R. Clow and E. H. Houghtaling.

San Francisco Real Estate Association.—April 15th. Capital stock, $80,000, divided into 2,000 shares.

Meetings, Elections, Etc.

Santa Clara & Pajaro R. R. Co.—April 18th. Directors: Peter Donahue (President), Charles Mayne (Vice President), Myles D. Sweeney (Treasurer), and Richard P. Hammond. J. L. Willcut was reëlected Secretary.

Coal Discovery in the Brazils.—According to the London *Mining Journal*, R. von Brause has discovered coal of a very good qnality in the Santa Catharina near Ararangua. The seam which crops out has been explored for a distance of some 30 miles, and found to he of an average thickness of one metre. This coal has heen thoronghly tested and analysed hy Dr. Netto, of Rio de Janeiro, and is interesting as one of the very few instances of a true coal occnrring in a recent geological formation, although in the United States and in Hanover (on the very horders of the Netherlands) two or three such occurrences are on record. The coal here alluded to is an excellent quality of gas coal.

Important Invention.—The best drink, not containing alcoholic stimulants, yet answering all the requirements, is that made by Kenyon, Gass & Co., and known as Champagne Mead. It is recommended by the medical fraternity of this city, and should be the exclusive drink of all temperance men. It contains no injurious acids. *

A Valuable Book for Inventors and Artisans.—Dewey & Co., puhlishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side hy side with explanatory notes, which makes the snbject clear to every reader. Such a book should he in the hands of every mechanic, and form part of every pnhlic school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Presa office, postpaid, for $1.—*New Age.*

Extract from a letter dated St. Louis, Mo., March 1, 1870: "Messns. Dewey & Co.:—The Scientific Press has been received. Though I am a constant reader of the Scientific American and great admirer of it, I confess my surprise on discovering the Pacific slope in possession of its equal in every respect. A. J. K." (inventor).

C. Muller, optician, 205 Montgomery, stands first in his profession, and all those who suffer from defective eye-sight should apply to him. *

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Everybody should use the Portable Gas Light sold at P. J. Philips & Co's, 550 Market street. It costs only one-fourth as much as common gas, and is equally as good. Don't fail to see it. A few county rights for sale. Don't mistake the place. *

Mason's Bread of Life, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis and Sore Throat. Price, 25 cents per hox. These lozenges are free from all dangerous properties. Compounded and put up hy Dr. J. H. Mason, 750 Howard st. 16v20-3m

Block Tin and Solder Wire, hroom wire, piano covering wire, etc., manufactured hy Joshua Gray, 437 Brannan street. 24v19-3m

Business Fortunes are often made easily, quickly and legitimately hy Patent Rights. We advise hoth sellers and purchasers to patronize reliahle agents only. Weister & Co., patent hrokers, No. 314 Bush street, San Francisco, are one of the most honest, reliahle firms in the United States. *

Photography.—For Cabinet Photographs, or Enameled Cards, of the very hest quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Thomas O'Neil Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonahle terms. 14v20

Microscopes for Scientific Investigation and Educational Purposes. Price list sent free. T. H. McAllister, Optician, 49 Nassau street, New York. 15v20-3m

Drs. Martinache & Smith, Oculists and Aurists, 313 Bush street, hetween Montgomery and Kearny. Hours for consultation, 12 to 3. 16v20-3m

F. Gruber, Naturalist, No. 626 California street, hetween Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

New Mining Notices.

Eagle Quicksilver Mining Company.—Location of Works: Eaglo Mining District, Santa Barhara County, California.

Notice.—There are delinquent upon the following descrihed stock, on account of assessment levied on the fourteenth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Benton, Dr H A	unissued	1	$20 00
Bouton, A P	unissued	1	20 00
Constable, John L.	unissued	1	20 00
Collins, S W	unissued	1	20 00
Edwards, M C	unissued	1	20 00
McAllister, Hall	unissued	2	40 00
Wolleh, Edward	unissued	4	80 00
Richardson, Thos.	unissued	2	40 00
Rodda, Wm Henry	unissued	2	40 00

And in accordance with law and an order of the Board of Trustees, made on the fourteenth day of March, 1870, so many shares of each parcel of said stock as may he necessary will be sold at puhlic auction, at the office of the Company, No. 26 Hayward's Building, 410 California street, San Francisco, Cal., on Monday, the second day of May, 1870, at the hour of two o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. W. COLBURN, Secretary.

Office, Room 26 Hayward's Building, 419 California street, San Francisco. apr23

Latawana Mining Company.—Near Hamilton City, White Pine, Nevada.

Notice.—There are delinquent on the following descrihed stock, on account of assessment levied on the nineteenth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
D M Hosmer	1	100	$15 00
D M Hosmer	2	100	15 00
D M Hosmer	3	60	7 50
D M Hosmer	4	50	7 50
D M Hosmer	5	50	7 50
D M Hosmer	8	20	3 00
D M Hosmer	14	10	1 50
D M Hosmer	15	10	1 50
Richard Savage	16	100	15 00
Richard Savage	17	100	15 00
Richard Savage	19	50	7 50
Richard Savage	21	20	3 00
Richard Savage	22	20	3 00
Richard Savago	23	20	3 00
Richard Savage	24	20	3 00
Richard Savage	25	20	3 00
Richard Savage	25	10	1 50
Richard Savage	27	10	1 50
Richard Savage	28	10	1 50
Richard Savage	29	10	1 50
Richard Savage	30	10	1 50
Richard Savage	38	20	3 00
Richard Savage	39	20	3 00
Richard Savage	40	20	3 00
Richard Savage	41	20	3 00
Richard Savage	42	20	3 00
Richard Savage	45	5	75
Richard Savage	46	5	75
Richard Savage	[illegible]	5	75
Richard Savage	90	1000	150 00
Richard Savage	91	500	75 00
Richard Savage	92	100	15 00
Richard Savage	93	100	15 00
Richard Savage	94	100	15 00
Richard Savage	95	100	15 00
L A Brown, Trustee	70	100	15 00
L A Brown, Trustee	71	100	15 00
L A Brown, Trustee	72	100	16 00
L A Brown, Trustee	73	100	15 00
L A Brown, Trustee	74	100	15 00
L A Brown, Trustee	75	100	15 00
L A Brown, Trustee	76	100	15 00
L A Brown, Trusteo	77	100	15 00
O T Ames	78	100	15 00
O T Ames	79	100	15 00
O T Ames	80	100	15 00
O T Ames	81	100	15 00
O T Ames	82	100	15 00
O T Ames	83	100	15 00
O T Ames	84	100	15 00
O T Ames	85	100	15 00
O T Ames	86	100	15 00
O T Ames	87	188	28 20
P Conklin	59	2	30
P Conklin	60	3	45
P Conklin	51	5	75
P Conklin	63	5	75
P Conklin	64	5	75
P Conklin	65	5	75
S E Holcombe	112	768	115 20
S E Holcombe...balance	127	10	50
Richard H Savage	115	10	1 60
S Hilton	119	20	3 00
Wm M Grant	120	354	53 10
Francis S Bowen	123	10	1 50
Wm Carrison..unissued.	124	4248	637 20
R Caulfield.....balance	128	40	2 00
D Walker, M D...balance	129	20	1 00
Jno Samud.....balanco	130	10	60
Jno Samud.....balance	131	10	60
Richard Savage	unissued	2249	337 35

And in accordance with law and an order of the Board of Trustees, made on the nineteenth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at No. 526 California street, between Montgomery and Kearny, San Francisco, Cal., on Tuesday, the tenth day of May, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquont assessment thereon, together with costs of advertising and expenses of sale.

CHAS. WELLINGTON, Secretary.

Office, 614 Merchant street, Room 26, or 526 California street, San Francisco. apr23

Mining Notices--Continued.

Alban Gold and Silver Mining Company.—

Location of Works: Virginia City, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of March, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, or to Geo. Bornwell, Esq., President of said Company, at his office, No. 432 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Monday, the twenty-fifth day of April, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fourteenth day of May, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. B. SMITH, Secretary.

Office, 432 Montgomery street, San Francisco. m26

Alameda Coal Mining Company, San Francisco and Alameda Counties, State of California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the sixteenth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
F. T. McMahon	43	26	$7 80
Louis Peres	102	25	7 50
Louis Peres	103	25	7 60
I. Veiller	254	10	3 00
I. Veiller	255	10	3 00
I. Veiller	256	10	3 00
I. Veiller	279	60	15 00
I. Veiller	289	78	23 40
I. Veiller	299	6	1 80

And in accordance with law and an order of the Board of Trustees, made on the sixteenth day of February, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by Maurice Dore & Co., on the twenty-second day of April, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

M. PHILIPP, Secretary.

Office, 409 Battery street, San Francisco. apr2

Postponement.—The above sale is hereby postponed until Saturday, the thirtieth day of April, 1870, at the same hour and place. By order of the Board of Trustees.

apr9 M. PHILIPP, Secretary.

Glenwood Mill and Mining Company.—

Location of Works: Greenwood, El Dorado County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the fourth day of February, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Balch, S M	not issued	70	$17 50
McCarthy, M.	not issued	70	17 50
Sharp, W H.	not issued	70	17 60

And in accordance with law, and an order of the Board of Trustees, made on the seventh day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, on the twenty-seventh day of April, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. D SQUIRE, Secretary.

Office, 418 California street, San Francisco. apr9

Green Monster Copper, Gold and Silver Mining Company, Inyo Mining District, Inyo County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
W H Baxter	12	12	$12 00
Sarah C Baxter	2 and 3	20	20 00
W K Flint	17	28	28 00
Henry Gerke	10	160	160 00
E L Goold	7	5	5 00
Mosso & Son	25	6	5 00
Hugh McCormick	33	12½	12 50

And in accordance with law and an order of the Board of Trustees, made on the tenth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the auction rooms of John Middleton & Son, No 310 Montgomery street, San Francisco, California, on Monday, the second day of May, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

I. N. THORNE, Secretary.

Office, No. 16 Montgomery Block, San Francisco. ar16

Kincaid Flat Mining Company, Tuolumne County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the fourth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
Ira P Rankin	33	10	$25 00
Ira P Rankin	34	10	25 00
Ira P Rankin	65	6	12 50
Ira P Rankin	99	5	12 50
James Nelson	31	10	25 00
James Nelson	32	10	25 00
Wm A Quarles	15	10	25 00
Wm A Quarles	16	10	25 00
S Card	10	10	25 00
S Card	39	5	12 60
Robert Christy	41	10	25 00
N Gartner	64	6	12 60

And in accordance with law and an order of the Board of Trustees, made on the fourth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of S. L. Jones & Co., auctioneers, 207 and 209 California street, San Francisco, on the twenty-third day of April, 1870, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.

Office, 220 Clay street, San Francisco. apr9

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of April, 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the twenty-third day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, 408 California street, San Francisco. ap16

Miser's Dream Silver Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of April, 1870, an assessment of forty (40) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room No. 36, New Merchants' Exchange, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the seventeenth day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fourteenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

W. F. R. SCHINDLER, Secretary.

Office, Room No. 36, New Merchants' Exchange, California street, San Francisco, California.

North San Francisco Homestead and Railroad Association:—Location of Property: City and County of San Francisco, State of California.

Notice.—There are delinquent upon the followed described stock, on account of assessment levied on the ninth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B F Moulton	281	1	$7 50
John A Zoller	60 226	6	37 50
Prosper Huerne	98, 99 100	6⅔	50 00
Jno G Klumpke	143, 145 288	62	390 00
R Bayerque	146	30	225 00
Geo H Ensign	179 344	457½	3430 00
J B Richardson	246	10	75 00
M O'Neill	296	2	15 00
J G Shepherd	354	1200	9000 00
J W Hendrie	361	547	4102 50

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the fourteenth day of April, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessments thereon, together with costs of advertising and expenses of sale.

EDWARD C. LOVELL, Secretary.

Office, 416 Montgomery street, San Francisco. mar26

Postponement.—The sale of the above stock is hereby postponed until Monday, April 25th, 1870. By order of the Board of Trustees.

ap16 EDWARD C. LOVELL, Secretary.

Office of the Placer Gold Mining and Canal Company.—Location of Works: Township No. Six (6), County of Placer, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the ninth day of April, 1870, an assessment (No. 1) of two dollars ($2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 802 Howard street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Friday, the twentieth day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the tenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. S. HALEY, Secretary.

Office of Company, 802 Howard street, San Francisco, Cal. Office hours: 6 to 8 P. M. apr16

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
L A Booth	12	40	$160 00
L A Booth	13	40	160 00
L A Booth	14	40	160 00
L A Booth	18	20	80 00
L A Booth	20	100	400 00
L A Booth	22	120	480 00
Joseph Sedgley	24	40	160 00
E B Mott, Jr.	27	40	160 00
J M Shotwell	29	40	160 00
Joseph T Sanborn	33	20	80 00
Newton Booth	35	80	320 00
John O Earl	36	120	480 00
N D Burlingham	40	100	400 00

And in accordance with law and an order of the Board of Trustees, made on the second day of March, 1870 so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of John Middleton & Son, No. 310 Montgomery street, San Francisco, on Thursday, the twenty-eighth day of April, 1870, at the hour of twelve o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. A. JENNINGS, Secretary.

Office, 419 California street, San Francisco, California.

Pacific Pneumatic Gas Co.—Notice.—

A meeting of the stockholders of the Pacific Pneumatic Gas Company will be held at the office of the Pacific Iron Works, in San Francisco, on the First day of May, 1870, at 1 o'clock P. M., to consider the proposition to reduce the capital stock of said Company to the sum of two hundred and fifty thousand dollars ($250,000).

IRA P. RANKIN,
J. J. FELT,
J. W. STOW,
A. P. BRAYTON, } Trustees.

mar26

Yosemite Silver Mining Company, Humboldt County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the seventh day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm H Hedges	49	5	$ 6 00
Wm H Hedges	60	16	15 00
N M Hedges	61	35	35 00
L F Rowell	115	14	14 00
S Rosenthal	118	10	10 00
S Rosenthal	137	10	10 00
James Manning	119	20	20 00
E H Levy	152	10	10 00

And in accordance with law and an order of the Board of Trustees, made on the seventh day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of S. L. Jones & Co., auctioneers, 207 and 209 California street, San Francisco, on the twenty-third day of April, 1870, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary pro tem,

Office, 220 Clay street, San Francisco. apr9

A gentleman who knows says emphatically that the Scientific Press will not commend any thing not known to be good; and that money will not buy its endorsement of an unworthy object. That is high praise but he did say it.—*The Pastor, Mayfield, March 15.*

New Advertisements.

MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,
Between Howard and Folsom, San Francisco.

— ALL KINDS OF —

High and Low Pressure Boilers Built.

Sheet Iron Work, Etc., Etc.

☞ Repairing promptly attended to.

17v20-6m WM. W. CANTY, Manager.

PAUL'S DRY AMALGAMATING Electric Process.

A SYSTEM FREE OF DUST, that will cheaply work Gold Ores, and gather flour gold, with the same readiness as the coarser, whether free or associated with iron, copper, lead, antimony, or zinc, or all together in one matrix, and produce bullion free of any or all of the base metals

That will work Silver Ores carrying any of the base metals to a higher percentage than any system of raw amalgamation, and produce bullion not less than .950 fine.

That where silver is associated with a large percentage of lead, copper, zinc, or antimony, a certain percentage can be extracted in fine bullion—the percentage owing to ore—say 30 to 60 per cent. The residue in base metals can be taken up for smelting or roasting by concentration, at no additional expense; the bullion and concentration equaling 95 per cent. of value of ore.

[From Superintendent of Rosecrans S. M. Co.]

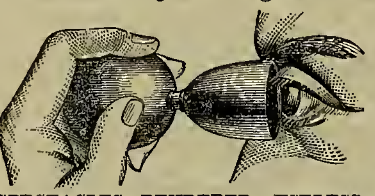
This is to certify, that I had worked at the Haskin & Grove Mill, Empire, 1,600 pounds of gold ore by Paul's Dry Amalgamating Process, as a test against my own working of same ore by the stamp mill, working wet, and that on comparing results the yield by the Paul Process exceeded the mill returns sixty-three per cent. per ton.

I am satisfied the Paul Process will gather the fine gold, and which it is not possible for a wet working mill to collect. AUG. GUIBOR.

☞ Pamphlets setting forth the practical working of the Process will be forwarded on receipt of any address. Parties interested in mining can gain further particulars by applying to

ALMARIN B. PAUL,
No. 408 California street, up stairs,
17v20 San Francisco.

Restore your Sight!



SPECTACLES RENDERED USELESS.

Failing Sight from age and other causes restored and preserved by

DR. STEVENS & CO'S EYE-SIGHT RESTORER.

This simple and wonderful mechanical invention is applied by suction directly to the eye, bringing the sight to a natural focus and restoring the Cornea to its original convexity.

References.—Mrs. Rev. James Wood, Mrs. Sutherland, T. C. Boyd, of San Francisco; Mrs. J. B. Hoyt, Suisun City.

M. A. SUYDAM, Sole Agent,

No. 20 Geary street, San Francisco, at Dr. Benton's rooms.

☞ Also Cornea Flatteners for cure of Near-Sightedness. 15v20

HAYWARD & COLEMAN

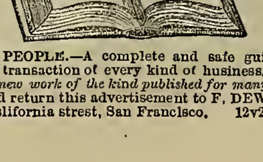
IMPORTERS AND REFINERS
—OF—
Illuminating, Lubricating,
—AND—
PAINT OILS,
CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.
—ALSO—
Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!
An elegant and complete assortment.

SOLE IMPORTERS OF
Devoe's Illuminating Oil
PATENT CANS.

5v17-tf 414 Front street, San Francisco.

Agents Wanted for



Chamberlin's New

FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

Railroads and Steamers.

SHORT ROUTE.

GOING NORTH—Daily (Sundays Excepted).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
8:00 A. M. 3:30 P. M.	12:50 P. M. 7:15 P. M.	12:15 P. M. 7:50 P. M.	2:00 P. M. 9:00 P. M.
ON SUNDAYS.			
9:00 A. M.	12:30 P. M.	1:00 P. M.	3:45 P. M.

GOING SOUTH—Daily (Sundays Excepted).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M. 1:00 P. M.	7:45 A. M. 2:00 P. M.	7:15 A. M. 2:45 P. M.	11:45 A. M. 7:00 P. M.
ON SUNDAYS.			
10:30 A. M.	1:30 P. M.	1:30 P. M.	5:15 P. M.

FREIGHT—Leaving San Francisco (by steamer VALLEJO) at 4 P. M.—is carried through greatly in advance of all other lines, at **$2.50** per Ton to Sacramento and **$4** per Ton to Marysville.

TICKETS for sale at No. 313 Montgomery street, or on board steamer New World.

D. C. HASKIN, General Manager.

R. S. MATTISON, Superintendent.

Valleje, April 1, 1870. 13v20-1y

Pacific Mail Steamship Company.—For

New York, via Panama. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

May 3......MONTANA,
Connecting with Alaska.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanillo.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

April 30—CHINA, Captain Doane.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.

13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation COMPANY,

Steamer CAPITAL	CAPT. E. A. POOLE
" CHRYSOPOLIS	CAPT. A. FOSTER.
" YOSEMITE	— —
" CORNELIA	CAPT. W. BROMLEY
" JULIA	CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

13v12 **B. M. HARTSHORNE, President**

SAN ANTONIO PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of
STONE WARE,
Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also
Chemical Ware, of Sorts Made to Order.
We manufacture to order
Terra Cotta Equal to the Best French.
Samples on hand.
FIRE BRICK.
A No. 1 article made to order, warranted superior to any imported.
Flower Pots and Ornamental Vases
Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

☞ Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.
8v20-tf

DR. F. SCHULTZ,

NO. 114 KEARNY STREET,
SAN FRANCISCO.

Office Hours—From 8 to 11 A. M. and from 2 to 6 P. M.

PARTICULAR ATTENTION GIVEN TO
SORE EYES, NEURALGIA,
RUNNING SORES and RHEUMATISM.
16v20-3m

Caution.—All persons are hereby cautioned against using, or sending to others to be used, Governors for Steam Engines operated by direct action of the springs upon their arms, as such application of the springs is my invention, secured to me by Letters Patent of the United States, issued Jan. 12th, 1869.

G. T. PRACY.

San Francisco, March 24th, 1870. 14v20-1m

ECONOMY AND CLEANLINESS

Are to be found in the use of the
PATENT SPRING BED.

They are the cheapest and best in the market. Manufactory on Twelfth street, bet. O and D, Sacramento, Caveat filed Aug. 9, 1869. [15v20] G. B. DEAN.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, April 21, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 lbs.; Bar, 1@1⅛c ℔ lb; Sheet, polished, 3c ℔ lb; common, 1⅛@1¾c ℔ lb; Plate, 1⅛c ℔ lb; Pipe, 1⅛c ℔ lb; Galvanized, 2⅛c ℔ lb.		
Scotch and Eng. Pig Iron, ℔ ton	$30 00	@$32 00
White Pig, ℔ ton	28 00	@ — —
Refined Bar, bad assortment, ℔ lb.	— 03	@ — —
Refined Bar, good assortment, ℔ lb.	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04⅜
Sheet, No. 10 to 13	— 04⅜	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05⅜
Sheet, No. 24 to 27	— 05	@ — 06⅜
Copper.—Duty: Sheathing, 3½c ℔ lb; Pig and Bar, 2½c ℔ lb.		
Sheathing, ℔ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
Tin Plates.—Duty: 25 ℔ cent, ad valorem.		
Plates, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℔ lb	— —	@ — 42
Steel.—English Cast Steel, ℔ lb	— —	@ — 15
Quicksilver.—℔ lb	— 62½	@ — —
Lead.—Pig, ℔ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℔ lb	— 10½	@ — 11
Borax	— —	@ — 45

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON
Iron and Locomotive Works.

INCORPORATED..........APRIL 30, 1868.
CAPITAL..........$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Wm. Norris,
Lloyd Tevis, Joseph Moore, John N. Risdon.
Wm. Alvord, Chas. E. McLane,

JOHN N. RISDON..........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..........Secretary.
24v17-qy

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

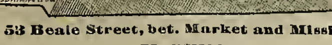
GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,
SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,
SAN FRANCISCO.

J. C. THWING & CO.,
Successors to T. G. Durning & Co.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867. 2v17

R. SAVAGE. R. E. HORAN.

SAVAGE & CO.,
Empire Iron Foundry,

No. 294 Howard Street, near Beale,

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices, 9v20-3m

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO,

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and **15** Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA TOOL WORKS,
Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,
SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

San Francisco Wire Works,

No. 665 Mission Street, near Third.
SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,

Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery.

16v16q No. 28 Fremont street, San Francisco.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL.

PARIS
Scouring and Blanket Cleaning

ESTABLISHMENT.

Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling.* Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

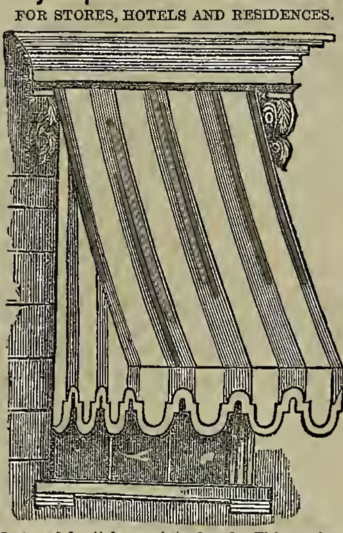
Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.

COMFORT AND ELEGANCE COMBINED.



KEEPS COOL AND SHADY

Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

STEAM
FIRE-PROOF
SAFES

SANBORN'S PATENT.

Perfectly Dry in Use.

ACTUALLY FIRE-PROOF.

GET THE BEST.

The remarkable fire-proof quality of these Safes has been fully demonstrated, having been subjected to severe practical tests with the Safes of all other prominent makers, and always with complete success, preserving its papers while the contents of its competitors were destroyed. A practical man needs but to examine them to be convinced of their superiority.

☞ Burglar-proof work, welded iron and steel, Sargent & Greenleaf's Magnetic and Automatic Locks. For sale by ROSS, DEMPSTER & CO., 105, 107 and 109 California street, San Francisco.
5v20-3m

The Equalizing Institute.

SOMETHING NEW.

THE EQUALIZER,

A GUIDE TO HEALTH.

Cures all Chronic Diseases BY VACUUM.

This treatment causes a thorough circulation of the blood throughout the system, creates new life, and reinstates perfect health. The following diseases can be cured by the above system: Paralysis, Nervous Debility, Neuralgia, Dyspepsia, Asthma, Curvature of the Spine, and other Spinal affections, Sciatica, Palsy, St. Vitus' Dance and Derangement of the Mind, and many other ailments, for particulars of which see our circular.

THE GUIDE TO HEALTH.

Testimonials.—P. Windsor, having suffered severely from four sun strokes, and in the last two years from four strokes of Paralysis and loss of speech, had recourse to the Equalizer as a treatment for same, and by means of the Equalizer was perfectly cured in the astonishing short period of four months; and as proof of the above, he can be seen at the Equalizing Institute, 650 Howard street, San Francisco.

San Francisco, April 5, 1870.

Sunday being the Sabbath Day,

THE EQUALIZER

Will be devoted to the treatment of all chronic diseases, exclusively to the poor, between the hours of nine and four o'clock, (not including paupers), free of all charges.

PROPRIETOR EQUALIZING INSTITUTE,
16v20-qy 650 Howard Street.

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

USE

DR. S. GIRARD SMITH'S

ARAMIRACULAS

— FOR —

RHEUMATISM, GOUT AND NEURALGIA

CURES GUARANTEED.

Has cured Thousands. Has never been known
One bottle will relieve you.

OFFICE, No. 621 KEARNY STREET.

Agents Wanted in every City and Town.—Terms Liberal.

Dr. S. Girard Smith, 621 *Kearny street.*—Dear Sir It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Ayer's Sarsaparilla,

FOR PURIFYING THE BLOOD.

The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this *SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears*, and other eruptions or visible forms of *Scrofulous* disease. Also in the more concealed forms, as *Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia,* and the various *Ulcerous* affections of the muscular and nervous systems.

Syphilis or *Venereal* and *Mercurial Diseases* are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. *Leucorrhœa* or *Whites, Uterine Ulcerations,* and *Female Diseases,* are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. *Rheumatism* and *Gout,* when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also *Liver Complaints, Torpidity, Congestion* or *Inflammation* of the *Liver*, and *Jaundice,* when arising, as they often do, from the rankling poisons in the blood. This *SARSAPARILLA* is a great restorer for the strength and vigor of the system. Those who are *Languid* and *Listless, Despondent, Sleepless,* and troubled with *Nervous Apprehensions* or *Fears,* or any of the affections symptomatic of *Weakness,* will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R.H. McDonald & Co., Sacramento, General Agents. 7v20eow-4m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, April 9, 1870.

IRON.

Pig, Scotch, No 1 (cash), per ton	$37 50	@	$42 00
Pig, American, No. 1 (cash)	42 00	@	— —
Pig, American, No. 2	38 00	@	39 00
Swedish, ordinary sizes	140 00	@	155 00
Common	87 50	@	92 50
Refined	95 00	@	— —
Rods	100 00	@	155 00
Horse-shoe	115 00	@	— —
Hoop	125 00	@	180 00
Scroll	110 00	@	145 00
Nail-rods, per lb	— 8¼	@	— 9¼
Spring	— 9¼	@	— —
Tire	— 9¾	@	— —

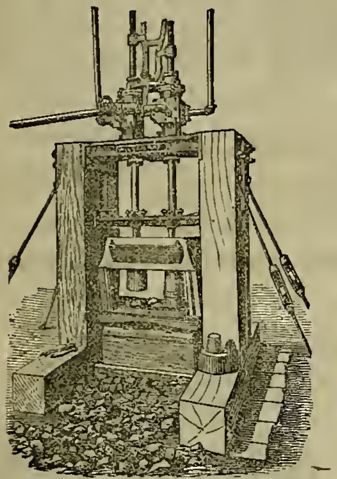
STEEL.

Bars, best cast, warranted, per lb	— 23	@	— 23½
Sheet, best cast	— 23	@	— —
Sheet, second quality	— 20	@	— —
Sheet, third quality	— 18	@	— —
Saw-plates, circular	— 27	@	— —
Double-shear, warranted	— 23	@	— —
Single-shear	— 19	@	— —
Montague & Co. (cast bars)	— 18	@	— —
Machinery, round	— 16	@	— —
German, best	— 16	@	— —
German, goat	— 13½	@	— —
German, eagle	— 12	@	— —
Blister, warranted	— 16	@	— —
Blister, common	— 15	@	— —
Jessop & Sons', common	— 17	@	— —
Double-refined	— 26½	@	— —
Stone-ax shapes	— 26½	@	— —

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

☞ The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. Tho expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,

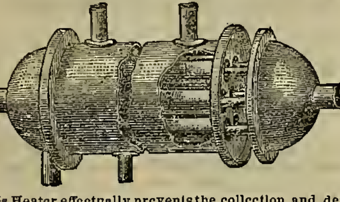
Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

CROSS' COMBINED

Heater & Sediment Collector



This Heater effectually prevents the collection and deposition of sediment in the boiler from impure water. From April 1, 1869, the Royalty on this Heater has been

REDUCED 45 PER CENT.,

Which enables the Vulcan Iron Works, McAfee, Spiers & Co., Risdon Iron Works, of San Francisco, Keep & Bargion of Stockton, and Williams & Co., of Sacramento, the parties having the right to build them, to furnish these Heaters at greatly reduced rates. Send for Circulars to

WM. B. CROSS,
16v18-3m Patentee, Sacramento, Cal

Crandall's Patent Spring Bed.

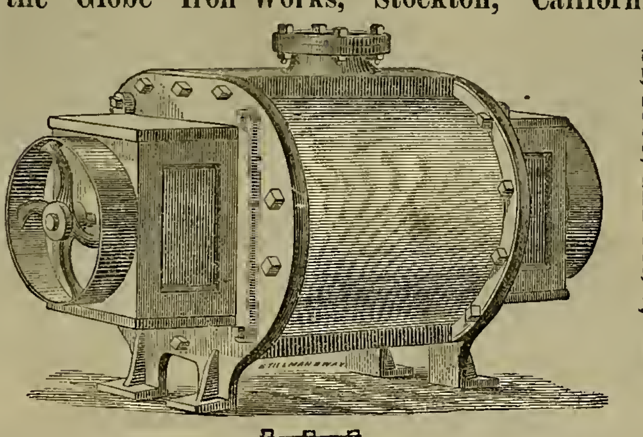
Manufactory, corner Front and M streets, Sacramento. OOOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

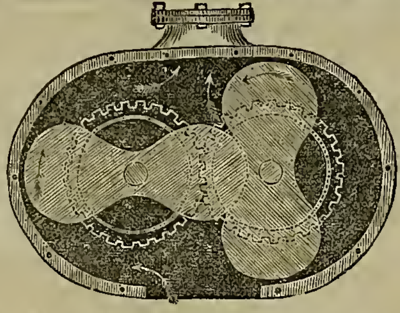
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.)



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining, and Steamships.



REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

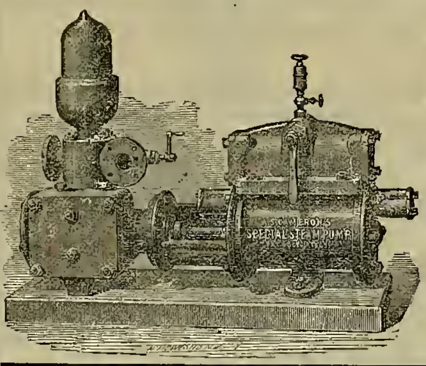
Ooe of these Blowers may be seeo on exhibition at W. T. Garratt's Brass Foondry, corner of Mission aod Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iroo Works, Sao Francisco, and maoy other places.

Caution.—Purchasers will fiod it to their advantage to apply direct to the Stockton Ageney, as certain parties, not authorized to manufacture the Blower, have put in the market machioes of ioferior construction, which do oot aoswer all the requiremeots of the geouioe article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further ioformatioo, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

MARINE

ENGINES.

SURFACE

CONDENSERS.

DAVID STODDART,

BEALE STREET.

VARNEY'S

PATENT AMALGAMATOR.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they aave no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to tho circumference as before. Thus it is constantly passing in a regular flow betwoen the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly aud completely absorbed.

Mill men are invited to examine these pans and setlers for hemselves, at the office, **229** Fremont street,
1v1 San Francisco.

MARTIN'S

Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

Our Home Physician.

AGENTS WANTED.—"OUR HOME PHYSICIAN."—New, complete, simple, reliable. The Pacific Medical and Surgical Journal says: "It is the best book on 'Popular Medicine' we know of." The Overland Monthly says: "The more generally this volume is introduced into families, the better it will be for them and the worse for quacks." Apply for circular fairly representing its character, at WESTERN PUBLISHING AGENCY, 411 Kearny street San Francisco. 6v20-3m

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

TO MILLMEN.

FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30 inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W. NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

HIBBERD, SANBORN & CO.,

STAIR

BUILDERS.

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from he country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

R. H. McDONALD & Co.
DRUGGISTS
SAN FRANCISCO, CAL.
ESTABLISHED 1849

WHOLESALE DEALERS IN

DRUGS, CHEMICALS,

Patent Medicines,

DRUGGISTS' SUNDRIES,

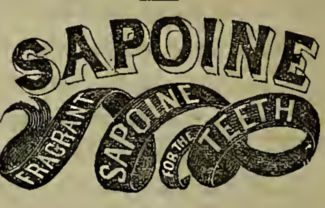
TILDEN & CO'S

SOLID AND FLUID EXTRACTS,

Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.



THE GREAT MEDICAL DISCOVERY!

Dr. J. Walker's California

VINEGAR BITTERS.

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is

More than 500,000 Persons

Bear testimony to their wonderful Curative Effects.

WHAT ARE THEY!

soon perceptible in the health of the patient. PIN TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ Send for a Circular. ☜

They are not a vile

FANCY DRINK,

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please tho taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, free from all alcoholic stimulants. They are the GREAT BLOOD-PURIFIER and LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition. No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

R. H. McDONALD & CO.,

Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞ SOLD BY ALL DRUGGISTS AND DEALERS.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.
Thomas Poyzer—California.
Philo B. Fox—Napa, Sonoma and Mendocino.
F. B. Alderson—California.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates,
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, O. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, O. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hudson & Menet, 41 Park Row, New York.
A. O. Knox, City Soliciting and Collecting Agent.

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

MAGAZINES.	P.An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number.

BARTON & RUTTER,

Importers and Dealers in

Guns, Pistols, Fishing Tackle

Pocket Cutlery, Etc.

SPORTING APPARATUS OF EVERY DESCRIPTION.

609 Clay Street, near Montgomery.

— SOLE AGENTS FOR —

Alexander's Celebrated Pocket Cutlery

For the State of California.

JNO. C. BARTON. B. A. RUTTER.
16v20-3m16p

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $6. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes.
H. M. RAYNOR,
67 Bond street, New York.
Platinum Scrap and Ore purchased. 15v20-1y16p

L O S T.

Between Market street and the corner of Clay and Montgomery streets, a linen tracing of mechanical drawings representing an amalgamating pan. The finder will be rewarded with one year's subscription to the SCIENTIFIC PRESS—the most valuable illustrated weekly on the Pacific coast—by leaving the drawings at 414 Clay street,
DEWEY & CO.,
U. S. & Foreign Patent Agents.

WIESTER & CO.,

PATENT BROKERS,

No. 314 Bush Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

Odermatt & Ettlin's Fountain Pen.

PAT'D. AP. 6. 1869.

We call the attention of manufacturers to this new invention for supplying writing and drawing pens with a constant flow of ink. The pen-stalk contains sufficient ink to last for two or three days' constant use, and is provided with stop-cocks, which make it perfectly safe for carrying in the pocket. The flow of ink is under perfect control of the operator. A slight pressure on the thumb and fore-finger on the elastic sides of the holder is all that is required to regulate the flow of ink to suit the writer. It never blots unless forced to do so. The cost to manufacture is small, and the demand for a good Fountain Pen is very extensive among all classes of literary and business men. A sample of this invention can be seen and tried at our office, 314 Bush street, San Francisco. The entire Patent, or the Right for any State, can be bought on reasonable terms. Full particulars furnished on application.

NEW LIGHT ON A NEW PRINCIPLE.

Gas for everybody in the city and in the country. Equal to coal gas at one-half the cost. The gas is generated and burned in a new style Vapor Lamp. No wick, no chimney, no explosion; and no man who is out of business and has a few dollars should fail to purchase a County or State Right and commence making money. Parties owning territory get the Lamps at Manufacturers' prices. Call and examine the light, or write for particulars.

A NEW PAPER FILE AND MUSIC FOLIO.

Two excellent inventions included in one patent. Either can be manufactured at a small cost, and neither has an equal in its line. No more expense for binding music. Each sheet has a complete and durable binding as soon as it is placed in the folio. The California Legislature has endorsed the Paper File by purchasing three hundred and fifty, to take the place of the old style binders. It certainly is the most complete article of the kind ever invented. Whoever buys the right to manufacture and sell this invention will secure a good basis for a profitable business. Only the Territory west of the Rocky Mountains for sale. Parties in the city should call and examine the article. Full particulars furnished on application.

WIESTER & CO.,
314 Bush Street, San Francisco.

LOCAL AGENTS WANTED.

One reliable business man wanted in each and every town on the Pacific Coast to sell Patent Articles. We deal in none but first-class Patents, and each agent receives the exclusive right to sell in his town. Address
WIESTER & CO.,
314 Bush street, San Francisco.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.
THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.
9v20-qy16p

Carmen Island Salt Works

MANUFACTURE AND OFFER FOR SALE

TABLE, DAIRY, COARSE-FINE,
CARMEN ISLAND ROCK,
AND LIVERPOOL COARSE AND FINE
SALT.

Dealers and Packers supplied in quantities to suit, at the lowest market prices.

MILL, 249 STEWART STREET.
HOLLADAY & BRENHAM, Agents,
11v20-3m 325 Front Street, San Francisco.

MANUFACTURING

Room to Let.

We have a large room, about 13 by 36 feet, in second story, at 414 Clay street, near Sansome, which we will rent low. Suitable for printing or manufacturing purposes.
DEWEY & CO.,
Publishers Scientific Press, 414 Clay st.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in different specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology. and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. v16-1y16p

---

W. T. GARRATT & CO.

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —
HARDWARE.
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.

— ALSO AGENTS FOR —
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY

54 K Street, Sacramento.
7v20-ng

WILCOX'S

PATENT STEAM

WATER LIFTER.

Requiring no Engine.

Send for circular containing full explanations, price list, testimonials and references.
M. & A. WILCOX,
15v20-3m-nhxh 74 K street, Sacramento.

N W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect.

Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, Made of Fulled Rawhide, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ **Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** 1ns

---

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
— AND —
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
— ALSO —
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

THE CALIFORNIA

Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:

JAMES T. DEAN	President
JAMES MILBURN	Secretary.
RODGERS, MEYER & CO	Treasurers.

Company's office, 121 Post Street, San Francisco.
12v20-3m

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, April 30, 1870.

VOLUME XX.
Number 18.

Swamp Lands near San Francisco.

E. L. Beard, Esq., is engaged in a very extensive reclamation of the salt marshes on the eastern shore of the bay of San Francisco, beginning at Alviso, the head of the bay, and extending beyond the Mission of San José. The area comprises 21,000 acres, which Mr. Beard has bought from the State. In its present state, the land has no value, being overflowed at high tide with salt water. But when the salt water is shut out by embankment, the soil has no superior. Besides the overflow from the bay, these marshes have winter overflow from the Alameda and other fresh water streams, which spread their floods over all the land. This makes it necessary to cut channels of sufficient capacity to confine the streams to fixed boundaries.

To protect against salt water, embankments are being made by Chinese labor, by which this kind of work is admirably executed. There being very little pressure from the bay waters, a very slight dyke is required compared with Sherman Island; but the proprietor gives his embankments much broader bases than the island reclaimery. The bay walls are mostly twelve feet base, two and a half feet high, and eight feet top level. Here and there they are sixteen and eighteen feet base, and four to five feet high. They cost from ninety cents to two dollars a rod. The sloughs are extra work of greater cost. The sod is not turfy. It cuts like a bank of wet clay; and the square clods are built up into the embankments after the fashion of solid masonry. Sufficient of this marsh land has been reclaimed, from time to time, to prove that the salt soon works out and all crops grow well on it.

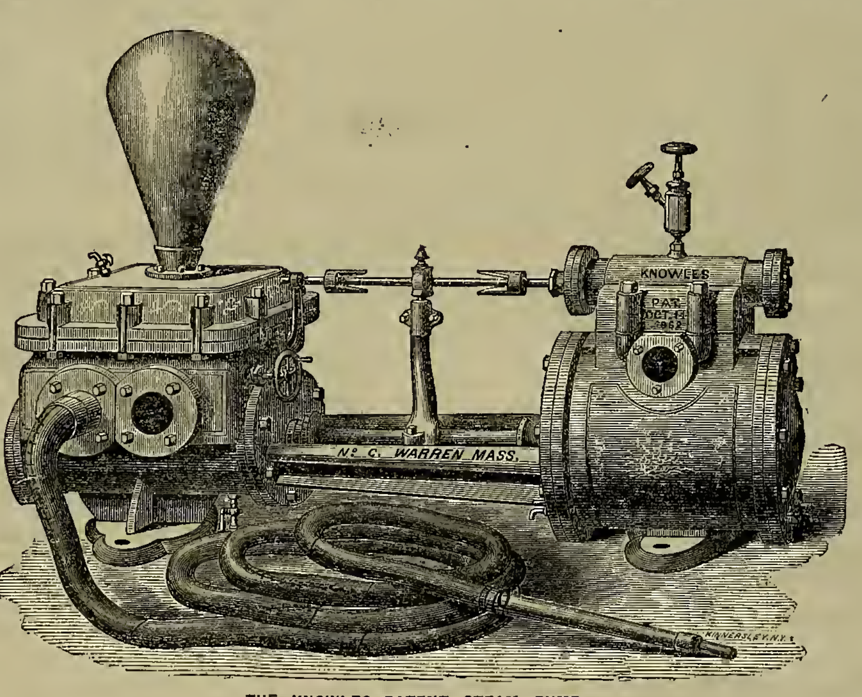
But it has peculiar advantages that fit it for rice culture. It has complete command of fresh water, and can be overflowed at pleasure. For wheat, we do not want accession of land under present prospects; but we do want rice land; and we trust that this large area will be appropriated to its cultivation. In a very short time we can be independent of imports, and we can find outside markets for rice in favorable competition with Asiatic countries. Let no one doubt the adaptation of our climate to this useful grain. Rice men from China and Japan have pronounced it fully equal to their own; and they say that rice never fails of a crop on lands of such moist subsoil, when irrigation is also at command.

◆

Blossom Rock.—The explosion last week was a perfect success. The central column of water was thrown up to a height of 225 feet, and the rest followed in a huge mass to a height of 80 feet. Surveys since made demonstrate that the rock was demolished so that at low tide there are now 38 feet of water over it. The thanks of the community are due to Col. Von Schmidt, as well as to his brother, who has had the actual operations in charge, and who deserves prominent mention in this connection; and all will agree that the price of the contract has been deservedly won.

The Knowles Patent Steam Pump.

The annexed cut represents the Knowles Direct Acting Steam Pump, which was patented by Mr. L. J. Knowles in 1859, and which has since met with a most favorable reception by engineers and mechanics, a guarantee that the high claims made by its manufacturers have a good strong foundation. Among the advantages thus claimed for this pump we may mention several for the benefit of that class of our readers who are interested in this subject, and who desire to know the principal points of the many steam pumps offered to the public.



THE KNOWLES PATENT STEAM PUMP.

It has no cranks or fly-wheels, no dead points (it is asserted), and is always ready to start when steam is admitted, without the need of lever or starting-bar to start it, or handiwork to get it past the centers. It will work its steam valve with water, and consequently is in condition to start up although the cylinder and steam chest are filled with the water of condensation. The arrangement of the steam valve with the ports is such that whenever the throttle-valve is opened the steam has a free passage into the cylinder, or should the valve (an ordinary D or slide-valve) be in position to cover the ports, the piston valve takes steam and carries the slide valve past these, therefore allowing the great desideratum of a minimum speed. This pump controls its valve by steam when working very slowly or at a moderate speed, but when working at its greatest capacity the tappet connection to the piston rod drives the valve before the steam in the chest has time to throw it, showing that the momentum of the piston carries the valve reversing the stroke more quickly than can be done in a pump depending on steam alone to work its main valve. Here is the advantage claimed over all other pumps:—Having two connections with the main valve (by steam and tappet arm), thus making it impossible for the piston to strike the heads, for the valve being driven ahead of the piston, the steam must necessarily stop and immediately reverse it. The parts, which are comparatively few in number, are made so that any one can be replaced, if broken, by the extra piece which is always to be obtained from the agents. There is no gum packing, the joints being all ground, and the whole is built exceedingly strong and durable.

So much for the advantages claimed. With regard to the opinion of engineers and others, we find that this pump has received the highest premiums in Boston, New York (1863), Baltimore. Cincinnati, Buffalo, Syracuse, Springfield and Worcester, and the first medal and diploma over all competitors at the Fair of the American Institute held in New York in October, 1869.

The largest of the kind ever built are used at the Fairmount Water Works, supplying the city of Philadelphia. At the Hoosac Tunnel are several of the same build, one weighing 217 pounds over 10 tons. They are to be found in the coal and iron mines in Pennsylvania, the silver mines of Mexico, the copper and silver mines of South America, and are patronized by the Novelty, Delameter and other large works in New York and elsewhere. The N. Y. Central, and the Erie, Harlem, N. J. Central, Union and Central Pacific and other railroads have them, and they have the recommendation of the Chief Engineer of the Navy for use in the navy yard and government steamer, of the New York and Boston Board of Fire Insurance Companies and of many others.

This device is adapted for any purpose when pumping is required, and may be obtained of Messrs. Steen & Cushing, general agents for the Pacific coast, No. 9 First street, San Francisco.

◆

Ready-made Houses.

The *Manufacturer and Builder* tells us that houses are kept on hand in Chicago for sale. The parts of the house can be packed in a small space, as furniture is now packed in pieces, ready to be put together at the place desired. As an instance, it says that a house was ordered in the evening to be erected next day twelve miles off. In twelve working hours the house was ready for occupancy. Houses ordered for the sea-side in Connecticut have been sent there and occupied in ten days from the date of the receipt of the order in Chicago.

Just now the manufacturer is sending to new towns on the Pacific Railroad seven ready-made churches for the Presbyterians, intended for immediate occupation.

All that the journal seems to know about the method of construction is, that all the parts are packed in dozens—viz: twelve sashes, twelve doors, twelve frames, etc. Large orders are being supplied by railway to places west of Omaha. We find no mention of the cost, but we infer that it is low.

Would it not be well for some of our San Francisco mechanics to get up houses on this plan for transportation to such interior localities as have to draw their lumber supplies from this city? It will cost no more to deliver houses so made up than the lumber in the rough for their construction, at the point desired. Moreover, the facilities for the use of machinery in San Francisco gives great advantage in getting out many of the parts which must be prepared by hand labor in the country. Our climate is well adapted to light structures; and if Chicago can send them to the Atlantic shores, surely our mechanics ought to be able to send them over the shorter distances required on this coast.

◆

The San Francisco Microscopical Society, lately organized under favorable auspices, held its regular meeting Monday evening. A congratulatory letter was read from the American Microscopical Society of New York, which society sent, with the letter, some very interesting specimens of diatoms. A number of persons were elected resident and corresponding members, and the Corresponding Secretary was instructed to open a correspondence with the various microscopical societies of the world. We wish the Society all success, which, from a personal acquaintance with some of its members, we doubt not it will obtain.

Ore Deposits.

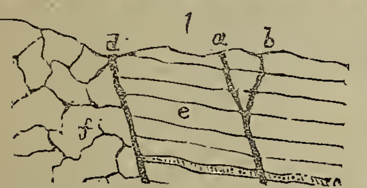
[Prepared from various German works for the Scientific Press, by Guido Küstel.]

In what Condition the Metals are found in Nature.

The metals occur either in metallic condition, as gold, silver, platinum, lead, copper, mercury, bismuth; or they appear as alloys; for instance, silver amalgam, platiniridium; or, most frequently, in an orey state, or mineralized—that is, chemically combined with other substances—whereby the appearance of the metal and its nature are entirely changed; thus we find silver, copper or lead combined with sulphur, as silver or copper glance and galena. The substances with which the metals are found in combination are principally: sulphur, arsenic, chlorine, carbonic acid, oxygen, and some less frequent bodies, as selenium, tellurium, etc.

How the Ore is Deposited in the Earth.

The ore is found in *fissure-veins, layers, stockwerks and impregnations.* Veins are often filled with minerals differing from those constituting the surrounding country rock in which they are imbedded. The rock overlaying a vein is the top or hanging wall, in opposition to the foot-wall or underlayer on which the vein lies. Noting the course or direction and the dip or inclination of a vein by means of compass and level, its situation can be described minutely. The width of a vein is measured by the rectangular distance from the hanging to the foot-wall.



What a Fissure-Vein Is.

A fissure-vein may be designated as a fissure, resulting from plutonic or volcanic actions, or shrinkages of the earth's crust, extending to an immense depth, wherefrom the vein matter originates. The most of the ledges having a considerable width and depth are fissure-veins, but also smaller ones belong to the same class.

Fissure-veins do not run parallel with the stratification of the country rock. They are always younger than the country rock in which they are imbedded. In Fig. 1, *a* represents a fissure-vein in gneiss, with a spur-vein, *b*.

The term "true fissure-vein" seems to be used for a fissure-vein of an endless depth. This term is not very proper, since all fissure-veins are "true." If it is no true fissure-vein, it is no fissure-vein at all.

Mother-Veins.

The term mother-vein is applied generally to a vein of the largest dimensions, in course and width, amongst other smaller veins in its proximity, but it is wrong to combine therewith the idea of the mother-vein being the oldest, and hence the source of the smaller ones. The largest veins amongst others of different age is sometimes the youngest one.

How Wide the Fissure-Veins Are.

The width of different mineral veins varies to a great extent, from less than one-half an inch to several hundred feet, but the majority of veins will be found from one to four feet wide. The width is not permanent, but changes often; it has been observed, however, that the wider a vein is the more regular it runs. It may be mentioned here, that there are veins entirely bare of metals, consisting of granite, basalt, greenstone, etc.

To what Depth the Fissure-Veins Continue.

The depth of wide fissure-veins is unknown as yet; almost all of them continue towards the internal hot region, whereto they never can be followed. But although untraceable, it is not said that a fissure-vein continues as far as the fluid masses beneath the earth's crust. Smaller fissure-veins discontinue sometimes at different depths. These veins were filled from above by infiltration.

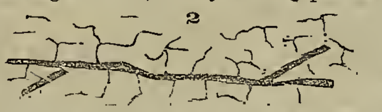
Only few mines are opened beyond a perpendicular depth of 2,000 feet. In regard to the ore, although many veins appear to be richer on the top, it is by no means a consequence that all veins are getting poorer by increasing depth, or that metals cease at a certain depth. They are often found to appear in strata alternating with dead masses, the latter filling up the veins sometimes to a considerable depth. It is on account of these barren masses in deeper regions that mines are often abandoned.

What a Contact-Vein Is.

A contact-vein is imbedded between two different kinds of rock. For instance, if one wall is granite, the other limestone, the vein between is a contact-vein, forming the boundary between those two rocks. Between the granite, *f*, of Fig. 1, and the gneiss, *e*, is the contact-vein, *d; c* shows a layer-vein.

How the Fissure-Veins Generally Appear.

Generally, fissure-veins are found socially. When one vein is discovered, it is very probable that more may be found in the neighborhood, mostly running parallel and generally of the same character. Parallel veins appear often in groups. Frequently they are found in confusion running in every direction, often crossing each other several times and forming a sort of network.



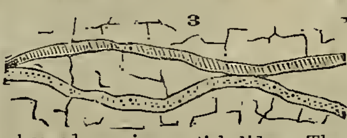
If two veins cross each other, the younger passes through the older, as, for instance, the vein, *a*, in Fig. 1, cutting the older vein, *c;* but there are also cross-veins which were filled at the same time, consequently no real crossing of the vein matter can be discovered. Some veins join each other at a certain point, but instead of crossing run, running together, the older keeping its course. Sometimes they part again or cross each other, as shown in Fig. 2. It occurs also that two veins will meet under a sharp angle, part again, or remain together for a short distance, as seen in Fig. 3, or in Fig. 4, where the vein, *a*, crosses *b*, sometimes repeatedly, and is found alternatively on the hanging and on the foot-wall of *b*.

Are Veins Found to be Cut Off?

Veins appear sometimes suddenly to give out. It is, however, mostly the case, that, being traversed by another vein or fissure, it is dislocated, not continuing, therefore, in its original course on the other side of the crossing, but found at a certain distance in some direction, depending on the slide which took place horizontally, vertically, or between both of them. The fault occurs either through the motion of the hanging or of the foot-wall, or sometimes through the motion of both in different directions.

The Cause of Dislocations.

The faults and dislocations of veins are due to some mechanical subterranean force of volcanic nature, whereby the rocks are upheaved, causing partial slides. The displacement of a vein depends on the extent of the slit and on the angle caused by the direction of the shift with the cross line of both veins; but it is very difficult for the miner to make any reliable suggestion as to the point where the displaced vein may be found, unless guided by experience in the same vein. For instance, a vein is displaced by a younger fissure, and the distance and direction of the displaced vein found; it is then easily calculated where the exact place of a second vein is to be found, if displaced by the same first younger fissure. The faults are often exceedingly complicated if several veins are dislodged by successive younger ones. By the powerful friction of sliding veins, often beautifully polished surfaces are produced as if glazed, sometimes scored with parallel furrows and ridges, by which the direction of the slip is indicated. The hanging-wall is generally the sliding part. A complicated disturbance by faults can be seen in Fig. 5, representing a mine in Cornwall. Here, *a* is the oldest vein, carrying tin ores, and is dislodged by the two copper veins, *b* and *d; e* is the youngest vein, filled with clay, disturbing the copper vein, *b*, and also the tin vein, *a*.



Distribution of Ores in Fissure-Veins.

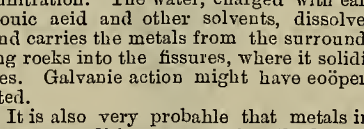
In most of the fissure-veins there is no regularity. Nearly all show richer and poorer regions, local deposits or bonanzas, nests and pockets of ore. Sometimes the ore accumulation sets down in a certain direction called a chimney. The causes of the unequal distribution of ores is not known as yet. It is often observed, that gold especially is found richly impregnated in the quartz of outcrops or near it, but poor when followed downwards. High elevated veins are generally richer than those found in valleys or flat lands. The width of a vein seems to have an influence on the distribution of ore, as it is no rare occurrence that veins become richer when narrower; but this is not always the case. A vein appears richer if joined by one or two others, or if crossed.

Influence of the Country-Rock on the Character of the Ore.

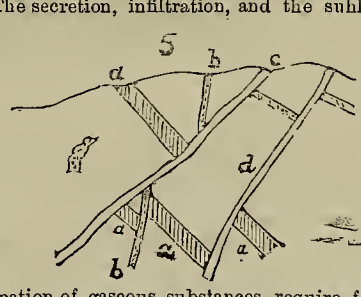
The observation has been made frequently that fissure-veins passing from one formation into another, change in richness. There are veins which, entering another rock strata, loose the ore entirely, but gain it again in crossing rock of the first character. At Kongsberg, Norway, the veins are richer in gold when passing through mica slate and gneiss. The tin veins at Altenberg, Saxony, are rich when in porphyry, but poor in granite and syenite; as soon, however, as they enter porphyry again, they become rich as before. These are local occurrences. A country-rock favorable for the ore in one locality, may prove the reverse in another region. The gold and copper veins in Carolina become locally richer whenever they meet or cross another sort of rock. Similar circumstances are very numerous.

How the Fisseres were Filled with Ore.

The theory of fiery liquid masses, which were supposed to have entered the fissures upwards from the interior of the earth, has not many advocates now. It can not explain how the silicate of iron of a molten mass containing other metal oxides besides, could be disengaged and transformed into pure white quartz, impregnated or in company with different crystallized sulphurets, native metals, etc. Also, the texture in many veins of a symmetrically stratified condition, speaks against the above hypothesis. Besides, it hardly could be supposed that a fissure could reach the very fluid mass of the earth's interior. More in accordance with the observations, is the theory that veins were filled with ore by infiltration. The water, charged with carbonic acid and other solvents, dissolves and carries the metals from the surrounding rocks into the fissures, where it solidifies. Galvanic action might have coöperated.

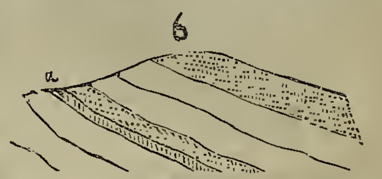


It is also very probable that metals in gaseous condition penetrate into the fissures repeatedly, at different times, and being condensed or precipitated, fill, by degrees, the space. This process, under certain circumstances, might be interrupted and finished by infiltration. According to Prof. Cotta's opinion, it is impossible to establish a theory explaining the filling of veins generally, but different veins, having been formed in various ways, must also be explained accordingly. Many metalliferous veins, especially such as expose symmetrical layers containing quartz, carbonates of lime and magnesia, fluorspar, heavy spar and sulphurets, were undoubtedly formed by precipitation of liquid solutions. The texture and nature of the composing minerals show this distinctly. The solution may originate from an immense depth. The secretion, infiltration, and the sublimation of gaseous substances, require, for completion, an incalculably long period, in which the different minerals are formed in succession, and this explains the corresponding stratas of different minerals in a vein which never could be considered as the result of an injection of a hot fluid mass, which would fill up the fissure in a short time with a uniform compound; but it is not absolutely impossible that a certain class of ores in a hot liquid condition, produced by the melting of already existing deposits, may fill up veins and refrigerate therein.



Did the Ore Remain Unaltered from the Beginning?

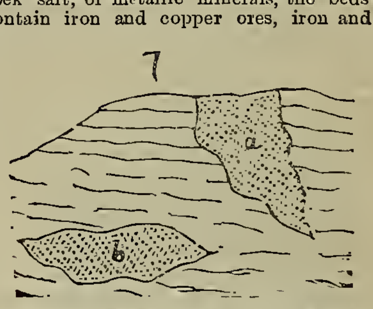
In very many veins the ore was exposed to numerous changes after the first formation, partly by changing their elements and partly by intrusion of substances from above; as water, oxygen, phosphorus, carbonic acid, etc. For this reason, in lead veins we find carbonate, sulphate, phosphate and arsenate of lead; in copper veins, malachite and lazurite, phosphate of copper, etc. Where volcanic rock abounds, as in Arizona, Nevada, etc., the ore often appears metamorphosed. On and near the outcrops, where the ore is in contact with air and moisture, carbonates are predominant; deeper down they appear as oxides, with a trace of sulphur or without, showing a horny appearance as if acted upon by heat. A very frequent ore of this kind is the Stetefeldite (in Nevada and Arizona). Copper oxide, lead oxide, a mineral of light and dark color, antimony oxide of a light yellow color. The last three minerals, are found in Arizona, and show a similar horny appearance as the Stefeldite.



A Layer or Bed.

Beds or layers differ from fissure-veins principally by being deposited between stratified rocks, lying parallel with the strata of the rock. Contact-layers are imbedded between two different kinds of stratified rocks. The origin of beds appears identical with that of the surrounding rocks. A symmetrical stratification of different minerals, such as is sometimes found in fissure-veins, is never found in beds. Their original position is generally but little inclined, but they occur also steep. Compared with fissure-veins, the layers are often found wider, but less extensive in length and depth. They are exposed to faults and dislocations like fissure-veins, although less frequently.

Some minerals found in beds never occur in fissure-veins, as coal, lignite and rock salt; of metallic minerals, the beds contain iron and copper ores, iron and copper pyrites, lead ores, blende, galmei, etc. Fig. 6 shows a nearly horizontal layer-vein.



Stockwerks.

Spheroidic, elliptic or otherwise irregular accumulated masses of ore, distinctly separated from inclosing rocks, are called a "stock" or stockwerk, the latter applicable where a system of such deposits is found. A stock differs from a bed or layer by its very irregular shape, showing generally a great width, extending horizontally or vertically, and occurs generally on the border of different rocks or near to it, especially in crystalline slate-formation with limestone, or with crossing eruptive rocks, in limestone or dolomite. A stock ends very often in the shape of a wedge each way.

Iron ore mostly is found in stocks, but also lead, copper, silver and gold ores. In Fig. 7 a vertical stock is represented by *a*, and a horizontal one by *b*.

Impregnations.

The ore appears sometimes in such a singular condition that its classification amongst veins, beds or stocks, as it was done heretofore, seems to be quite improper. Professor Cotta proposed to adapt the term "impregnation" for ore-bearing rocks having an uncertain external boundary. The rock appears spotted or impregnated with particles of ores, extending in different directions without showing a distinct line of its ending. It is very probable that the ore penetrated certain regions of a rock subsequently, but there might be found also similar beds in which the ore was distributed originally in that way. The impregnations occur independent for themselves, but often also combined with other lodes in the hanging and foot-wall.

The independent impregnations form extensive bed-like regions in country rock. They are sometimes so minute as to be invisible to the naked eye, but in other cases again they appear in small crystals or grains, equally distributed or partially concentrated. Tin and quicksilver are often found as impregnations, but also gold, silver, copper, lead, zinc, cobalt, nickel, bismuth, arsenic, iron and manganese-ore.

Mechanical Progress.

Variable Expansion Gear for Winding Engines.

M. Audemar, engineer of the mines at Blanzy, France, is the inventor of a new apparatus of this kind, which is said to secure a very important saving in boiler space and in fuel. *La Houille* thus describes it: "The apparatus consists of a double cam, one-half of which serves for the forward stroke, and the other half for the back stroke. Each portion of this cam has varied profiles, so as to give the various degrees of expansion, from the smallest to the greatest; and it is so disposed that the middle becomes the neutral point, like that of the Stephenson slide, and corresponds, like it, to no admission, whilst the two extreme points give full open. A valve on the Cornish system, placed before the ordinary distribution of the machine is used to produce the expansion of the steam. This valve is put in motion by the cam, the rotation of which is caused by the gearing on the shaft of the engine, and it opens and closes according as one or other part of the cam is for the time being in operation. If the Stephenson slide be at its neutral point, the cam would be in a similar position, and the two being set in motion by the same lever, will at the same time occupy the extremes of their course. If, then, the engineer inclines his reversing lever, the several profiles of the cam being presented to the valve, produce a corresponding cut-off, which will become absolutely none if the lever be pushed full home. Thus, the mere inclination of the lever which the engineer already uses, suffices to produce the desired effect both for the forward and backward movement."

A Novelty in Steam Engines.—An engine has recently been patented which has two cylinders;—one, the primary cylinder, which is within the boiler, and the other, the atmospheric cylinder, which is exterior to it. The two pistons are upon opposite ends of the same rod. The pressure of the steam upon the water in the boiler forces it into the open end of the inner cylinder, driving its piston outwards. The steam above this piston exhausts into the outer cylinder, and, by expansion, counterbalances the pressure of the external atmosphere against its piston, its outer end being open; the stroke in this direction being completed, the valve cuts off the exhaust, and admits the steam again into the inner cylinder above the piston, which in its turn counterbalances the pressure of the water against the opposite side of its piston,—the outer cylinder at the same time exhausting into the outer air.

Steel-making in Pennsylvania.—A number of gentlemen in Allentown, Pa., have formed an association for the manufacture of steel and iron by the "Excelsior Process," and have already commenced operations. The *Daily News*, published at that place, says that a large number of chisels and other tools have been made, in which any desired temper can be secured; and some of the most experienced mechanics have used and worked this steel, and declare it to be equal to the best cast steel for strength and retension of fine sharp edge under hard use. At the Rolling Mill they rolled several steel top rails with such perfect success that when the first rail was run out the puddlers and rollers cheered. The lower part of the rail was made of wrought iron and welded so perfectly that by placing a short piece of the rail under the powerful crusher at the mill it broke lengthwise in the iron below the weld. The manufacture of steel under this process, it is claimed, costs but a trifle more than wrought iron.

Large Photographic Lens.—The largest portrait lens ever made in England was recently completed. It is 10½ inches in diameter. It admits so large a volume of light that photographs covering a space of 10 by 12 inches may be done in eight seconds. In the open air, groups of 15 to 20 persons (each face about the size of a sovereign, and the whole picture 24 inches by 24 inches) can be taken with an exposure of 10 seconds. The cost was upwards of £200.

Toning of Photographs.

The following is an extract from an article on "Practical Photography" in *The Engineer:* A good standard toning bath may be made of chloride of gold one grain, pure acetate of soda thirty grains, water eight fluid ounces; it should be mixed a day or two before required, and may be used over and over again for some time, a little fresh chloride of gold being added now and then as the solution weakens. Another very good toning solution may be made by shaking up some solution of chloride of gold, strength one grain to the ounce of water, with a few grains of chalk to remove the free acid. Then take of this solution ten drachms, acetate of lime twenty grains, chloride of lime one grain, hot distilled or rain water twenty ounces. This mixture improves by keeping, and to use it add two ounces of it to eight ounces of tepid water, and use the liquid thus produced to tone the pictures. This toning solution tends to give good black tones, and the first one here given produces rich violet tones. Another toning solution may be mixed thus:—Solution of bicarbonate of soda (strength, eight grains to the ounce of distilled water) forty minims; solution of chloride of gold (strength, fifteen grains to five drachms of distilled water) twenty minims; distilled water four ounces; mix these an hour before use.

A Valuable Iron Bed.—A large deposit of iron ore has been recently opened up in York county, Pa., which is said to have the remarkable quality of turning pig iron into good merchantable steel, by simple mixture and manipulation with the pig iron in a puddling furnace of the ordinary construction. It has been tested by several experienced iron makers, and the facts vouched for. The Philadelphia *Ledger* says: "The chemical analysis of the ore shows the presence of considerable quantities of manganese, silicon, and aluminum with the iron. The ore is soft and friable in the bed, so much so that it can be mined with the spade, but upon exposure to the atmosphere it soon hardens. Professor Lesley, who has examined the ore bed, estimates the contents at 17,000,000 tons. For a few months past the discovery has made quite a stir among the iron furnaces and rolling mills of our State and Maryland, and there is a strong desire to know more of a matter that seems to promise such important results."

De-railment of Trains.—A correspondent of *Engineering* says that the chief cause of the violent oscillation of a train which so greatly increases the danger of being thrown from the track when at great speed, is the side throw of the engine from left to right and *vice versa*. He says: "The cause of such oscillation is that all engines have right and left-hand cylinders; thus assuming that the steam is admitted at the back or plain side of the right-hand piston, and, at the same time, at the front or rod side of the left-hand piston, it is very evident that the front end of the engine will be thrown violently against the right-hand rail; and, although the weight of the engine and cone of the wheel may, in some measure, counteract this indirect thrust, still it cannot altogether obviate this strong blow against the flange of the wheel; and, as this is in full operation during the full journey of the engine, the wear and tear of the stock and roads are necessarily very great, as well as the great risk of 'de-railment.'"

The New Engine at Brooklyn.—The splendid engine recently completed for the Brooklyn Water Works has a steam cylinder 85 inches in diameter with 10 feet stroke, and delivers through a 36-inch force-tube a constant stream of water into the reservoir, a distance of 3,450 feet and a height of 166 feet. The flow of water into the reservoir is perfectly even. The actual work accomplished, as appears by the reported experiments, is as follows: For every hundred pounds of coal used, 72,000,000 foot pounds have been produced; that is, 72,000,000 pounds of water were raised one foot high, which is equal to 426,000 pounds, or about 50,000 gallons, raised 170 feet into the reservoir; so that for every pound of coal consumed under the boilers, the engine throws 500 gallons of water into the reservoir.

Scientific Progress.

Muscular Oxidation Independent of Organization.

Becquerel looks upon the organism as a mechanism, and upon muscular respiration and nutrition as accompanied by *electro-capillary* currents, the intensity of which is proportioned to the energy of the chemical action which is going on. He details before the French Academy some experiments to determine whether the oxidation which occurs in muscle after death is similar to that which goes on in living bodies by means of arterial blood. He placed a bit of muscle from a recently killed ox in a glass filled with oxygen. In another glass, similarly filled, he placed a piece of the same muscle reduced to pulp. Two similar preparations were made and placed in hydrogen gas. In the oxygen, with the muscle intact, the effect was the same as in the presence of arterial blood; there occurred a consumption of oxygen and a formation of an equal quantity of carbon—i. e.. dioxide; in the muscle reduced to pulp, it was the same, only the transformation was more rapid. In the hydrogen there occurred also respiration and formation of carbonic dioxide, which was six times less than in the oxygen. The result in nitrogen was essentially the same. He says, therefore: "One is forced to believe from this, that when arterial blood does not furnish enough oxygen to the muscles to effect respiration normally, the muscles procure it by consuming themselves."

Effect of Temperature on Coal Gas. Experiments were recently made upon this point in the laboratory at the University of Munich. Of these experiments, *Engineering* says: "The illuminating power of the gas at the normal temperature of 64½° Fah. was taken as the standard, and the object was to compare, by means of a Bunsen's photometer, this power with that obtainable when the gas was burnt in the same burner at a higher or lower temperature. The burner was attached to a U-tube. The illuminating power at the normal temperature being represented by 100, it was found that when the U-tube was immersed in snow, so as to bring the temperature of the gas down to 32°, the power was reduced to from 76 to 85; while when a mixture of salt and snow was used to give a temperature of—4°, the power was reduced to from 33 to 40. Heating the gas above its normal temperature was found to have less influence upon its illuminating power than cooling it below that temperature. By immersing the U-tube in boiling water, and thus raising the temperature to 212°, it was found that the power was increased to 104; while when melted paraffine was substituted for the water, and the temperature thus increased to 288°, the power became 118. Thus while a reduction of temperature of about 32° lessened the power by about 20 per cent.; an increase of temperature of 224° raised that power by about 18 per cent. only."

Dr. Livingstone.—The Bombay *Gazette* says the latest date from Dr. L. is July 9th last, near Lake Bengiveolo, into which flows the Chambeze. He reiterates his belief that he has found the sources of the Nile between 10 and 12 degrees south—that is to say, nearly in the position which Ptolemy assigned to them. The waters of the Chambeze and of the Lufira, each connecting together in its course a number of lakes, are believed to enter Lake Tanganyika, and thence Lake Choambe,—which last Dr. L. considers the same as Baker's Albert Nyanza.

Bathybius;—Another Opinion.—In our issue of March 12th we gave Prof. Williamson's idea of the nature of this substance. The opinion of Dr. Wallich does not coincide with this. According to him, Bathybius, instead of being a widely extended *living* protoplasm which grows at the expense of inorganic elements, is rather to be regarded as a complex mass of slime with many foreign bodies and the *debris* of living organisms which have passed away. Numerous living forms are, however, still found on it.

Catastrophism, Uniformitarianism and Evolutionism.

These are "three great schools of geological thought, each of which is more or less antagonistic to the other two. The first accounts for all geological phenomena by the operation of forces different in their nature, or immeasurably different in power,' from those which we now see in action. Among the most eminent of its exponents in modern times may be reckoned Baron Humboldt, M. Elie de Beaumont, Professor Sedgwick, and Sir Roderick Murchison. * * The second, or the uniformitarian, is the doctrine of Hutton and Lyell, by which all phenomena in the past history of the earth are ascribed to forces identical in nature with, and not more energetic than, those now active on the face of the earth. * * The third, or evolutionism, theorizes upon 'the development of the universe from diffused atoms of matter endowed with simple attractive and repulsive forces.' This will be, according to Prof. Huxley, the doctrine of a future era in geological inquiry; catastrophism being the doctrine of the past, and uniformitarianism that of the present. The evolutionists of the present day are few in number but eminent in reputation. Dr. Tyndall, Mr. Herbert Spencer, Professor Huxley, and Sir William Thompson may be quoted as the most prominent leaders in England. The doctrine of the origin of species is indeed merely evolutionism applied to biology, and so far Mr. Charles Darwin may also be considered to belong to this school. Its founder was the great Emanuel Kant."

In Professor Huxley's address to the Geological Society of London, he says: "To my mind there appears to be no sort of necessary theoretical antagonism between Catastrophism and Uniformitarianism. * * Still less is there any necessary antagonism between either of these doctrines and that of Evolution, which embraces all that is sound both in Catastrophism and Uniformitarianism, while it rejects the arbitrary assumptions of the one and the as arbitrary limitations of the other. Nor is the value of the doctrine of evolution to the philosophic thinker diminished by the fact that it applies the same method to the living and the not-living world, and embraces in one stupendous analogy the growth of the solar system from molecular chaos, the shaping of the earth from the nebulous cubhood of its youth, through innumerable changes and immeasurable ages, to its present form, and the development of a living being from the shapeless mass of protoplasm we term a germ."

Dimorphism in Worms.—M. Claparède, the Swiss naturalist, in a recent article on the Annelids, expresses the opinion that the Nereids are transformed into Heteronereids at the time of sexual maturity. He thus concludes: "The fact of animals presenting two sexual forms is not entirely new. The beautiful observation of MM. Leuckart and Mecznikow, and those of M. Schneider on the *Ascaris nigrovenosa*, have made us acquainted with analogous cases among the Nematodes, where one of the generations is hermaphrodite, and the other presents separate sexes. Among the Acalephs, certain Geryonidæ, according to M. Haeckel, and among the Nematodes, the *Leptodera appendiculata*, according to M. Claus, present two sexual forms."

The *American Naturalist* says:—"The bearing of these remarkable discoveries, as well as those of the dimorphic forms of insects, on Darwinism, and especially Professor Cope's theory of the origin of genera, is startling, and strongly confirmatory of the latter phase of the theory of evolution."

Paper Parchment.—We quote the following from a late lecture at the Royal Institution by Dr. Odling: "When sulphuric acid is diluted with half its volume of water, and blotting-paper is immersed for a quarter of a minute in the mixture, and is then well washed in plenty of water, the blotting-paper is transformed into paper parchment; it then has great tenacity, will not permit the passage of water, and will lift heavy weights. Sized paper requires a longer immersion in the acid to become thus parchmentized A slip of paper which, when made into a loop, will just lift a weight of 14 ℔. without breaking, will, after being treated as above with weak sulphuric acid, lift a weight of 75 ℔. without breaking. Mr. Graham, the late Master of the Mint, used parchment paper in his experiments on dialysis, for it has the curious property of permitting none but solutions of crystalline substances to pass through it."

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Items.—*Miner*, April 16th: More Exchequer ore will be sent to Reno for reduction. It will be more closely assorted than before....Prospects in the Globe are more encouraging....Leviathan matters are assuming ship-shape under the new English owner. More hands are put on and a regular increase of force ordered until full. ....We have seen some splendid ore taken out by Geo. Wiseman from the Gould & Curry, up Scandinavian Cañon. The vein is small, but very rich....Schenectady shipped yesterday to San Francisco three tons washed Tarshish sulphurets, worth about one dollar per pound.

Mountain.—*Chronicle*, 16th: On Wednesday and Thursday the Mountain No. 1 claim was surveyed by Surveyor-General Marlette, of Nevada. In the upper tunnel the ledge has a pitch of 27 degrees east. This upsets the theory that the tunnel had passed the ledge. The report of Mr. M. will be received on Monday.

AMADOR COUNTY.

Coney.—*Dispatch*, 23d: This mine which has been lying idle for several months, was sold last Wednesday to a San Francisco company for $22,000. It is supposed that the new proprietors will start the mill up again shortly.

Still Burning.—The fire in the Amador mine was burning at last accounts, and the Eureka shaft is beginning to cave in.

Aqueduct.—Cor. of *Ledger*, April 23d: The Bower Bros. picked up two nuggets of gold, weighing together one-half pound, besides a liberal sprinkling of fine gold. Kent, McKenzie, & Co. have struck diggings in Hawkeye gulch and erected a splendid new hydraulic. James Evans has also put up a new hydraulic at the head of Pleasant valley.

CALAVERAS COUNTY

Railroad Flat.—*Chronicle*, 23d: With the opening of spring, operations in quartz have been resumed. A number of new lodes have been discovered. Cudell, Sanderson & Co., Chapman & Co., Lefoy & Co., and others, have large quantities of ore ready to be crushed as soon as the ground settles sufficiently to permit its being hauled. The Petticoat never looked more favorably. At a depth of 200 feet a lead of high grade ore, from six to ten feet in width, has been developed. A large force of hands is constantly employed. We are credibly informed that several custom mills will be erected during the present season, including chlorination works for the reduction of sulphurets.

Palomo.—We learn that very rich rock has been recently struck in the Palomo mine in lower Rich gulch. It is expected that the next clean-up will be huge.

NEVADA COUNTY.

You Bet.—*Transcript*, April 24th: The sale of the extensive hydraulic and cement mining claims and ditch property of Ed. Williams has been negotiated with Mallory & Stone and other parties at Gold Run, Placer county. The price to be paid is $55,000 and the bargain to be closed in 10 days.

Marietta.—Lindsey & Co., the owners of this mine on the South Yuba above Washington, propose increasing the capacity and improving the works. The ledge averages 12 feet wide and pays all round $20 to the ton. The company has opened the ledge and crushed enough rock to demonstrate the uniformity of the yield and size.

A Nugget.—A few days since a lump of gold, worth $40, was found in the Brandy Flat claims, near Washington, by Mr. Ferran.

A Specimen.—A. Isoard yesterday purchased a quartz specimen, valued at $250, from a Spaniard for $212.50. It was found this week near Omega and weighs 16 ounces.

Perrin's Mine.—This is yielding $30 rock, and gives employment to 30 men.

Rock Creek.—Same of 22d: A gold bar weighing 68 ounces, was brought to town yesterday, from the claims of Clingenspor & Co.

Sucker Flat.—Crary, O'Brien & Co. are burning powder at the rate of 1,800 kegs a week. On Monday they discharged 240 kegs, on Tuesday they put off a blast of 775 kegs, each time doing first rate execution, and they expected yesterday to be ready for another shot of 800 kegs.

Marcelus & Maltman.—*National Gazette*, 23d: Work in the tunnel has been suspended for some time, for want of giant powder. There is none in market. The tunnel is in 1,200 feet, and has about the same distance yet to run.

Specimens.—The Nevada Consolidated Mining Co. took out $250 in coarse gold from their ground sluice on Thursday, after a run of five days. Some of the specimens would weigh half an ounce.

Empire.—We find the following announcement of the new English Co. in the *Alta* of 16th: Empire Gold Mine, Limited—Capital £100,000 in £2 shares—to be fully paid up on allotment. The mine, a freehold, is situated in Grass Valley, California. The property has been brought into working order, and £63,700 has been expended on the works, the profit for the last year being £27,973. The purchase price is £95,000, of which £30,000 may be paid in shares.

Empire.—*Gazette*, 25th: Work at the mine was re-commenced this morning, under the superintendency of J. F. Nesmith. The mill will not be running for a week or ten days.

Badger.—This mine has been leased by a company. The machinery for the Essex is being erected at the Badger.

The ledge in the Idaho mine looks better than ever before.

Scott's Flat.—*Transcript*, 25th: Jacobs & Co. are doing well. Cobb, Baxter & Co., at the last clean-up, took out $2,300. A slide occurred in Holmes' claims a few days since, upon which they are now washing. Ashburn & Baker have been all winter washing out a slide, and have not been able as yet to advance upon the bank.

PLACER COUNTY.

The Grass Valley *Union* of 20th has talked with an experienced Nevada county miner who had just returned from the vicinity of Auburn and Ophir. He says it offers an inviting field for the prospector. The milling has heretofore been exceedingly crude, and would, he says, break a Grass Valley company.

The same says: We understand that on Wednesday last, one man on Austin's ledge took out $50 in an hour. The ledge is situated between Ophir and Newcastle, south of Auburn ravine.

PLUMAS COUNTY.

Indian Valley Mine.—Quincy *National*, April 16th: We are informed that the water engine, recently put up, works admirably.

SAN JOAQUIN COUNTY.

The *Alta* has a letter from Hill's Ferry, dated 18th, which notes the discovery and location in that neighborhood of a silver-bearing ledge from four to six feet wide.

STANISLAUS COUNTY.

Great Silver Excitement.—Tuolumne City *News*, April 22d: Some weeks since Mr. Newsom's discovery of silver in the Coast Range, in this county, was reported. It is now said that five miles north of this spot, in a direct line, parties have discovered "The Lost Mine." There is a tradition that a very rich silver mine was worked somewhere in the Coast Range by a wealthy Mexican years ago. However this may be, there are evident proofs of work having been done in the newly discovered ground. There are three shafts, now partially filled up. A trail is regularly graded in the mountain side for a mile. We have visited the spot, which is about 40 miles from this place, the last 10 miles over an exceedingly rough country. We found Mr. Keys, of Stockton, with a party of five men, engaged in cleaning out one of the shafts. Little can be known of the thing until these are opened. Claims have been staked off and recorded for two or three miles on the line of the work. The district is to be known as Rogers' district. For over 20 miles in length the mountain range is being prospected for silver.

The Stockton *Gazette* says that there has been a Stanislaus county legend that Mexicans a century ago took out fabulously rich silver ore somewhere in the neighborhood and shipped the bullion regularly to Mexico; the operation being finally stopped by the Indians. Much search has been made for this mine, for ten years past. The lucky man was Steve Rogers, who was hunting estray horses. The traces of two tunnels are visible. Ruins of log huts also, and of two arastras. The same reports a $480-assay of some of the croppings, and says that Stanislaus county is wild with excitement.

SISKIYOU COUNTY.

Mining Items.—Yreka *Union*, April 22d: The mill of Jones & Co., at the Forks at Humbug, is crushing quartz for Smith & Co., from the Knapp ledge....The miners on Humbug are busily ground-sluicing. At present there is a very good head of water, and the prospect is that they will get their claims in good condition for washing up....But little doing at Happy valley.

TRINITY COUNTY.

Northfork.—*Journal*, April 23d: William Ritterbush, on the hill, has very rich ground. We saw one pan tried—proceeds, $1.65. Just above the bridge, Herman Schlomer got $7.50 out of a prospect hole 6½ feet deep and 4 feet square on the bottom. Conrad Miller, just above Northfork, cleaned up, as the result of his last four days' work, three ounces and $7.50. The claim just opened by R. J. Holmes prospects as high as $20 to the pan.

Dutton Creek.—There is not much to chronicle. Lange completed the main ditch this week, but has another branch ditch to dig. He expects to have three sluice heads on the mines. The mines look as favorable as ever.

Junction City.—The miners are generally doing well, for the scanty supply of water. The claims of Haas & Hager is said to be paying enormously—one informant saying 50 ounces per week.

Arizona.

Mining Items.—Prescott *Miner*, April 9th: Three mills are now running in this vicinity, besides several arastras. The last clean-up at the Big Bug mill yielded $1,300. This amount was taken out in five days. Taylor & Co., who have been working Charter Oak ore, in a new arastra, near the head of the Hassayampa, cleaned up recently $57 to the ton. The Eureka is running on good ore, from the Pine Mountain lode. The Sterling is pounding away. A clean-up has not yet been made. Excitement runs high about the lodes recently discovered near Camp Date creek. Fred. Henry has found the "richest thing yet," in Walnut Grove district. It is a ledge of gold-bearing rock that prospects "viciously" for 300 yards. We saw a lot of the ore, Wednesday, that displayed more free gold than any in many a day. C. Y. Shelton, of Walker district, has just finished working eight tons of Mountain Jay ore, from which he got $36 per ton. The Vulture mill is doing remarkably well. News from the placers continues good.

British Columbia.

The *Colonist* says that Mr. Ogden, agent of the Hudson Bay Co. at Stuart's Lake Station, had forwarded to the office, at Victoria, one hundred and fifty ounces of gold dust, from Fitalle creek. Amongst the dust were a number of lumps of native silver, weighing from two to four bits each. This money was paid for provisions for a small party of prospectors. Already three hundred men had reached Victoria from different places; but Mr. Ogden says that the end of May will be time enough to reach the diggings, as by that time there will be no scarcity of provisions.

Colorado.

California Lode.—Central City *Register*, April 20th: This, with its extensions, are being worked for nearly a mile in length. One hundred and six miners are employed under ground. There are six whims and four engines used, and two more engines will soon be in place. The aggregate depth of the shafts is 2,700 feet, from which comes a weekly production of about 100 cords—600 to 700 tons—of stamp mill ore, yielding from three to twelve ozs. of gold per cord. At a low estimate of its assay value, this ore is worth from $12,000 to $15,000 in gold.

Items.—Fleming, Reiley & Sorden, on the "Irish Flag," report a pay vein of 18 to 24 inches, and a crevice of three to three and one-half feet. The quartz is yielding six ounces per cord. Work will be resumed in the Briggs mine to-day. Whitcomb's 12-stamper, is running steadily on "Flack" ore, for Storm & Co., and on Burroughs ore for Jolly & Co. Sparks & Fagan have shut down, having been delayed with water. Mr. Hardesty is building an eighteen-stamp mill in Nevada gulch. Two batteries—twelve 570-lb. stamps,—will be ready for duty in ten days. Joun Gray is working the Central Co's property on the "Gunnell," with a pay vein of two to eight inches. He sells first quality ore for $80 a ton. The second runs from four to six ounces per cord. Edward Jaques, of New York, will refit the Stoner mill. A new engine and boiler are on the way from Massachusetts. Bull & French are working the "White" lode. It has a shaft 70 feet deep. The crevice is about two and one-half feet wide, Jas. Wood is working the Butler. He has a shaft 95 feet deep. The whole vein matter—about two feet—has run as high as four and one-half ounces to the cord. J. W. Clayton is mining on Nos. 1 and 2 E. on the "Flag." He has an 80-foot shaft on No. 1, and is still sinking.

The Briggs mine netted in March $10,800. So says the *Herald*.

The Terrible Lode.—Georgetown *Miner*, April 14. The new company proposes to commence, June 1, the erection of dressing works, of twenty-five tons capacity. All first-class ore will be crushed and forwarded to England; the second and third classes will be treated at home. Smelting works, of large capacity, will be erected next year.

Clear Creek.—The same gives a list of the mills and smelting works in the county with the location and capacity of each. The number of establishments is 11, and the aggregate daily capacity is 110 tons.

Items.—Herring Tunnel is in 300 feet and being driven rapidly. The Magnet lode is now in rich pay. The Taft Bros., on the Comet, have struck a body of rich ore. An Eastern company will work the Junction lode. Griffith lode is in "bonanza." Work has been commenced on the Sterling. Pay ore struck again in the Equator. Another 300-foot contract let in the Marshall Tunnel. Work has been going on all winter in Darly district. Capt. Lyght has struck a large body of pay ore.

Summit County.—At Lincoln, Hoops & Blair, drifting and sluicing, have taken out $4 per day to the hand. At Salt Lick gulch, mouth of Ten Mile creek, Pat. Cassiday and others have been all winter taking out $5 per day to the hand. Peter Halsey and G. M. Parker have struck two large argentiferous ledges in Illinois gulch.

Idaho.

Loon Creek.—*World*, April 14th: Tassell, express messenger, arrived from Oro Grande on Saturday. From him we learn that mining operations have commenced in earnest, and that there is a great scarcity of laborers. It is now, and for several weeks will be, difficult to get through to Loon creek, on account of the softness of the snow. Meat has entirely given out at Oro Grande, but provisions of other kinds are abundant. Everybody contemplates a lively mining season. Wages are from six to seven dollars.

Mexico.

Guerrero.—Acapulco cor. of *Bulletin*, April 5th: A point of importance to this State of Guerrero is the discovery of extensive veins of precious ores, which keep the mining engineer of Tixtla busy making assays. A circular, published by said gentleman, says that the government is willing to make over to capitalists a number of mines, which yield at least two marks of silver per carga of 300 pounds of ore, on condition that the State should be allowed to reserve a few barras. In the district of Tabasco, close to this city, four rich mines have been discovered. M. Pedro Navarret, in the district of Miua, has opened 70 distinct veins, of which El Tesoro is the richest. He has made a collection of specimens to take to the United States and Europe, expecting to raise funds for working the mine.

Montana.

Radersburg.—Helena *Gazette*, April 11th: Mr. Keating has purchased the Posthlewaite 15-stamp mill, to be put up on the famous Keating lode. This lode's rock, in arastras, paid from $40 to $60 to the ton. There is now 900 tons of quartz out and 14 miners taking more out. The mill is expected to be ready in four weeks. Mr. Sample has purchased a 12-stamp mill, which will be erected on the Robert Lee lode. A number of hundred tons of rock now waiting. Quinn's branch ditch will be completed on the 20th. This brings water higher on the mines than ever brought before. One hundred men are wanted in Radersburg to work for wages.

Nevada.

COPE DISTRICT.

Gold.—Elko *Independent*, 20th: George Turney brought in $600 worth of gold dust. The ditch was completed Monday, and from this time regular shipments will be made.

Ore.—Five thousand pounds from the Oregon ledge came in Saturday, consigned to Oppenheimer & Co.

Mountain City Mine.—Same of 23d: Authentic advices report the mine looking better than ever. The whole body of ore within a width of five feet will average $800 to the ton. The company had ten tons of this ore on the dumps.

HUMBOLDT.

Galena.—*Register*, 16th: At a meeting of the owners of the Butte mine, Tuesday, it was decided to build a mill for the low grade ores. The Co. have derived sufficient funds from the proceeds of first-class ores shipped to build the mill.

The Stars and Stripes Co. will also build a mill at once.

Uncle John Atchison is on his way to Arizona. He left his mill and mining interests in Cope with friends. He is noted for having been among the first at every mining camp in the State.

Rumors.—Extravagant reports of the richness of quartz mines recently discovered 50 miles north of the Humboldt, in ranges south of Independence valley, are being circulated.

Battle Mountain.—Cor. of same: A shaft on the Buena Vista has disclosed $100-ore. A shaft is 75 feet deep on the Butte, shows a vein from two to six feet wide, which will average $150 to the ton. Veritas has a 95-foot shaft, exposing immense quantities of good smelting ore. The White mine is shipping $200-ore, and holding the second class for the completion of Bruce & Co's smelting works. The Shiloh sends its first class ore to San Francisco.

REESE RIVER.

Bullion.—*Reveille*, 20th: The Manhattan company shipped direct to New York, to-day, 34 bars of silver bullion, weighing 3,540 pounds, of the value of $24,212 93. During March, the mill produced $88,217.52.

Mineral Hill.—*Independent*, 20th: Curtis & Huber are laying the foundation of their mill, which will be one of the finest in the State, with all modern improvements, together with the Stetefeldt furnace. The shaft on the Giant ledge is down 53 feet, and the vein is nine feet wide.

WASHOE.

Ophir.—*Enterprise*, April 24th: No inconvenience on account of water in any part of the mine. The drifts at the 700-foot level are progressing satisfactorily. The north drift is in 47 feet and has 45 to go.

Hale & Norcross.—The new seventh station is completed, and drifting east through the vein commenced, The face is already in good ore. From the sixth level, 85 feet above, the winze is 62 feet deep and in good ore all the way. The daily yield is 170 tons.

Gould & Curry.—This mine yields 90 to 100 tons of ore per day, assay value, $54 per ton. Some very high grade ore, estimated to be worth $1,500 per ton, is found at this point, three or four tons being sacked up daily and send to the mill at Rono. Phil. Deidesheimer, formerly of the Burning Moscow, has been appointed Sup't.

Occidental.—This company levied an assessment of $6 per share, on Tuesday, amounting to $60,000. This is the first assessment ever levied.

Sutro Tunnel.—This now measures 978 feet. The ground is not quite so hard. The water is increasing.

Sacramento & Meredith.—The mill is progressing rapidly. It will probably be set at work by the middle of May.

Chollar-Potosi.—The daily yield is 200 tons, superior to that lately obtained. A large amount of ore has accumulated at the dumps. There is also a good supply at the mills.

Caledonia.—The face of the west drift at the 200-foot level is now 80 feet from the shaft, and is in hard blasting rock.

Yellow Jacket.—Gold Hill *News*, 23d: The new ore at the 900-foot level is looking better. The dirt north from the Crown Point, 75 feet beyond the south line. The daily yield is 350 tons.

Imperial-Empire.—The bottom of the shaft is in very hard blasting rock. The station for the 1,200-foot level is being opened.

Belcher.—Upper levels yielding 80 tons of $20-ore. The 730-foot level toward the south boundary of the mine is not of high grade.

Kentuck.—The daily yield still shows a falling off, and no new ore bodies are discovered.

Crown Point.—Upper levels yielding 75 tons low grade ore per day. The incline from the 1,000-foot station of the shaft is down 50 feet; rock favorable.

Overman.—Yielding 160 tons per day, all from the upper level. A connection was made with the old Mary Ann shaft last week at the 400-foot level.

WHITE PINE.

Review.—*News:* Mining is reviving. The rumor that English capitalists have purchased a number of the best mines on Treasure Hill and Chloride Flat, including the Eberhardt, has contributed to stimulate business. There is this healthy difference between this year and last, and that is the money now circulated is derived from the legitimate resources of the country. The Base Metal Range is putting in an appearance, as a mining region, that will furnish labor for thousands upon thousands. The shipments of bullion for the week ending April 18th, amount to $33,717—and of base bullion, 49,000 pounds.

Items.—The shaft in Crown Point No. 8, at the depth of 40 feet passed abruptly from almost solid galena into free chloride ore, assaying $125. A fissure vein has been opened in the Trench mine six feet wide at a depth of 33 feet, with $1,000 ore. Noonday has on dump 100 tons first class ore, and 200 second class. Montauk will be able to supply a 10-stamp mill as soon as the roads become good. Shoo-Fly has a shaft 24 feet down—20 feet of it through solid ore. Wabash supplies the Sheba mills with good ore. The Stanford mill started up with several hundred tons of ore at the batteries. Alsop smelting works have turned out 70 tons bullion since they started on the present run. The Shermantown works have 30 tons of bars at the furnace, worth $200 per ton. One hundred and two mines, by count, are now being worked in White Pine District. McIntosh and Barclay shipped on the 22d. from the White Pine Smelting Works, 20,290 pounds of base bullion.

Eberhardt and Aurora Mining Co. The capital stock is £300,000, in £10 shares, all of which have been subscribed. The price to be paid for the Eberhardt and Aurora South mines is £300,000, one-half in cash and the balance in shares—the latter to be retained until profits to the extent of £125,000 have been made. The property has been examined by the company's engineer, Melville Atwood, and by Thomas Philpots, acting agent.

Pogonip & Othello.—This ground has passed into the hands of a company incorporated under the laws of Illinois, with a capital stock of $1,600,000, divided into 1,600 shares of $100 each.

Outside Districts.—Morning Star, Freiberg District, has a 28-foot ledge of base ore of high grade. A brick smelted in a frying pan, assays $1,123 per ton in silver. The Shonte mine, has been sold to a Chicago company for $40,000. In Shoshone, the Indian and Illinois mines show an abundance of ore that will mill from $50 to $100 per ton without assorting. The Pittsburg mine gives assays as high as $1,200. Lexington bids fair to rival Ely. Silver Park is growing lively. Ely people are too poor to get away. In Eureka, the Champion mine has been sold to Ike. Bateman & Co., for $20,000. The Buckeye has 1,000 tons of ore out, which will work $100. Four furnaces are running in the district, and four more to be ready in 30 days.

New Mexico.

A Los Angeles telegram of 21st says: It is asserted that the famous silver mines are just within the limits of Arizona. Tucson capitalists have formed a company called the Mine Madre Mining Co. Rock taken at Paudon from the immense ledges at Burrow district is astonishingly rich. Miners and parties from California and all points are coming into Tucson.

Utah.

Snake River Mines.—Corinne *Reporter*, April 19th: Within a few days parties arrived from Snake river report prospects as flattering. Mr. Morrison states that diggings which pay $2 or $3 per day are common, but his party only work in the best eddy drifts, many of which are paying $25 per day, and few less than $15. There are 200 men at work within a distance of a hundred miles up and down the river, all within a 175 miles of Corinne.

New Incorporations.

The following have filed certificates of incorporation with the County Clerk, San Francisco:

Lloyd Patent Axle and Journal Co. April 22d. Capital stock, $500,000, divided into 5,000 shares. Trustees: George W. Smiley, George A. Lloyd and Anthony Rosenfield.

Merchants' Exchage Bank.—April 24th. Capital stock, $1,000,000; number of shares, 10,000. Trustees: Levi Stevens, J W. Ladd, N. P. Cole, J. M. Ryder, A. N. Coleman, P. M. Bowen, H. A. Crane, S. Hemenway and G. H. Wheeler.

Meetings, Elections, Etc.

White Pine Smelting Co.—April 20th. Trustees: D. D. Shattuck (President), E. D. Keyes and H. L. Hutchinson. J. J. Scotchler was elected Secretary.

Noonday S. M. Co.—April 25th: Trustees: J. D. Fry, M. J. McDonald, Geo. Congdon, O. H. Bogart and Louis Vesaria.

New Idria Quicksilner M. Co.—April 25th. Trustees: W. E. Barron (President), Thomas Bell, D. O. Mills, W. C. Ralston and William Burling. Edward Mickle was reëlected Secretary.

San Francisco Mining Stock Market.

The mining-share market continues quite active, notwithstanding the slight recession noticeable throughout almost the entire list. At present the strong speculative disposition, so recently one of the features of the market, is not nearly so apparent, and combinations to carry stocks up or down are, for the moment, without force. Outside stocks—by which we mean those not located on the Comstock lode—are getting to be a feature of our market, and, during the past week, a greater number have been offered, and larger sales have been effected than for a long time past.

We clip the following from the *News* of the 25th, with regard to the White Pine mines: "During the past week work has been pushed with renewed vigor in all the principal mines, while prospecting has been extensively carried on. We have no changes of importance to announce. The sale of the Aurora Consolidated and Eberhardt mines, to a London company, may be considered accomplished. The Aurora South has also been favorably reported on by the agent of another English company, negotiating for its purchase. Pogonip & Othello has been sold to a Chicago company, whose agent is daily expected here to commence work on the mine and prepare the foundation for a 20-stamp mill. A large number of base-metal mines, theretofore idle, were started up last week, and the District has never presented a more busy or prosperous appearance than at the present time. Our bullion shipments for the week foot up, $17,162 25 to San Francisco; $12,281 21 to New York—total, $29,443 46, and 48,790 pounds of base bullion."

Chollar-Potosi—has been well maintained, but sold to a less extent than during the previous week. The yield for the week ending April 22d amounted to 1,300 tons, showing an average assay-value, from car-samples, of $72 51 per ton; previous week, 1,400 tons—assay value, $70 19 per ton. At the south end of the stope, a marked improvement of ore, both in quantity and quality, is noticeable, and at a later date, this ore was increasing in width. In the entire Blue Wing section, a large amount of good ore is visible. At the first station of the new shaft 58 feet have been added to the branch drift running north, the face showing heavy clay. On the 26th inst., $32,964 in bullion was sent to the office, in this city.

Hale & Norcross—sold to a rather moderate extent, declining somewhat toward the close. On the 24th inst. the winze had attained a depth of 64 feet below the sixth level, the ore continuing to be of good quality, the assays for the week averaging over $100 to the ton. At the seventh station the north drift is now twenty-five feet north of the shaft. They are also running a cross-cut east from this drift, which is now 14 feet east of the latter drift. This cross-cut has not yet reached the east wall. Both of these drifts are in excellent ore, said to be of much better quality than the ore found in the winze now being sunk below the sixth level. For the week ending April 23d, 1,008 tons of ore were extracted, 331½ tons coming from the upper mine, and 676½ from the lower. They had on hand, at that date, 6,630¾ tons of ore, of which 2,565 tons is low grade. On the 24th inst., they received $30,424 in bullion.

Kentuck—has met with limited sale, at a recession. For the week ending April 22d, they extracted 303¼ tons of ore, showing a 65 per cent. assay value of $6,490 14, equal to $21 42 per ton; previous week, 355¼ tons, equal to $14 79 per ton.——Crown Point was pretty active. The ore yield for the week ending April 22d, amounted to 360½ tons, the 65 per cent. assay value showing $5,326 36, or $14 72 per ton.——Imperial was in the market to a considerable extent, at a slight recession. The southwest drift is again in clay, which has been penetrated, the face exhibiting very hard white barren quartz. A start has been made from the 1,200 foot station. They are getting some good ore from the Alta mine, but the vein being narrow, it comes out slowly.

Overman—has been sold at quite uniform rates. The estimated value of the crude bullion sent forward on the 23d inst. was $21,800. The cross-cut west, on the 226 level, running through the Mary Ann chimney, is reported to show some good ore. During the week, 1,221 tons of ore were extracted; previous week, 1,135 tons.

Savage—was in the market to a less extent, selling at a decline. Isaac L. Requa has been appointed Superintendent of this mine, in place of Charles Bonner, resigned.——Empire Mill levied an assessment of $10 per share, on the 22d inst.——Oriental (W. P.) levied an assessment of 20 cents per share on the 22d inst.——Metropolitan M. & M. Co. paid a divident of 50 cents per share on the 26th.——Original Hidden Treasure, (W.P.) will hold its annual meeting of stockholders on Tuesday next, 3d of May.—*Commercial Herald.*

MINING STOCK QUOTATIONS, APRIL 28, 1870.

WASHOE.

	Bid.	Asked.		Bid.	Asked.
Alpha Con.	$ 14	$ 14½	Gold Hill Q M C.	$ —	$ 15
American	—	—	Hale & Norcross	138	139
Belcher	22	22½	Imperial	—	38
Bullion	3	4	Justice	—	—
Crown Point	14½	15½	Julia	—	—
Cole, Va.	—	—	Kentuck	66	67
Confidence	—	20	Lady Bryan	4¼	4½
Chollar-Potosi	26	26¼	Occidental	—	9½
Con. Virginia	13	13½	Ophir	17½	18
Daney	—	5	Overman	—	69
Empire	—	20	Savage	35	35½
Exchequer	6	6½	Sierra Nevada	7	7¼
Flowery	—	—	Seg. Belcher	6½	7
Gould & Curry	135	140	Yellow Jacket	42¾	43¼

WHITE PINE.

	Bid.	Asked		Bid.	Asked
Aurora Con.	$—	$ 4	Noonday	2¼	2¾
Brodt	—	—	Orig. Hidden Tr.	18	18½
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	1¼	Silver Wave	—	3
Mammoth	1½	2	Virginia	—	4

CALIFORNIA.

Amador	$215	$220	Eureka	$275	$280

IDAHO.

Golden Char't.	$ —	$ 13	Silver Cord	$—	$—
Rising Star	—	—			

For Inventors—Reward Offered.—The Governor-General of India offers a reward of $25,000 for the best machine for separating the fiber and the bark from the stem, and the fiber from the bark, of *rheea*, or "China grass." The offer will be open for one year from January 11th last.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment	Day Delinquent.	Day of Sale.
Alameda Coal, Feb. 16, 30c	March 30	April 30*
Alban, Storey co., March 21, 5c	April 25	May 14*
Bromide Tunnel, W. P. April 20, 40c	May 55	June 13
Continental, W. P., March 26, 30c	April 30	May 25*
Cherokee Flat B. G. April 14, $5	May 16	June 2
Eagle Quicksilver, March 14 $20	April 16	May 2*
Empire M. & M., S. co., April 22, $10	May 27	June 18
Green Monster, Inyo co., March 10, $1	April 16	May 16*
Hormiguera, L. Cal., March 11, $2.50	April 15	May 6
Hidden Treas. Cons., March 28, 25c	May 3	May 24
Imperial, Storey co., March 7, $10	April 11	May 3
Julia, Storey co., March 12, 60c	April 15	May 3
Lady Bryan, Virginia, March 17, $2	April 18	May 19
Latawana, W. P., March 19, 15c	April 23	May 10*
Meadow Valley, Ely Dist. Mar 26, 75c	April 28	May 20
Mountain City, Elko co., April 8, 50c	May 23	July 11*
Miser's Dream, W. P., April 14, 40c	May 17	June 14*
N. Bloomfield Gravel, March 28, $2.50	April 30	May 17
Ophir, Storey co,, March 7, $3	April 11	May 3
Oriental, Sierra co., April 22, 20c	May 26	June 16
Peytona. Va. Dist., March 18, $1	April 19	May 4
Placer G. & C., Placer co., April 9, $2	May 20	June 10*
Pocahontas, El Dorado, March 2, $4	April 2	May 14*
Rising Star, Idaho, April 6, 50c	May 14	June 4
Sterling, Arizona, March 9, $5	April 18	May 17
San Jacinto Tin, March 4, 5c	April 4	May 4
Sierra, Douglas co., March 29, $2	April 29	May 20
Silver Wave, W. P., April 21, $3	May 23	June 13
Tecumseh, Calaveras co., March 21, $5	April 21	May 5
Yellow Jacket, March 16, $7	April 18	May 19

MEETINGS TO BE HELD.

Best & Belcher	Meeting April 30
California Silver	Annual Meeting May 2
Cayuga Chief	Annual Meeting May 2
Exchequer	Meeting April 30
Independence	Annual Meeting May 2
Oneida	Annual Meeting May 2
Original Hidden Treasure	Annual Meeting May 3
South Aurora	Annual Meeting May 3
Pacific Consolidated	Annual Meeting May 17
Planet Copper	Annual Meeting May 2
South Aurora	Annual Meeting May 3

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable April 11, 1870
Eureka, div., $7.50	Payable April 7, 1870
Golden Rule, div., 50c	Payable March 26, 1870
Hale & Norcross, div., $6	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

◆

Latest Stock Quotations.

AT THE S. F. STOCK AND EXCHANGE BOARD.

Thursday, April 28, 1870.

San Francisco Prices of Copper Ores.

San Francisco, April 28, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	26 65	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

◆

Tea Culture.—The Sacramento *Reporter*, of April 14th, says: "We had the pleasure of a conversation yesterday with J. S. Harbison, who has just returned from a trip up the mountains, visiting *en passant* the Japanese colony of Herr Schnell at Placerville, El Dorado county. He speaks in glowing terms of the prospects of the little colony, and anticipates that Herr Schnell will come out ahead on his venture. About one hundred and ten acres have been laid out with over 200,000 tea plants or nuts, as they are more correctly termed, which look finely and give promise of a bounteous crop of savory teas. The Japanese, a race infinitely superior to the Chinese, are excellent agriculturists, and all the work on this plantation is done on purely scientific principles. As tillers, they have no superiors, being besides ingenious and capable in a hundred different ways. They are comfortably domiciled, and express themselves well satisfied with their situation. They like our people, and do not hesitate to say that the soil on which they are now at work is superior to that of Japan. A considerable quantity of mulberry trees have also been laid out, but as yet it is too early in the season to accomplish anything with the silk worms, which are now in the first stages of their existence. We further learn from Mr. Harbison, that his own bee trees have commenced to develop finely, the bees swarming in considerable numbers. It now depends altogether on the weather whether he will have a good harvest of honey or not."

◆

Statistics about Gold.—The production of gold from the mines in the United States was for the last two years $122,000,000, or over $60,000,000 yearly. It is a curious coincidence that as our indebtedness to Europe, comprising Government bonds and railway securities, is about $1,000,000,000, the product of our mines seems to be a special fund to pay the interest on an average of six per cent. per annum on this indebtedness. The production of gold throughout the world, from the discovery of America to 1843, had steadily increased to $34,000,000 per annum, which was the production for that year in the whole regions of civilization. In the year 1853, the yield was about $250,000,000, and has not been less than $200,000,000 any year since. The production of gold in the last twenty years has been double what it was for the two hundred years before, the progressive increase being due to the improvement in machinery for extracting the ore.

◆

Assaying.—We see that Mr. F. W. H. Aaron has succeeded Knight & Co. in the assay business at Marysville. Mr. Aaron has had a large experience and enjoys an enviable reputation. We doubt not that he will sustain the credit of this office, which is one of the oldest and best in the State.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

Important to Wheat Growers.

Hon. Horace Capron, Commissioner of Agriculture, in a recent letter to Hon. B. C. Cook, of the National House of Representatives, gives some hints on wheat growing, which should be considered and acted upon by every grower of that cereal. We copy from the letter as follows:

1. *Deterioration from Imperfect Seed.*—Regard must be bad to pedigree in wheat, as in cattle or horses, or the deterioration is sure to result. Among wild herds the prevailing law of the strongest aids in preserving its average excellence; but the prevalent neglect of the selection of seed of cereals is a sure means of degeneracy. Seed is generally taken at random, often an inferior and imperfect quality, because No. 1 wheat commands a higher price in market. Like produces like, and this shrivelled grain tends to slow growth in the plant, to late ripening, and consequently greater risk of insect ravages; it is immature and lacking in vitality, and decreased plumpness and diminished weight may be expected in the harvest; it may have germs of mildew affecting it, with insufficient vitality to resist the attacks of fungoid enemies.

2. *Deterioration by In-and-in Breeding.*—The use of the same seed year after year undoubtedly tends to deterioration, on the well-known principle holding in animal reproduction.

3. *Neglect of Rotation in Crops.*—On the richest wheat soils, with continued cropping, even with change of seed and careful selection, a diminished yield is usually apparent after the second crop. Illinois, Minnesota, California, Australia,—every famous wheat section known, attests the certainty and rapidity of decreased production under a practice which disregards rotation.

4. *Deficient and Careless Cultivation.*—As a rule, the only preparation for seeding is a slight scratching of the soil, sometimes only a harrowing of the weedy, grassy, uneven surface from which corn has just been cut; and weeds have thus an equal or superior opportunity for growth, and eventually smother and dwarf the wheat, furnishing a prolific cause for deterioration.

The wheat plant is susceptible of great improvement if the same judgment and care is exercised as is exhibited by successful breeders of farm animals. It will also degenerate with wonderful facility under the average management of pioneer wheat-growers. After this careless culture becomes unprofitable, and probably not until then, will the requisite means for improvement be used. Is it not now time to commence such improvement in Illinois?

OLIVES IN SANTA BARBARA.—According to the Santa Barbara *Press*, olives make a fine growth in that county without irrigation. On the fine hillside, a southeastern slope lying in plain view of town on the north, is the young olive orchard of Fernald, Blanchard and Towle. Although so much exposed to the sun, none of the trees are irrigated. The plow does the work. Results are gratifying. They have trees four years from the cutting which are seven inches in circumference. They also have some 500 bearing almond trees—next year will have 2,500. They have likewise 200 English walnut and 10,000 vines of choice table grape varieties. All are doing well, and without irrigation.

THE BANANA.—This fruit is doing well in Florida. It bears in three years from the offshoot. Complaint is made, however, that of the great variety which exists in other countries, two only have been introduced into that State. There is a great demand for the plants there, much beyond the supply. Persons who desire large numbers can get only three or four, and are compelled to wait for their increase. Quite too little attention is being paid to the cultivation of this valuable fruit in California.

THE INDIA-RUBBER TREE.—Mrs. Harriet Beecher Stowe is cultivating the india-rubber tree on her plantation in Florida.

The Uncertainties of Farming and How to Avoid Them.

One of the great causes of uncertainty in farming operations grows out of the fact that the farmer depends less for his results upon forces under his own control, than does the manufacturer or artisan. Moreover, the farmer encounters more hindrances in the way of changing his products suddenly, as the price of any particular commodity may go up or down, than obtains with most avocations. He must arrange at least a year beforehand for most of his crops, and the ones which at the commencement of the year promise best, often promise least before the year is half expired. He has to "go it blind" to a very great extent. One year a good crop of wheat is profitable. The next year the market is overstocked by large crops, which affect his market, though grown, perhaps, thousands of miles away. One year the seasons are favorable; the next, the rust, mildew, blasts, drouth or insects destroys his anticipations. He can never tell what is to be a lucky or which an unlucky year. Too often he sows with sublime faith to reap in direst sorrow. Truly, says one, "The farmer is a man of sorrows and disappointments, from the beginning to the end, and farming is an uncertain occupation."

While there is much in all this that cannot be avoided, much may also be overcome by judicious management and careful calculation. The great mistake, and the one most general in this country, is the disposition to venture everything on a single chance. A prudent merchant never ventures his all in a single ship—he distributes his chances. But all wheat, all barley, all fruit, all roots, all stock or no stock, is generally the rule in California, and it is a poor rule. Diversified farming not only distributes the chances in the market; but secures a higher order of cultivation—instead of deteriorating the land and crops, it improves both.

Another trouble, too common with farmers, grows out of the fact that they utterly fail to keep any account with the farm. They don't know the cost of raising this or that crop, and of course they are unable to arrive at the comparative profit or loss thereof. Now a farmer should know, to a certainty, what each field or patch of wheat, barley, potatoes, corn, flax, etc., costs, per bushel or cental. He should note as accurately as may be, how much this or that field has improved or run down,—within the last or any past term of years. Careful accounts should be kept of everything bought for or sold from the farm. If no other benefit is derived therefrom, the habit of care and thought engendered by such a practice will more than pay for all the extra trouble.

Every farmer should take an agricultural paper to aid him in the practice of his labors. It is there he finds the condensed experience of the age. Every intelligent farmer in the land is, through the agricultural press, made his friend and neighbor, with whom he may consult and compare experience. The present is an age of progress—progress in everything. It is impossible for a farmer to take and read for one year a good agricultural paper without being benefitted many times the amount of its cost. Every careful thought, every well-considered word or action of our lives, if spread before the world, is as seed sown upon good soil, which will grow up to be a use and joy forever. The newspaper—we mean, of course, the really useful paper—is the great vehicle for the spread of modern thought—the great reservoir of progressive knowledge. Knowledge, carefully applied, is the lever with which the farmer may successfully grapple with even the usually uncontrolable forces of Nature. Knowledge of his business will enable him to render one of the naturally most uncertain avocations, as sure as any calling in which man can engage.

Diseases of the Horse—No. 3.—"Stifle."

Not having received any reply to our query asking for the proper mode of treating "stifle," we subjoin that of our correspondent who suggested the query, with some other general remarks of our own. We take the liberty of saying that our correspondent, Mr. S., is a nephew of Mr. B. P. Shillaber (Mrs. Partington), and, of course, cousin to the well-known genius "Ike." Mr. S. writes, under date of March 3d, as follows:

I got a colt stifled, a week ago, and knew not what to do. I made many inquiries; but of the many, I met but one who said he could cure it. I consulted Youatt and Stewart; but neither give the simple cure which the case admits of.

The man who knew of it chanced to be working for me, and I gave him permission to try his plan.

He first placed ropes, well covered with sacks, from one side of the stable to the other, passing under the colt and well secured upon both sides. He next wrapped cloth about the well leg, between the fetlock, and then tying a rope, thus raised the well leg from the floor, fastening the rope to a beam overhead. This brought the weight of the animal upon the stifled leg, when the patella assumed its natural position. That being done, he fomented with a liquid made by boiling the inside of white oak bark in water until it became quite black. He did this five times the first day, about ten minutes each time. In twenty-five hours he let the well leg down, and the cure was effected. He, however, continued the fomentations for two days longer, and then let the colt go. In three days the animal was as well as ever.

The object of the ropes under the animal is to allow him to rest whenever he becomes too tired to stand on one leg. The position is not the best, but it gives him rest for a short time, until becoming uncomfortable in his unnatural position, he again gets upon the leg which is diseased.

Many persons may know of this, or of a better mode of treatment; but I would have given much to have known this the morning the accident happened. Now, Mr. Editor, I thought that by asking a question now and then, the replies will surely give us some information. Ask, if you please, "what is the best method to cure stifle?" and if you get no better than this, you are at liberty to publish what I have written, and I, myself, certainly, and I presume others of your readers would like to hear something, in addition, from you, on a subject about which the books within ordinary reach say so little.

I take great interest in your farming department, and read every word carefully. Wishing you every success, I remain, yours truly, CHAS. E. SHILLABER.

Cordelia, Solano county, Cal.

Remarks.

Colts, under certain conditions, as when they are laboring under a faulty state of the nutritive functions, are often troubled with the "stifle." The lack of proper digestion, or the feeding of improper food may induce it. The stifle joint is not often subject to sprain. A faulty state of the nutritive functions, in a growing animal, interferes with the healthy building up of the bones throughout the system, and is often especially manifested in the bone pulley and ligaments over which the patella plays, by the appearance of incipient ulceration. Under such circumstances, the animal must be fed upon the most nourishing diet, and should take with his daily food, or otherwise, a drachm each of carbonate of iron, phosphate of soda and powdered gentian. He should be well cared for and protected from undue heat, cold, moisture, or draft, and should stand on an even floor. In extreme cases, a succession of blisters should be employed as counter-irritants, applied directly over the stifle joint, each succeeding one to be applied as soon as the skin is left clean of scab from the preceding one. As a blister, a compound of one ounce of powdered cantharides, half an ounce of oil of origanum and fifteen ounces of spirit of wine may be rubbed over the joint, repeating until the desired effect is produced. Milder treatment may answer in ordinary cases. Care must also be taken to keep the bowels in good order; nitre may also be required for the proper regulation of the urinal functions. Of course, under such circumstances, a good veterinary practitioner should be consulted.

Milder Cases.

A laxation or slipping of the patella bone sometimes occurs without any special disease of the bone or system—simply from a too great laxity of the muscles which hold it in place. This also is much more common among colts than among full-grown animals, and is generally produced from causes similar to the above. The muscles are not properly nourished, although the bone itself may be unaffected. The remedy, in such cases, is to slip the bone back in place, and apply persistent bathing; the bath employed in the case described by Mr. S. is no doubt as good as any—the object being to *contract* the ligaments which hold the bone. Various methods are employed for putting the bone in place; that employed in the case alluded to is probably as good as any for the case then in hand. The animal should be fed on the best and most substantial food, so as to most readily and thoroughly build up his system and make him strong in muscle. Mild cases of this kind, which right themselves, as they sometimes do, are often taken for *cramp*.

A Sprained and Dislocated Stifle.

As has been already said, the stifle joint is not often subject to sprain. The only allusion to any medical or surgical treatment of the stifle mentioned by Youatt in his work upon the horse, is in reference to cases of this kind, and reads as follows:

The stifle joint is not often subject to sprain. The heat and tenderness will guide to the seat of injury. Occasionally, dislocation of the patella has occurred, and the horse drags the injured limb after him, or rests it on the fetlock; the aid of a veterinary surgeon is here requisite. The muscles of the inside of the thigh have sometimes been sprained. This may be detected by diffused heat, or heat on the inside of the thigh above the stifle. Rest, fomentations, bleeding and physic will be the proper means of cure.

INFLAMMATIONS, ETC., ON HORSES.—For all strains, wrenches or contusions, when the skin is not broken, hot fomentations of vinegar and water, applied by means of flannel bandages, frequently renewed, are the best possible treatment. Where there is much swelling and acute inflammation, linseed, turnip or carrot poultices may be applied with advantage, and the parts should be kept tightly bandaged, when not under other treatment. If the case is one of lameness, and the disability continues after the swelling and inflammation have past, the part should be wrapped with a close, but not tight bandage, saturated with cold water.

PRICES IN OLDEN TIMES.—In the "good old times," before the discovery of America, money was so scarce that the price of a day's work in England was fixed by an act of Parliament in 1351 at one penny. At that time twenty four eggs sold for one penny, a pair of shoes for four pence, a hen for a penny, and a fat ox for six shillings and eight pence. So that, in those days, a day's work would buy a hen or two dozen of eggs; two days work would buy a pair of shoes; and a fat ox cost eighty day's work. On the whole, human labor brought in the average about half as much food and perhaps one-fourth as much cloth or clothing as it now does.

MEDICAL PROPERTIES OF CELERY.—A correspondent of an Eastern agricultural paper says: "I have known many men, and women too, who, from various causes, had become so much affected with nervousness, that when they stretched out their hands they shook like aspen leaves on a windy day—and by a daily moderate use of the blanched foot-stalks of celery leaves, as a salad, they became as strong and steady in limbs as other people."

HOW TO DETERMINE A COW'S TEMPER.—Some one says a cow's temper can be determined by breathing in her nose. When you have breathed a few times in her nostrils, if she is kind, she will hold up her nose; otherwise she will catch it away.

Grape-Growing Near the Coast.

Mildew.

Within a few years several grape crops in Alameda and Santa Clara counties have suffered seriously from the effects of mildew; in some cases resulting in entire loss to whole vineyards. Under the influence of the cool sea breezes, damp atmosphere and fogs that prevail throughout the lands bordering on the bay, grapes are much more subject to the attacks of this fungus than are those grown among the interior valleys and hills; although I have known it to attack grapes grown on the damp river bottoms in the Sacramento Valley and even among the foot-hills of the Sierras, in localities exposed to excessive dampness from copious irrigation and shaded by trees. But everywhere in California, beyond the reach of sea damps, where the air is warm and drying, and the land dry and elevated above the overflows, grapes never mildew, but are excellent. Hence it is readily inferred that mildew on grapes is occasioned by excessive moisture, by cool damp air and the want of sunshine. Under favorable conditions grapes are a sure crop, where the blight sometimes ruins all. And it is a matter of no small moment to the owners of vineyards within the limits of its ravages to insure their crop of grapes against the effect of mildew. By my own observation, and from reliable information obtained of grape culturists, I am convinced that vines planted a liberal distance apart,—say seven or eight feet,—are much less liable to suffer than where grown closer together. Also, that the *surface* soil around and under the vines should be thoroughly loosened up and dried out; and that it is better to train the vines close to the ground than to raise them above it. The bunches of grapes that lay upon the dry earth, sheltered by the spreading leaves, are less liable to mildew than when the vines are elevated upon stakes and arbors.

Exposing the fruit to the sun, either by trimming off the leaves, or by shortening in the vines, is worse than useless. The evaporation of the surplus juices of the vine—*a matter of vital importance*—as well as the complete maturity and ripening of the fruit, depends upon the *leaf surface* exposed to the sun and air. The leaf is not only the lung but the stomach of the plant. It has the opposite effect intended, when vines and leaves are cut away in summer, to forward and perfect the fruit, yet nine in ten persist in doing it. Sometimes, when a great abundance of second growth lateral shoots crowd the inner space about the bunches of fruit, it is good policy to cut such side-growth out. But the *cutting back* of the *main vine* gives a tendency to produce these superfluous laterals, through the effort made by the vine to reproduce the leaf surface so essential to health and full maturity. In moist, deep, rich soils, where the vine makes wood too abundantly to fruit well, *spring pruning, to bleed the vine*, will correct the habit, and induce fruitfulness; just as root pruning of fruit trees of too vigorous growth will check it and cause mature fruitfulness. To cut back the branches will produce the opposite effect!

Sulphur a Perventative of Mildew.

Many experiments have proved this assertion. A timely and proper application will insure the grape against mildew. It is advisable to apply it as soon as the fruit buds are formed—the sulphur to be pulverized and dusted on the vine thoroughly, and again when the blossoms are full. The sulphur should be applied in every case when the vines are wet with dew and fog.

It is better to destroy the sporules of the fungus, than to wait until the same is grown on to the fruit. When applied to the fruit, the sulphur will destroy the mildew, but it also greatly injures the flavor of the grape by adhering to it.

It is as expedient, and quite as sure, to sulphur the blossoms as to sulphur the fruit. But it is the truth we wish to arrive at—the best way is always the best. Let every culturist experiment in various ways and *note results.* S. H. Herring

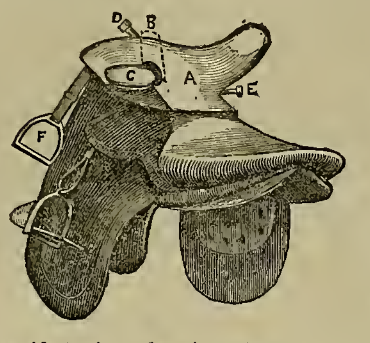
---

Jersey cattle are increasing in popularity in the East.

Improved Side-Saddle.

Among other California inventions, we present an illustration of one which will be of interest to our lady readers. Here in this State the gentler sex are quite famous as equestriennes, and the improvement comes naturally from a California lady.

In the figure, A represents the horns which slide from front to rear, or the reverse, increasing or diminishing the size of the seat of the saddle at will, making a seat fitting persons of all sizes, and allowing them to change their position at any time for an easier one, by simply turning the thumb-screw. The dotted line, B, shows the position of the horn when erect for riding, and C shows it as dropped for dismounting. D is the lever to move from one side to the other, in order to drop or raise the horn; E is the thumb-screw for fastening the horns in the desired position. This dropping the horn obviates the danger of catching the dress when dismounting, and not only prevents the garments from being torn, but may also be the means of preventing serious injury to the person of the owner. There is an additional stirrup, F, for the right foot, if the leg becomes benumbed or tired in riding long distances.



This saddle is as cheap as the common side-saddle is, we are informed, coming very extensively into use, and is rapidly superseding the old forms. The horns can be riveted to any saddle tree. The inventor is Clara A. Bartlett, of Stockton. Any further information may be obtained from the general agent, F. F. Houghton, 310 and 312 Clay street, San Francisco.

A Honey Extractor.—It is estimated that from fifteen to twenty pounds of honey are consumed by bees in the production of a single pound of comb; hence the great importance of carefully extracting the honey and returning the comb to the hive, whereby the yield of honey is greatly increased. Many plans have been devised to accomplish this end; but generally with very poor success. A machine has recently been devised in Germany, however, which is said to work admirably. It is called a *Smeloctore*—literally translated, a "honey-slinger," which exactly describes it. The comb is simply placed in a convenient rest or frame and made to revolve with such velocity, within a proper receptacle, as to "sling" all the honey out from the cells. This it is said to do without disturbing or harming any young brood which may occupy a portion of the cells subjected to the "slinging" operation. An American, named Peabody, the same person who invented the famous Peabody rifle, has also invented and patented a machine, which operates on the above principle, and is said to possess some advantages over the German device. This machine is figured and described in a late number of *Colman's* (St. Louis) *Rural World.*

Potato Sugar.—At a recent meeting of the Lyceum of Natural History, New York, specimens of syrup and of sugar made from potatoes were exhibited. It was asserted that syrup and sugar can be made at a low cost from the refuse of potatoes after undergoing distillation to obtain spirits. Potato syrup, it is reported, is used extensively by confectioners, and that the sugar has been introduced into the manufacture of lager beer. A factory, it is stated, has recently been established in Brooklyn, and potato sugar is produced in large quantities.

What I Know of Farming—No. 15.

Plowing—Good and Bad.

There are so many wrong ways to do a thing to but one right one that there is no reason in the impatience too often evinced with those who contrive to swallow the truth wrong end foremost, and thereupon insist that it won't do. For instance: A farmer hears something said of deep plowing, and, without any clear understanding of or firm faith in it, resolves to give it a trial. So he buys a great plow, makes up a strong team, and proceeds to turn up a field hitherto plowed but six inches to a depth of a foot; in other words, to bury its soil under six inches of cold, sterile clay, sand, or gravel. On this, he plants or sows grain, and is lucky indeed if he realizes half a crop. Hereupon, he reports to his neighbors that deep plowing is a humbug, as he suspected all along, but now he knows, for he has tried it. There are several other wrong ways, which I will hurry over, in order to set forth that which I regard as the right one.

Here is a middling farmer of the old school, who walks carefully in the footsteps of his respected grandfather, but with inferior success, because sixty annual harvests, though not particularly luxuriant, have partially exhausted the productive capacity of the acres he inherited. He now garners from fifteen to thirty bushels of corn, from ten to twenty of wheat, from fifteen to twenty of rye, from twenty to thirty of oats, and from a ton to a ton and a half of hay, as the season proves more or less propitious, and just contrives to draw from his sixty to one hundred acres a decent subsistence for his family; plowing, as his father and grandfather did, to a depth of five to seven inches; What can deep plowing do for *him?*

I answer—By itself, nothing whatever. If in every other respect he is to persist in doing just as his father and his grandfather did, I doubt the expediency of doubling the depth of his furrows. True, the worst effects of the change would be realized at the outset, and I feel confident that his six inches of subsoil, having been made to change places with that which formerly rested upon it, must gradually be wrought upon by air, and rain, and frost, until converted into a tolerably productive soil, through which the roots of most plants would easily and speedily make their way down to the richer stratum which, originally surface, has been transposed into subsoil. But this exchange of positions between the original surface and subsoil is not what I mean by deep plowing, nor anything like it. What I *do* mean is this:

Having thoroughly underdrained a field, so that water will not stand upon any part of its surface, no matter how much is deposited, the next step in order is, to increase the depth of the soil. To this end, procure a regular sub soil plow of the most approved pattern, attach to it a strong team; and let it follow the breaking-plow in its furrow, lifting and pulverizing the sub soil to a depth of not less than six inches, but leaving it in position exactly where it was. The surface-plow turns the next furrow upon this loosened sub soil, and so on till the whole field is thus pulverized to a depth of not less than twelve inches, or, better still, fifteen. Now, please remember that you have twice as much soil per acre to fertilize as there was before; hence, that it consequently requires twice as much manure, and you will have laid a good foundation for increased crops. I do not say that all the additional outlay will be returned to you in the increase of your next crop, for I do not believe anything of the sort; but I *do* believe that this crop will be considerable larger for this generous treatment, especially if the season prove remarkably dry or uncommonly wet; and that you will have insured better crops in the years to come, including heavier grass, after that field shall once more be laid down; and that, in case of the planting of that field to fruit or other trees, they will grow faster, resist disease better, and thrive longer, than if the soil were still plowed as of old. (I shall insist hereafter on the advantage and importance of subsoiling orchards.)

Take another aspect—that of subsoiling hill-sides to prevent their abrasion by water:

I have two bits of warm, gravelly hill-side, which bountifully yield corn, wheat and oats, but which are addicted to washing. I presume one of these bits, at the south-east corner of my farm, has been plowed and planted not less than one hundred times, and that at least half the fertilizers applied to it have been washed into the brook, and hence into the Hudson. To say that $1,000 have thus been squandered on that patch of ground, would be to keep far within the truth. And, along with the fertilizers, a large portion of the finer and better elements of the original soil have thus been swept into the brook, and so lavished upon the waters of our bay. But, since I had those lots thoroughly subsoiled, all the water that falls upon them when in tillage sinks into the soil, and remains there until drained away by filtration or evaporation; and I never saw a particle of soil washed from either save once, when a thaw of one or two inches on the surface, leaving the ground solidly frozen beneath, being quickly followed by a pouring rain, washed away a few bushels of the loosened and soddened surface, proving that the law by virtue of which these fields were formerly denuded while in cultivation is still active, and that deep plowing is an effective and all but unfailing antidote for the evils it tends to incite.

We plow too many acres annually, and do not plow them so thoroughly as we ought. In the good time coming, when steam shall have been so harnessed to a gang of six to twelve plows that, with one man guiding and firing, it will move as fast as a man ought to walk, steaming on and thoroughly pulverizing from twelve to twenty-five acres per day, I believe we shall plow at least two feet deep, and plow not less than twice before putting in any crop whatever. Then we may lay down a field in the confident trust that it will yield from two and a half to three tons of good hay per annum for the next ten or twelve years; while by the help of irrigation and occasional top dressing, it may be made to average at least three tons for a lifetime, if not forever.—*Horace Greeley.*

Something New in the Cultivation of Corn. We find the following in the St. Louis *Journal of Agriculture.* The idea may be productive of much practical good: An intelligent and reliable neighbor of ours, who has for many years been making experiments with corn, has discovered an importance and value in replanting corn, which is quite novel and worthy of publication. We have always thought that replanting corn was of little consequence, but this gentleman says: "it is of so much consequence he replants whether it is needed or not—or rather, he plants two or three weeks after the crop is planted, a hill about every fifteenth row each way." He says: "If the weather becomes dry during the filling time, the silk and tassel both become dry and dead. In this condition, if it should become seasonable, the silk revives and renews its growth, but the tassel does not recover. Then, for want of pollen, the new silk is unable to fill the office for which it was designed. The pollen from the replanted corn is then ready to supply the silk, and the filling is completed." He says nearly all the abortive ears, so common in all corn crops, is caused by want of pollen, and that he has known ears to double their size in this second filling.

Large Cranberry Field.—Washington Territory boasts of an immense cranberry marsh, yieldind 100,000 bushels in a single crop.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, April 28, 1870.

Flour, Extra, ⅌ bbl	$5 00	@$5 50
Do. Superfine	4 50	@ 4 75
Corn Meal, ⅌ 100 ℔s	2 00	@ 2 25
Wheat, ⅌ 100 ℔s	1 30	@ 1 60
Oats, ⅌ 100 ℔s	1 15	@ 1 50
Barley, ⅌ 100 ℔s	90	@ 1 10
Beans, ⅌ 100 ℔s	2 50	@ 3 50
Potatoes, ⅌ 100 ℔s	1 25	@ 1 50
Hay, ⅌ ton	11 00	@17 00
Live Oak Wood, ⅌ cord	9 00	@14 00
Beef, extra, dressed, ⅌ ℔	7	@ 12½
Sheep, on foot	2 50	@ 3
Hogs, on foot, ⅌ ℔	5	@ 9
Hogs, dressed, ⅌ ℔	8	@ 8½
GROCERIES, ETC.		
Sugar, crushed, ⅌ ℔	13	@ —
Do. Hawaiian	8	@ 11
Coffee, Costa Rica, ⅌ ℔	18½	@ 19
Do. Rio	—	@ 18
Tea, Japan, ⅌ ℔	75	@$1 00
Do. Green	60	@ 1 25
Hawaiian Rice, ⅌ ℔	8	@ 10
China Rice, ⅌ ℔	6½	@ 7
Coal Oil, ⅌ gallon	40	@ 42½
Candles, ⅌ ℔	16	@ 18
Overland Butter	20	@ 30
Ranch Butter, ⅌ ℔	20	@ 28
Isthmus Butter, ⅌ ℔	25	@ 28
Cheese, California, ⅌ ℔	14	@ 20
Eggs, ⅌ dozen	25	@ 30
Lard, ⅌ ℔	15	@ 16
Ham and Bacon, ⅌ ℔	15	@ 16
Shoulders, ⅌ ℔	9	@ 10

Retail Prices.

Butter, California, fresh, ⅌ ℔	40	@ —
do. pickled, ⅌ ℔	35	@ —
do. Oregon, ⅌ ℔	25	@ —
Cheese, ⅌ ℔	20	@ 25
Honey, ⅌ ℔	25	@ 30
Eggs, ⅌ dozen	45	@ 50
Lard, ⅌ ℔	20	@ 25
Hams and Bacon, ⅌ ℔	22	@ 25
Cranberries, ⅌ gallon	1 00	@ 1 23
Potatoes, ⅌ ℔	3	@ 7
Potatoes, Sweet, ⅌ ℔	—	@ 2
Tomatoes, ⅌ ℔	—	@ —
Onions, ⅌ ℔	3	@ 5
Apples, No. 1, ⅌ ℔	4	@ 5
Pears, Table, ⅌ ℔	5	@
Plums, dried, ⅌ ℔	10	@ 12
Peaches, dried, ⅌ ℔	10	@ 15
Oranges, ⅌ dozen	50	@ 75
Lemons, ⅌ dozen	—	@ 1 00
Chickens, apiece	75	@ 1 00
Turkeys, ⅌ ℔	—	@ 25
Soap, Pale and C. O.	10	@ 13
Soap, Castile, ⅌ ℔	18	@ 20

Scientific Press.

W. B. EWER........................SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG,
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance	$4 00
One copy, six months, in advance	2 50
Delivered by city carriers, per month	50

Rates of Advertising.

One square (ten lines agate), one week	$ 1 00
One square, one month	3 00
One column, one month	40 00
One column, one year	400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, April 30, 1870.

Table of Contents.

Knowles' Patent Steam Pump—Ill............281
The Sutro Tunnel.....288
Swamp Lands Near San Francisco............281
Ready-Made Houses....281
Bonney's Improved Grain-Lifters—Ill..........289
Montana Immigration Association............288
Full List of Patents....289
Notices of Recent Patents289
New Incorporations.....285
S. F. Stock Market......285
S. F. Shareholders' Directory.......285
S. F. Metal Market..... 294
New York Metal Market.295
Ore Deposits Ill.......282
FARMING AND GARDENING.—Grape-Growing Near the Coast; Improved Side-Saddle—Ill.; What I Know of Farming; Important to Wheat Growers; The Uncertainties of Farming and How to Avoid Them; Diseases of the Horse; The Banana, etc......286
MECHANICAL PROGRESS —Variable Expansion Gear for Winding Engines; A Novelty in Steam Engines; Toning of Photographs; A Valuable Iron Bed, etc..............283
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Idaho, Colorado, Nevada, Oregon, Utah, New Mexico and Montana..................282
SCIENTIFIC PROGRESS —Muscular Oxidation Independent of Organization; Castrophism, Uniformitarianism and Evolutionism; Effect of Temperature on Coal Gas; Dimorphism in Worms; Paper Parchment, etc...283

A NEW BANK.—We would call the attention of our readers, most especially those interested in the mechanical and industrial pursuits, to an advertisement in our columns, of the Merchants' Exchange Bank of San Francisco, for subscriptions to its capital stock. The following advantages are claimed for this incorporation: That it will be conducted on the same principles as govern our best Eastern banks, and is strictly a people's bank, intended to further all of the industrial pursuits of the coast. Its by-laws are simple and liberal. Its nine Trustees or Directors are made a Finance Committee to pass on all paper. Its terms of subscription are extremely liberal. Its incorporators are business men of good repute and integrity and men of the people. It is intended to meet one of the great wants of the business community where men of small means can be accommodated. We wish its projectors success. We learn that more than half of its capital was subscribed for the first day the books were open.

◆

J. A. VEATCH.—A telegram from Portland, Oregon, brings us intelligence of the death of Prof. J. A. Veatch. Prof. Veatch was a member of the Masonic and several other orders, and always maintained a high position among his friends and acquaintances. He was formerly a correspondent of the SCIENTIFIC PRESS, and his letters were full of interesting and important matter. His death entails a heavy loss on the community where he resided.

◆

IMPORTANT TO MILLMEN.—A new article to be used in the amalgamation of gold and silver ores, in the place of cyanide of potassium, is the cyanide of sodium, now introduced into the market by Falkenau & Hanks, of the Pacific Chemical Works. The principal advantages of the new preparation are claimed to be its reduced cost and its increased strength, it being made as concentrated as possible.

◆

THE PNEUMATIC BURRING MACHINE.—Dr. Beers, 109 Montgomery street, the well known dentist, has been using for several months this machine, of which we made notice last month, and informs us that it gives great satisfaction. He thinks that it will come into general use for dental purposes.

The Montana Immigrant Association.

A couple of weeks ago we received the circular of this Association, whose object is to prepare and publish, for free circulation, such information concerning Montona as shall encourage immigration to that place. The circular contains considerable matter of interest and also the announcement that "the Association does not propose to engage in buying and selling either public or improved lands, or lands of any kind," which in these days is an assertion worth noticing.

We hope that the efforts of the Association may continue in the direction and manner indicated and be crowned with success. The Territory offers fine inducements for good working men who are willing to depend on their own efforts for a livelihood. The agricultural capabilities of a large part of the land are undoubtedly very fine, and the completion of the Northern Pacific Railroad will bring a market to the door of the farmer. The facilities for stock-raising are especially good, and we believe that to this the Territory will look principally for many years to come. Timber exists in great abundance, and good bituminous coal is found in many places. Limestones and sandstones occur everywhere, of quality proper for building purposes. Iron ore is reported in great quantities, but is not worked as yet. The other metals are frequent, and the yield from the gold placers this year will amount, according to the opinion of many, to 25 or 30 millions. These and other inducements will no doubt bring many immigrants, certainly, when the railroad is built.

◆

New Iron Mines in Maine.

The Boston *Advertiser* contains a description of these mines, which were lately discovered at Trescott, Maine. The quality of the ore is said to be very good, and three tons, crushed, sampled and assayed, gave 64.05 per cent. of iron with considerable lime and manganese. It is extremely soft and friable, requiring but little power to pulverize it, and smelts readily.

The deposit has a course northeast and southwest, and can be traced a mile in length and several hundred feet in width. "About two miles across Cobscoat Bay, in a straight line on the course of this vein or deposit, you strike the narrow point of a promontory. This rises abruptly from the water in a perpendicular cliff about 100 feet high, and presents upon its face, for the distance in width of a quarter of a mile, an almost unbroken body of iron ore, varying in richness from the highest point which science recognizes, down to the leaner grades of ores, but nearly the whole mass is susceptible of being worked in cupola furnaces into pig-iron. This cliff is without doubt the *hanging picture* above groump of the mine at Trescott and underground a continuation of the same.

There are required but one hundred bushels of charcoal to the ton of ore in smelting, while other ores, particularly the harder ones of Iron Mountain, require about one hundred and sixty bushels. There are patent furnaces now being erected at Eastport for the working of this ore. The intention is, for the present, to make iron blooms for steel, but there is ore enough to supply three or four such works."

◆

ORES AT SALT LAKE.—Mr. John Cunnington, of Salt Lake City, advertises in the *Mormon Tribune* that he is prepared to purchase lead or silver ores in quantities of two tons and upwards, for which the highest price will be paid. These ores, we presume, are purchased for shipment. Mining is fast becoming an important industry in Mormondom.

◆

"HOW CROPS FEED."—We have received a copy of this valuable work from A. Roman & Co., and shall notice it, at length, next week.

◆

ALAMEDA FLOWERS.—We have received a fine boquet of choice roses and flowers from the garden of Rev. Mrs. Wm. Taylor, of Alameda.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING APRIL 12TH.

HAIR MEDICINE.—Andrew J. Fletcher, Red Bluff, Cal.

FOR THE WEEK ENDING APRIL 19TH.

WATER-PROOF COMPOUND FOR BOOTS AND SHOES.—Martieu H. Böttger, Sacramento City, Cal.

CAMERA-STAND.—William W. Dames, San José, Cal.

DENTAL APPARATUS FOR CASTING PLATES FOR ARTIFICIAL TEETH.—James Alanson Loomis, Carthage, Ill., and Charles Frederick Moll, San Francisco, Cal.

MACHINE FOR ROLLING CONICAL AND OTHER TUBES.—Charles Kewen, San Francisco.

KNOB FOR SAFE DOORS.—Joseph G. Kittredge, San Francisco.

PISTON-ROD PACKING.—Harvey Thomas Lee, Marysville, Cal.

SCREEN ATTACHMENT FOR WINDOWS.—George Reed, William C. Hoagland and John J. Newson, Brooklyn, Cal.

AMALGAMATOR.—Chas. C. Stevenson, Gold Hill, Nevada.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

◆

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

MACHINE FOR ROLLING CONICAL AND OTHER TUBES.—C. Kewen, S. F.—This machine is intended for rolling conical tubes or funnels from sheet metal of any kind, and is more particularly useful for forming locomotive smoke-stacks where they are made conical in shape. It consists of two series of adjustable rollers placed at a short distance apart, and a third series, also adjustable, placed above the space between the first two series. The lower series are revolved by the friction of a revolving elastic table beneath them. The sheet metal is placed so as to roll under the upper series and over the lower ones, by its contact causing the upper ones to roll also, and thus feed the sheet metal while it gives it the proper form. By the use of this device, locomotive smoke-stacks can be made with very little trouble, and for tinsmiths the device will be of great value. The rollers may be removed, replaced or adjusted with great facility, and thus adapted for rolling tubes of almost any description.

PISTON-ROD PACKING.—H. T. Lee, Marysville, Cal.—This is an improved manner of constructing metallic packing-rings for piston rods and valve stems, and is a device easily adjustable at any time, requiring but a few moments for attachment. It consists of two beveled or conically shaped rings, which clasp the piston rod or valve stem inside the cage of the stuffing box, one of the rings fitting directly against the rod and having its beveled edge towards one end of the space, while the other ring faces it, as it were, so that its bevelled side clasps the outside of the first ring. When the gland or follower is screwed down against this packing, the last-mentioned ring is forced farther over the inner one, causing it to clasp the rod more tightly, while the outer one is forced against the outside of the cage, thus making a tight joint. The rings are both made in pieces, so as to admit of the necessary compression and expansion.

AMALGAMATOR.—C. C. Stevenson, Gold Hill, Nevada.—This amalgamating pan has been previously described and illustrated in the SCIENTIFIC PRESS, and needs, therefore, no further full description. Our readers will remember that the principal points were the inclined wings or guides shaped somewhat like the mold-board of a plow, and the covered openings or housings on the upper surface, at the inner periphery of the muller, by which construction a nearly level surface of the pulp is secured, the whole mass is effectually subjected to the grinding and amalgamating process, while the pan works very easily and allows of large amounts being operated on at once. The severe tests to which the pan has been subjected, in competition with others, at Gold Hill, have turned out very satisfactorily to the inventor, who is a millman of very considerable experience.

SCREEN ATTACHMENT FOR WINDOWS.—G. Reed, W. C. Hoagland and J. J. Newson, Brooklyn, Cal.—This device, for the purposo excluding insects, etc., is so arranged that the frame of the screen is continuous with the window frame above and below, and when not in use passes into a boxhead or sill, as the case may be, so as to be entirely out of sight. Moreover, to the meeting rails a guard is attached, so that when the window is opened, the space between the glass of one sash and the rail of the other will not admit any insect. The whole forms a very neat and ingenious device.

CAMERA STAND.—W. W. Dames, San José, Cal.—This invention relates to an improved stand for supporting photographic cameras. It is simple in construction and quite inexpensive, and consists principally of an arrangement of inclined planes, by which the height of the stand and also the inclination of the camera are adjusted, in order to accommodate this to the position of the object to be operated on. By means of this device these operations of raising, lowering and otherwise adjusting the camera are very easily and rapidly performed.

BOOT AND SHOE LASTING MACHINE.—K. Gressau, Virginia City, Nev.—This is an improved machine for lasting or fitting the upper leather of boots and shoes, and consists of an arm or bar, the end of which is firmly fastened to the last through the in-sole which is in its place. This arm has attached to it a series of clamps, which hold the edge of the upper leather, while they are themselves acted upon by screws, which draw the leather tightly across the last and hold it while being stitched. Boot and shoe-makers will find this device very convenient.

◆

Silver in Limestone.

J. P. Kimball has lately written a very interesting article on the silver mines of Santa Eulalia, Chihuahua, Mexico. These mines, said to have been discovered in 1591, are known to have produced more than a million of dollars yearly for the 86 years preceeding 1791. After that time, on account of Indian hostilities and subsequent political troubles, they were gradually abandoned. The mines are in an uplift of the cretaceous fossiliferous limestone. The deposits are spoken of as unique. We quote from the article in *Silliman's Journal*: "The ores, which are mainly the chloride and sulphides of silver, argentiferous galena and salts of lead, together with (though of rarer occurrence) the chloro-bromid (embolite) and iodid (iodyrite) of silver, are very ferruginous, to which circumstance they owe their friable character, and also, to a considerable degree, the spaces in which they have been deposited. Courses of ore are always marked by ferruginous stains, which, properly considered, are segregations of mineral matter, sometimes following cleavages and joints, and sometimes planes of bedding, and, again, sometimes reticulating solid beds, and in all these modes of occurrence, without order or defined limits. A bed, or a number of beds, of the limestone, in places may be thoroughly webbed with such segregations of so decided a character as to impart a concretionary appearance, or as if limestone breccia were cemented by ferruginous ore. In such places the beds are *not* brecciated, but thus strikingly indicate the energy of disintegrating and segregating action under the decomposition or oxydation of iron salts (probably proto-carbonate) originally contained in the limestone, together with diffused salts of silver. These ferruginous portions always afford good mining ground. As some of them are very extensive, and as their distribution is irregular, their excavation results in large and rambling chambers, generally ranging through a number of heavy beds of limestone. Such chambers are often continuous with natural caverns, together forming underground spaces scarcely less imposing than the most noted caves that excite the wonder of tourists."

San Pascual Plantation.

The above is the title of another agricultural organization, which has been recently incorporated, for the purpose of engaging in the cultivation of semi-tropical fruits and other productions in the lower portion of the State. In addition to actual operations in the field, the company will also engage in the business of purchasing, selling, leasing or renting land and its appurtenances for the cultivation named.

The abundant resources of the central and southern counties of the State is attracting the attention and challenging the admiration of the world. The extraordinary advantages of the soil and climate, and their peculiar adaptation to tropical and semi-tropical fruits is already being availed of. Among other means for attracting capital in this direction, and for its immediate and practical application, is the formation of companies, like the above, which will take the initiative, and furnish working capital and employment for the industrious immigrant or resident who may thereby turn his able and willing labor to profitable account. The area of ground in the portion of the State referred to susceptible of cultivation but still untilled is immense, fully equal in extent to the entire area of the State of Massachusetts. The climate of this region is not surpassed for salubrity by any portion of the world, and the desultory experiments in the cultivation of the soil there, and the small amount of labor required, have demonstrated its capacity for the particular class of culture alluded to. The grape flourishes there in its greatest luxuriance, and free from disease; while the orange, lemon, citron, fig, walnut, olive, almond, filbert, etc., and all the cereals, thrive most astonishingly. It is in view of these facts that the company named have turned their attention in that direction, and have secured a large tract of most valuable land, shares in which are offered to the public at a price reasonably low, and in quantities to suit, at $50 each—whole number, 4,000. The managers are gentlemen well known in this community. Their names are: *President*, J. Archibald; *Vice President*, R. M. Widney; *Directors:* J. Archibald, Nath. Heath, R. M. Widney, Chas. J. King and J. A. Eaton; *Treasurer*, London and San Francisco Bank. Office of the Company, No. 344 Montgomery street,—where the Secretary is prepared to give full information with regard to the plan and profits of the enterprise.

◆

The Overland Monthly for May comes fresh and vigorous to us this week and shows no signs of diminished power, but, on the contrary, is rather an improvement on some of the preceding numbers. Its opening article on Rufus A. Lockwood strikes us as an extraordinarily good as well as a most interesting biography of a most dramatic character, and in "Old Bob" and "A Piny-Woods Character" we have sketches by a hand which knows how to delineate the peculiar points of certain phases of life. The "stories" are rather sensational, but good, and "A Lady in Camp" will undoubtedly please the gentler sex. The three articles relating to California will be read with interest and profit, and especially that on silk culture in our State. This is one of the articles which attract so much attention from abroad to our resources. The admirers of "Shoo-Fly" have the opportunity of seeing a paraphrase of the popular song (?) in the Latin tongue, and there is an abundance of good matter on every page of the magazine. Those connected with mining matters, we must not forget to state, will find, under the heading of "In and Under Guanajuato" a most readable sketch of the working of a Mexican mine, and the toils and sufferings of the miners, whose labors are often interrupted for more martial ones when a revolution is gotten up by some "ambitious scoundrel."

The Sutro Tunnel.

We have previously noticed the fact that Mr. Sutro had, after a gallant fight, defeated the bill presented in Congress for the release of the Comstock companies from the payment of a royalty of $2 per ton on all ore extracted from the mines, after the tunnel was within five hundred feet of the west wall of the vein.

That this royalty may prove a heavy burden in case that, at some future time, it may be possible to work very low grade ores, seems to us very probable. It is by no means impossible that we may be able to work with advantage ores worth a few dollars per ton, in which case the royalty of $2 will be a very heavy tax. Still this is not yet the case, and, if successful, the tunnel will certainly aid in legitimate operations. Besides, we do not see how the contract already made can be broken. We find the following very apt remarks in the *N. Y. Engineering and Mining Journal:*

The bill, though actively supported by the senators and representatives from California and Nevada, was defeated by an overwhelming vote. We think the house decided rightly. The legal complications of the matter do not concern us. We base our opinion, and we think the House based its action, on the conviction that the Sutro tunnel is a necessary and important work. Either the companies wish to run it themselves, after putting Mr. Sutro out of the way, or they do not wish to have it run at all. In the former case, there is no reason why the original proposer and promoter of the plan should be set aside in favor of a heterogeneous combination of shifting proprietorship, always at odds with each other, and almost certain not to carry out the work. When the thirty or forty companies on the Comstock lode can point to any one scheme which they have ever harmoniously executed for the benefit of all, it will be perhaps less preposterous to intrust them with this great work. As we have often said, the companies ought to have run this tunnel long ago. They have wasted on superficial tunnels, not one of which is now used, more money than this would have cost; they have thrown away an equal amount in litigation; and the reason is, that they have been operated in the interest of temporary owners, of immediate profits, and of stock speculations.

But their present cry is, that the tunnel is quite unnecessary, because they are working out old reserves of low grade ore near the surface, and do not need deep drainage, ventilation, transportation, etc. This is a confession of the plan formed two years ago, to build a railroad for cheap transportation, and then gut the mines of what ore is available, suspending explorations in depth, and abandoning the ground when the present reserves are worked out. It is a plan which ruins the mines, but may enrich the present owners. We have only to say of it, that it demonstrates the necessity of just such a law as that of which the companies now complain. They shall be forced by the Government, which still owns every foot of the Comstock, to allow others to go forward with the explorations which they propose to neglect.

The question is not one of government aid in money to the tunnel; it is merely, whether the ancient and approved custom of a tunnel-royalty should be allowed in this case, as an encouragement to a measure which promises to explore this important vein in depth.

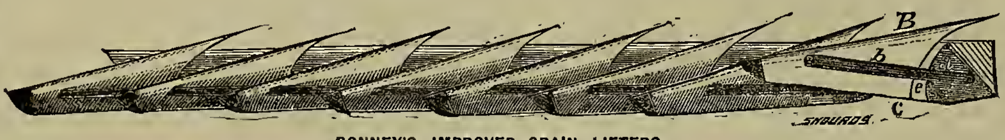
It is true that a few shafts on the vein are very deep, and that comparatively little additional water has been met in them; but increasing depth, and the consequently increasing expense both of pumping and hoisting, present difficulties enough, without any increase of water. As for ventilation, it is well known that the use of the Root blower has become indispensable in the deep mines; and it has been asserted that the artificial ventilation so produced has dried the timbers underground, so as to make them very combustible. The awful fire in the Crown Point, Kentuck and Yellow Jacket, is an illustration of this kind of danger, which, we suggest, does not need to be repeated. In case of a fire occuring in a mine provided with a deep tunnel for ventilating a draught of air would inevitably be in at the tunnel, and out by the shaft. Consequently, miners escaping in the direction of the tunnel would meet with fresh air, and a safe exit. In the catastrophe of last year, the unfortunate victims were cut off from escape by the fire itself, suffocated first, and burned afterwards.

Messrs. Sargent and Fitch made strong argument on the legal aspects of the case; and in that particular, we do not attempt to judge between them and the majority of the House; but they are not on tenable ground when they condemn the plan of a deep tunnel to the Comstock lode; and we think they lost their sturdily maintained battle, simply because they assailed not only the law, but the thing itself, whereas the House considers it of national and immediate importance. Those about to leave a sinking ship may not care to see her saved; but the people do not yet give up the ship.

◆

Bonney's Improved Grain Lifters.

In cutting grain it is often necessary to have some apparatus to elevate the heads which may have been thrown down by the wind or rain. The important question is to get that device which is the most efficient for the purpose, and at the same time the cheapest. The patentee of the lifter which we illustrate claims that he has solved this question. The lifter is compact and strong and easily attached or removed by simply drawing the back bolt. They are, moreover, adjustable, as shown in the sketch, B being raised or depressed by changing the stop bolt, *e*, in front of the shank, *a*, allowing the header to cut close to the ground and dispensing with the extra cost of buying what are termed "trinklers."



BONNEY'S IMPROVED GRAIN LIFTERS.

This is a California invention, which will prove of great use in our State, where there is a broad field for such agricultural devices. Farmers would do well to examine this lifter, which is manufactured by the patentee, O. Bonney, Jr., corner Mission and Beale streets, S. F. Parties desiring information with regard to county and State rights can obtain the same by applying to Wiester & Co., Patent Brokers, 314 Bush street, San Francisco.

◆

The Australian Gum Tree, or Century Plant, at Los Angeles.—An attentive correspondent in Los Angeles county expresses much gratification at our late illustration descriptive of the method of transplanting large trees, and at the same time communicates the following:

There is at Mr. Rose's farm, at Mission San Gabriel, an Australian gum tree—*Eucalyptus amyddalina*—eight years old, whose trunk towers up, like the main mast of a ship, full sixty feet high; and I am told that there are others of a like size at Mr. Wolfskill's.

There is a species of the American aloe, such as in Mexico is called the "Maguay," which is the so-called "century plant," only it blooms here in ten years. It has a beautifully tremstariant, white, long fibre, which the shoemakers of the Mission formerly made use of for sewing shoes, because it was so strong. The fiber, in a full-grown leaf, is more than a yard long, and about as fine as No. 40 cotton. Whether it could be divided to make it finer, so as to make it like the pine-apple cloth, I do not know. The variety we have on our place is not indigenous here, but must have been brought from Mexico. After mashing the leaf, and stripping it in pieces, it is often employed here to fence with. There is a smaller variety growing wild among the mountains. I should think it might be made a useful textile, especially in this dry climate, as it grows without water. There are some plants at Ross Browne's, in Oakland, of the larger sort.

◆

Insurance.—M. Mooney will deliver a lecture at Platt's Hall, on Monday evening next, on the subject of Insurance.

Gold Fields of Victoria.—No. 5.

Three-Dollar Quartz Profitable.

The author of "Gold Fields of Victoria," 1862, publishes statistics to show that a number of companies were working quartz in the Ballarat District, which produced less than $3 per ton, yet afforded a profit of about 30 per cent. per annum upon the capital employed. They are enabled to do so from the fact that they work the entire hill, or nearly so, crushing everything, "quartz, "mullocks," "casing," etc.

The Black Hill Company's mill of sixty stamps of 782 pounds each, and with an engine of 100-horse power, consume 150 tons of wood a week, crush from 1,000 to 1,500 tons of "stuff," and employ ninety men and four horses. They use a self-feeding apparatus, which requires but one man for the sixty stamps. The consumption of iron was one ton a week. The "stuff" averaged 2 dwts. 18 grs.=$2.27 per ton. The cost of mining was 4s.=$1; of crushing, 2s. 10d.=70 cents. The dividends paid amounted to 30 per cent.

Statistics.

In 1858 the population was 77,345. The number of acres under cultivation was 57,472. The imports amounted to $5,282,185, and the exports to $6,014,545, and the gross revenue was $1,962,275. In 1867 the population had increased to 659,887, the imports to $58,370,400, and the exports to $63,622,135. There were under cultivation 631,207 acres, the estimated gross revenue was $16,052,520, and the expenditure amounted to $16,842,680. Vide "The Mineral Districts and Gold Fields of Victoria," by R. B. Smythe:

"From various causes the number of mines has been reduced from year to year, and it is a matter for surprise that the yield of gold has not diminished in proportion. Now that the industry has assumed a settled character; that capital is available, and larger enterprises undertaken with confidence; and good wages are to be got everywhere by industrious and skillful men, it is probable that we shall soon see some change for the better in the numbers employed." It is Mr. Smythe's opinion that the gold mines now need a fresh supply of young and able men! Our readers can apply these statistics and facts for themselves.

◆

Narrow Gauge Railroads.—A paper on this subject was lately read before the London Association of Engineers by a Mr. Burrell, who advocated a narrow gauge—say from two feet to three and a half feet. He asserted that lines could be constructed even in broken and mountainous countries with the narrow gauge at from one-third to one-half of the cost of those with the standard gauge (four feet eight and a half inches). Such lines had been constructed successfully in Norway, Canada, Queensland, Peru, and on the continent to the extent of several hundreds of miles. He described a short road now being constructed in Spain which has gradients from one in twenty to one in forty and curves of less than four chains radius.

◆

The Stone of the Pyramids.—Pouchet says the Pyramids are built of the rock of the Arabian chain, which extends along the Nile. This rock is formed of agglomerated fossil shells, known as *nummulites* (Latin *nummulus*, a small coin), from their resemblance to pieces of money. The Sphinx is cut from a different rock, composed of a smaller species of nummulite.

◆

Electricity and Capillary Attraction.—The rise of sap in trees and plants has been explained on the principle of capillary attraction, but M. Becquerel considers that electricity is an acting cause. A capillary tube that will not allow water to pass through it, does so at once on being electrified, and he considers that electro-capillarity is the efficient cause of sap traveling in vegetable life.

◆

Portable Laughing Gas.—Dr. Doremus, of New York, has put protoxide of nitrogen into portable shape for dentists' use. He condenses it into the liquid state, which is done by a pressure of 800 pounds to the square inch, and bottles it up in a stout jar.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street.......................San Francisc
(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing, Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe. Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

J. VAN C. HORNER,
DENTIST,
Cor. J and Third Streets, Sacramento.
☞ All work warranted. 7v20-3m

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.
DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

References.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

---

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,
DENTIST.
Office, 313 Bush Street, near Montgomery.

Is a regular graduate, with twenty years experience in practice. 14v20-3m

---

DR. MABON,
ORTHOPÆDIST,
(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the

MOST EFFICACIOUS INSTRUMENT

Yet invented for the cure of

RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment

Office, No. 128 Kearny Street, near Sutter,
SAN FRANCISCO. 11v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco
Screw Cutting and Hand Lathes; Planers; Shaping, Drilling, and Paten Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 Clay Street, bet. Kearny and Montgomery, San Francisco. 11v20-3m

---

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street. (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. Meerschaums Mounted with Silver. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

H. G. STILLEY.
PLANE MAKER.
Planes of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 Belden Place (near Bush street), below Kearny, San Francisco. 11v20-3m

---

W. C. & JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line promptly attended to.
Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

---

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

F. SCHOENER,
METAL SPINNER
All kinds of Metal spun to order. Give me a call at No. 10 Stevenson Street, fourth story Pioneer Mills.
14v20-3m

NOTICE.
HYDRAULIC HOSE MANUFACTORY.
Hose made to stand any pressure—from 100 to 300 foot fall Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

California File Manuf'g Co.
437 Brannan Street, bet. Third and Fourth.
W. Wusthoff, L. Kramer, M. Harris, J Burke.
REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,
At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

---

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

---

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery street,
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

---

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

Metallurgy and Ores.

S. W. HOWLAND. J. W. THURMAN.
S. W. HOWLAND & CO.,
Crushers and Samplers
—— OF ——
GOLD, SILVER AND COPPER ORE,
Nos. 413 and 415 MISSION STREET,
Bet. First and Fremont, San Francisco.

☞ All work done at the shortest notice. All orders promptly attended to.
References—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co, Assayers. 7v20qy

---

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street, San Francisco.
Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.
Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

---

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
☞ Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE.............................Manager.
J. A. MARS..Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.

Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc,,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

---

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM
PRINTING ESTABLISHMENT.

Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf

The California Powder Works
No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.
A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

FRANCO-ITALIAN MANUFACTORY.
NEW CALIFORNIA
Chocolate and Coffee Steam Mills.

DESCALZO, LASTRETO & CO.,
526 WASHINGTON STREET.
MANUFACTURERS OF
Hygienic Chocolate of Every Variety,
Ne Plus Ultra Ground Coffee,
And sole manufacturers in California of the world renowned Coffee,
"CAFE DES GOURMETS,"
CORCELET PROCESS. 9v20-q

Agents Wanted for Chamberlin's New LAW BOOK FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

---

Scientific Press.—Dewey & Co. are the publishers of this sterling paper It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican*

THE FIREMAN'S FUND INSURANCE COMPANY.

OFFICE,
S. W. Corner California and Sansome Streets,
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL	$500,000 00
SURPLUS	267,115 63
TOTAL ASSETS	$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.
13v20-3m

OCCIDENTAL Insurance Company,

OF SAN FRANCISCO.]

Cash Capital, - - - - - - - $300,000

GOLD COIN.

Office S. W. corner of Montgomery and California streets.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 20v17

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2.500 secured for $6.

HOWARD & HOWE,
General Agents for the Pacific Coast.
No. 338 Montgomery street, corner California, Room 7

☞Agents Wanted.☜ 14v20-3m

Pacific Bank.

PETER H. BURNETT……President.
FORD H. ROGERS……Cashier.

REMOVED

To its new Banking House, northwest corner of Sansome and Pine streets.

O. P. SUTTON, Secretary.
San Francisco, March 30, 1870. 15v20-3m

SOMETHING NEW

— FOR —

MINERS AND FAMILIES.

EAKINS' EGG SUBSTITUTE.

TRADE MARK.]

One Can equal to three dozen Eggs,

And dispense with the use of Baking Powder, Soda, and Cream of Tartar.

Price, 35 Cents per Can.

MANUFACTURED BY ADAMS & CO.,
423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

---

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞Can compete in prices with any other dealer. 11v20-3m

---

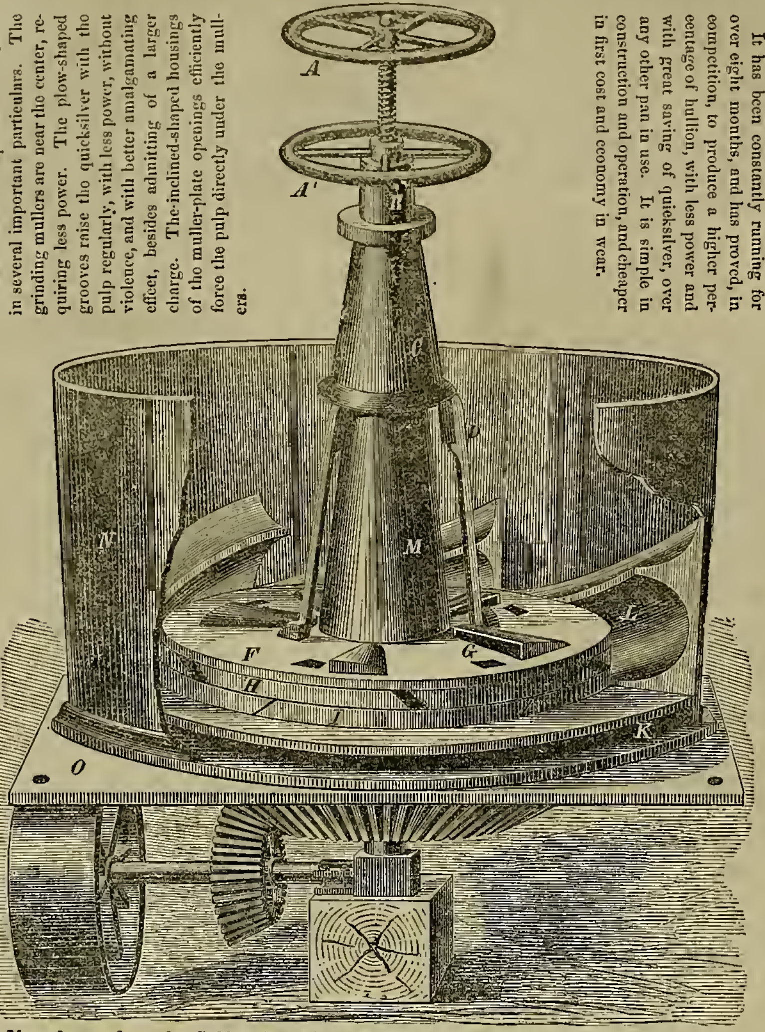
ICE. ICE.

On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.
AMERICAN RUSSIAN COMMERCIAL CO.
D. E. Martin, Superintendent,
714 and 716 Battery street.
16v20-qy

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.

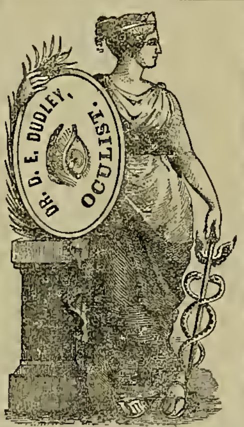
It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.



Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.,

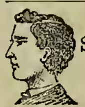
Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, Gold Hill, State of Nevada, where the Pans have long been in constant operation. 15v20-1mr,1amtf

---

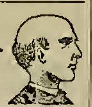

DR. D. E. DUDLEY, OCULIST.

Dr. Dudley, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: No. 12 Montgomery street, opp. Lick House. Hours from 10 to 3. ☞Se habla Español. On parle Français.

WONDERFUL



Scientific Discovery.



THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 23v19-3m

---

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO $500

LAND! LAND! LAND!

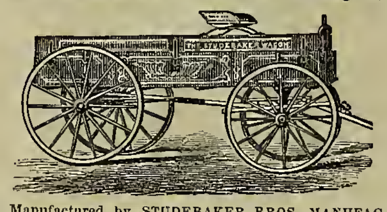
YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

40,000 Acres in Fresno County;
7,000 Acres in Sonoma County;
3,680 Acres in Tulare County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above.

YOUNG & PAXSON,
424 Montgomery street.
16v20-3m

The Celebrated Studebaker Wagon,



Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

First.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover.

Second.—They are made by experienced mechanics.

Third.—The lightest running and most durable Wagon in the market.

Fourth.—Their Thimble Skeins never break, while all others do.

Fifth.—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not.

Sixth.—The only Wagon in which the Slope Shoulder Spoke is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying.

Seventh.—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction.

Eighth.—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road.

Ninth.—Last, but not least, Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others. Sold by

COPELAND & DEFREES,
K street, bet. Seventh and Eighth,
SACRAMENTO, CAL.

☞Pioneer Agents for the Pacific Coast. 15v20-3m

AMES & WOOLVERTON,

General Agents for the Pacific Coast

FOR THE CELEBRATED

STUDEBAKER Farm and Team Wagons,

Manufactured at South Bend, Indiana.

OFFICE AND GENERAL DEPOT

— WITH —

THE KIMBALL MANUFACTURING CO.,
SAN FRANCISCO, CAL.

☞Orders and correspondence solicited. 15v20-3m

Caution.—All persons are hereby cautioned against using, or sending to others to be used, Governors for Steam Engines operated by direct action of the springs upon their arms, as such application of the springs is my invention, secured to me by Letters Patent of the United States, issued Jan. 12th, 1869.

G. T. PRACY.
San Francisco, March 24th, 1870. 14v20-1m

DR. ABORN,

Oculist, Aurist,
AND
CATARRH, THROAT
AND
Lung Physician.

No. 22 KEARNY STREET,
SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox, Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired, and at once applied to Dr. Aborn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.
San Francisco (Cal.), Jan, 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment by Dr. Aborn, at 22 Kearny street. San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Aborn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.
San Jose (Cal.), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

To whom it may Concern.—Having been a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief by submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having been afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, but without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have been in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have been under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseases to make another trial for that good prize—health.

WILLIAM BEARDSLEE.
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised by them to leave the city, as in their opinions I could not be cured in this climate; but my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Aborn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must be merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.

VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869 7v20-3m

GIANT CEMENT. GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in tin cans only, with full directions. Take no other. Giant Cement and Miners' Rubber Cement are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

Notice to Miners, Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
3v18 ly Stove Store, No. 125 Clay Street, below Dav

Report of Samuel S. Fisher, Commissioner of Patents.—1869.

[CONTINUED FROM PAGE 206.]

Assistant Commissioner.

The duties devolving upon the Commissioner of Patents cannot be performed by one person. He is not only the executive head of a large bureau, but he is invested with the sole right to extend patents, and he is charged with the duty of hearing appeals from the board of examiners-in-chief. The extension cases amounted to 153 during the last year, and as more patents were granted in 1856 than in 1855, the number of applications must constantly increase. The appeal cases of all classes amount to about 200 per annum, some of them involving the consideration of vast amounts of testimony and voluminous arguments. When to this is added so much of the correspondence as he must attend to in person, applications for office, and the necessary time for interviews, it is obvious that the labors must be arduous and unremitting.

I therefore respectfully recommend that an assistant commissioner be provided for by law, to be appointed by the President, by and with the advice and consent of the Senate; such officer to perform the duties of Commissioner in the case of death, sickness, or absence; and such other duties as may be assigned to him by the Commissioner.

Room over South Portico.

My attention was lately called to the existence of a room over the south portico of the Patent Office building, which, when explored, proved to be a hall 90 feet long by 30 feet in width and 20 feet in height. This has been hitherto practically inaccessible, as it was unfinished and useless. It has now been fitted up and rendered easy of access at a moderate expenditure, thus affording very eligible quarters for the library of copyrights and for the copyists of drawings.

Smaller rooms exist over the other porticoes of the building, which may be profitably arranged for the reception of rejected models.

Copyrights.

Congress omitted at its last session to make any appropriation for the care of the copyrighted books and records.

I am persuaded that the time has come when a radical change should be made in the system of registering copyrights. This is now done in the clerks' office of the various district courts. It is so imperfectly done that coyrights are proverbially worthless. They are usually invalid from a failure to comply with essential formalities; because no officer is interested to see that these formalities are complied with. The clerks omit in many cases to send their records to this office, and to transmit the books. Many of the latter are never received at all. Meanwhile Congress has been called upon from year to year to make appropriations from the funds in the treasury for the care of these books and papers. It is submitted, since mail facilities are now so cheap and abundant, that the work of registration could be done much more thoroughly in the Patent Office, and that the fees for that service (about $3,500 per annum) would pay all the expenses of the necessary clerical force, and for the custody of the books. If it were the business of a division in this office to do this work, correspondence could be maintained with authors and publishers, and copyrights could be perfected. I also ask that the Patent Office be permitted to display and use as books of reference, under proper restrictions, the books, especially those of a legal, mechanical, and scientific character, which are deposited by the authors and publishers under the law. These have been hitherto of no value whatever, except as vouchers.

Trade-marks.

By conventions between the United States and France and Russia (U. S. Statutes at Large, vol. XV, P.—) provision is made for the deposit of trade-marks by citizens of either country in the United States Patent Office, the Tribunal of Commerce of the Seine, at Paris, and the Department of Manufacturers and Inland Commerce, at St. Petersburg. No fee is provided for the reception and filing of these papers. As the office labor to be performed in relation to them is analogous to that attending the filing of caveats or disclaimers, the same fee ($10) would be a proper charge.

It would also, doubtless, be a proper provision if a law were enacted giving validity to trade-marks so filed, either for an indefinite or for a limited period of time.

Conclusion.

In conclusion, it is right that I should say that no class of our citizens has done more for the glory and substantial prosperity of the nation than the mechanics and inventors of the United States, and yet they have never been favored children.

They do not deem it too much to ask that the Patent Office, which is the only institution which they can specially call their own, and which they have built up with their money and established by their genius, shall be supplied upon a liberal scale with every needed appliance for the performance, in the best manner, of all its legitimate duties.

Respectfully submitted.

Samuel S. Fisher,
Commissioner.

◆

Shoshone Falls, Idaho.

We clip the following from the Owyhee *Avalanche* of March 19th: "These falls rival in magnitude and grandeur those of Niagara and Yosemite. Snake river there runs through a narrow, rocky gorge, terminating abruptly in precipitous cliffs fully one thousand feet above the rapids, which form a series of cascades from thirty to sixty feet in height, and finally calm themselves into one smooth expanse which trembles, as it were, on the verge and then leaps in one unbroken mass 210 feet into the yawning chasm below. The contour of the falls is something like a horse-shoe, and their width, following the line of water, is said to be at least four hundred yards. Below the falls the river is perfectly calm and smooth, giving no evidence of the fearful leap just taken. There is no timber in that vicinity except some stunted junipers that find support in the crevices of the rocks. Altogether the sublimity and grandeur of the scenery cannot be surpassed. The solitude of the spot, the deafening roar of the falling waters and the dark outline of the huge black rocks rising above the mist, all produce a sensation of awe on the mind of the spectator and leave an impression of the wonders and immensity of creation."

◆

Asphaltum Pipe.

In our article on this subject in the issue of April 16th, when speaking of the price, the word *inch* was used instead of *foot*. The prices charged are as follows:

2-in. pipe, 10 cts. per in. diam. or 20 cts. per running ft.
4 in. pipe, 10 cts. per in. diam. or 40 cts per running ft.
6-in pipe, 10 cts. per in. diam. or 60 cts. per running ft.

And upwards in the same proportion.

◆

A Traveling Bog.—The shifting of a bog is reported from Ballylongford, County Kerr. The bog, which covered over 200 acres, moved to a distance of nearly half a mile inland, creating great consternation in the neighborhood. Several cabins were thrown down, and cattle and horses were lost. A lake took the place of the bog. The inhabitants on the skirts of the morass barely escaped, the motion of the bog being sudden and unexpected. This not uncommon occurrence may have happened in the ancient coal era, and given rise to some of the appearances (faults) which puzzle us most, in studying the coal.—*U. S. R. & M. Register*.

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Philo B. Fox is requested to report list of subscribers taken for the Scientific Press to date. His agency (for Napa, Sonoma and Mendocino counties) is hereby revoked. His receipts, given previous to this notice, will be acknowledged at this office.

DEWEY & CO., Publishers.
San Francisco, April 28, 1870.

Important Invention.—The best drink, not containing alcoholic stimulants, yet answering all the requirements, is that made by Kenyon, Gass & Co., and known as Champagne Mead. It is recommended by the medical fraternity of this city, and should be the exclusive drink of all temperance men. It contains no injurious acids. *

C. Muller, optician, 205 Montgomery, stands first in his profession, and all those who suffer from defective eye-sight should apply to him. *

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Mason's Bread of Life, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis and Sore Throat. Price, 25 cents per box. These lozenges are free from all dangerous properties. Compounded and put up by Dr. J. H. Mason, 750 Howard st. 16v20-3m

No family should be without the Portable Gas Light. It costs only one-fourth as much as coal gas, less than coal oil, and the light is equal to the best coal gas. Call on P. J. Philips & Co., No. 650 Market street, and see it. County rights for sale. It is perfectly safe and reliable, and much more convenient than any other light in use.*

A Valuable Book for Inventors and Artisans.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Press office, postpaid, for $1.—*New Age.*

Extract from a letter dated St. Louis, Mo., March 1, 1870: "Messrs. Dewey & Co.:—The Scientific Press has been received. Though I am a constant reader of the Scientific American and great admirer of it, I confess my surprise on discovering the Pacific slope in possession of its equal in every respect. A. J. K." (inventor).

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 5m B. F. Howland.

Thomas O'Neil Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Microscopes for Scientific Investigation and Educational Purposes. Price list sent free. T. H. McAllister, Optician, 49 Nassau street, New York. 15v20-3m

Drs. Martinache & Smith, Oculists and Aurists, 313 Bush street, between Montgomery and Kearny. Hours for consultation, 12 to 3. 16v20-3m

F. Gruber, Naturalist, No. 626 California street, between Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

New Mining Notices.

Alban Gold and Silver Mining Company.—

Location of Works: Virginia, Storey County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-first day of March, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J Ball	79	5	25
C C Green	49	20	$1 00
C C Green	82	20	1 00
C C Green	141	7½	38
B W Lucas	146	5	25
B W Lucas	147	5	25
B W Lucas	148	5	25
B W Lucas	149	5	25
B W Lucas	150	5	25
B W Lucas	151	5	25
B W Lucas	152	5	25
B W Lucas	153	5	25
B W Lucas	177	40	2 00
J K Prior	35	10	50
J K Prior	36	10	50
J K Prior	37	5	25
J K Prior	38	5	25
J K Prior	39	3	15
J K Prior	140	23	1 15
W R Patton	40	10	50
Jos J Moore	101	2	10
Martinett & Schleg	103	2½	13
N Hastings	124	10	50
G E Krebs	126	5	25
J F Cassell	128	5	25
D T Berry	162	10	50
Calvin Taylor	185	6	25

And in accordance with law, and an order of the Board of Trustees, made on the twenty-first day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 432 Montgomery street, San Francisco, Cal., on Saturday, the fourteenth day of May, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. B. SMITH, Secretary.
Office, 432 Montgomery street, San Francisco. ap30

Continental Silver Mining Company.—Location of Works: Treasure City and Vicinity, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-sixth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B F Bivins	7	500	$150 00
B F Bivins	8	500	150 00
B F Bivins	9	20	6 00
B F Bivins	73	2	60
B F Bivins	74	2	50
B F Bivins	75	2	50
B F Bivins	77	2	60
B F Bivins	78	5	1 50
B F Bivins	80	5	1 50
B F Bivins	81	5	1 50
B F Bivins	82	5	1 50
B F Bivins	83	5	1 50
B F Bivins	84	5	1 50
B F Bivins	85	5	1 60
B F Bivins	86	10	3 00
B F Bivins	87	10	3 00
B F Bivins	89	10	3 00
B F Bivins	90	10	3 00
B F Bivins	91	400	120 00
B F Bivins	158	4	1 20
B F Bivins	159	4	1 20
B F Bivins	160	4	1 20
B F Bivins	161	4	1 20
B F Bivins	162	4	1 20
B F Bivins	163	4	1 20
B F Bivins	164	4	1 20
B F Bivins	165	2	60
B F Bivins	166	2	60
R F Bivins	167	2	60
B F Bivius	168	2	60
B F Bivins	169	2	60
B F Bivius	170	2	60
B F Bivins	171	5	1 60
B F Bivins	172	5	1 60
B F Bivins	173	5	1 50
B F Bivins	174	6	1 50
B F Bivius	175	5	1 50
B F Bivins	176	5	1 50
B F Bivins	177	5	1 50
B F Bivins	178	5	1 50
B F Bivins	179	5	1 50
B F Bivius	180	5	1 50
B F Bivins	181	10	3 00
B F Bivins	182	10	3 00
B F Bivins	183	10	3 00
B F Bivins	184	10	3 00
B F Bivins	185	10	3 00
B F Bivins	186	10	3 00
B F Bivins	187	10	3 00
B F Bivins	188	10	3 00
B F Bivins	190	10	3 00
B F Bivins	191	10	3 00
B F Bivins	193	10	3 00
B F Bivins	194	33	9 90
B F Bivins	195	33	9 90
B F Bivins	198	2	60
B F Bivins	199	2	60
B F Bivins	200	2	60
B F Bivins	201	2	50
B F Bivins	202	34	10 20
B F Bivins	204	2	60
B F Bivins	205	2	60
B F Bivins	206	2	60
B F Bivins	207	2	60
B F Bivins	208	2	60
B F Bivins	209	2	60
B F Bivins	210	4	1 20
B F Bivins	211	4	1 20
B F Bivins	212	4	1 20
B F Bivins	213	4	1 20
B F Bivins	214	4	1 20
B F Bivins	215	5	1 50
B F Bivins	216	5	1 50
B F Bivins	217	5	1 50
B F Bivins	218	5	1 50
B F Bivins	219	5	1 50
B F Bivins	220	5	1 50
B F Bivins	221	5	1 50
B F Bivins	222	5	1 50
B F Bivins	223	5	1 50
B F Bivins	224	5	1 50
B F Bivins	225	10	3 00
B F Bivins	226	10	3 00
B F Bivins	227	10	3 00
B F Bivins	228	10	3 00
B F Bivins	229	10	3 00
B F Bivins	230	10	3 00
B F Bivins	231	10	3 00
B F Bivins	232	10	3 00
B F Bivins	241	141	42 30
A F White	2	500	150 00
A F White	5	20	6 00
A F White	142	100	30 00
A F White	195	286	86 80
A F White	233	330	99 00
A F White	234	34	10 20
A F White	236	34	10 20
A F White	238	34	10 20
A F White	240	34	10 20
C T Fay	131	23	6 90
C T Fay	147	25	7 50
C T Fay	148	50	15 00
C T Fay	237	56	19 80
J A Eaton	116	20	5 00
Mrs J A Eaton	69	100	30 00
Clark Symons	100	5	1 50
J D Dahms	101	12	3 60
H S Bunker	129	1	30
H T Wheeler	130	1	30
Perry Johnson	133	3	90
Orrin Simmons	149	200	60 00
W T Hovey, Trustee	153	1995	598 50

And in accordance with law and an order of the Board of Trustees, made on the twenty-sixth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Secretary, No. 302 Montgomery street, San Francisco, Cal., on Wednesday, the twenty-fifth day of May, 1870, at the hour of three o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

H. H. BLAKE, Secretary
Office, No. 302 Montgomery street, San Francisco. a30

Green Monster Copper, Gold and Silver Mining Company, Inyo Mining District, Inyo County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
W H Baxter	12	12	$12 00
Sarah C Baxter	2 and 3	20	20 00
W K Flint	17	28	28 00
Henry Gerke	10	160	160 00
E L Goold	7	5	5 00
Mosse & Son	25	5	5 00
Hugh McCormick	33	12½	12 50

And in accordance with law and an order of the Board of Trustees, made on the tenth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the auction rooms of John Middleton & Son, No 310 Montgomery street, San Francisco, California, on Monday, the second day of May 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

I. N. THORNE, Secretary.
Office, No. 16 Montgomery Block, San Francisco. ar16

Postponement.—The sale of the above stock is hereby postponed until the sixteenth day of May, 1870, at the same hour and place. By order of the Board of Trustees.

ap30 I. N. THORNE, Secretary.

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
L A Booth	12	40	$160 00
L A Booth	13	40	160 00
L A Booth	14	40	150 00
L A Booth	18	20	80 00
L A Booth	20	100	400 00
L A Booth	22	120	480 00
Joseph Sedgley	24	40	160 00
E B Mott, Jr.	27	40	160 00
J M Shotwell	29	40	160 00
Joseph T Sanborn	33	20	80 00
Newton Booth	35	80	320 00
John O Earl	35	120	480 00
N D Burlingham	40	100	400 00

And in accordance with law and an order of the Board of Trustees, made on the second day of March, 1870 so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of John Middleton & Son, No. 310 Montgomery street, San Francisco, on Thursday, the twenty-eighth day of April, 1870, at the hour of twelve o'clock M of said day, to pay said delinquent assessment thereon together with costs of advertising and expenses of sale.

D. A. JENNINGS, Secretary.
Office, 419 California street, San Francisco, California.

Postponement.—Notice is hereby given, that the above sale has been postponed until Saturday, the fourteenth day of May, 1870, at the hour of 12 o'clock, noon, at same place. By order of the Board of Trustees.

D. A. JENNINGS, Secretary.
San Francisco, April 25, 1870. ap30

Mining Notices--Continued.

Alameda Coal Mining Company. San Francisco and Alameda Counties, State of California.

Notice.—There are delinquent upou the following described stock, on account of assessment levied on tho sixteenth day of February, 1870, the several amounts set opposite the names of the respective shareholders, as follows :

Names.	No. Certificate.	No, Shares.	Amount.
F. T. McMahon..........	43	26	$7 80
Louis Peres.............	102	25	7 50
Louis Peres.............	103	25	7 50
I. Veiller...............	254	10	3 00
I. Veiller...............	255	10	3 00
I. Veiller...............	256	10	3 00
I. Veiller...............	279	50	15 00
I. Veiller...............	289	78	23 40
I. Veiller...............	299	6	1 80

And in accordance with law and an order of the Board of Trustees, made on the sixteenth day of February, 1870, so many shares of each parcel of said stock as may bo necessary will be sold at public auction, by Maurice Dore & Co., on the twenty-second day of April, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

M. PHILIPP, Secretary.

Office, 409 Battery street, San Francisco. apr2

Postponement.—The above sale is hereby postponed until Saturday, the thirtieth day of April, 1870, at the samo hour and place. By order of the Board of Trustees.

apr9 M. PHILIPP, Secretsry.

Eagle Quicksilver Mining Company.—Location of Works: Eagle Mining District, Santa Barbara County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied ou the fourteenth day of March, 1870, tbe several amounts set opposite tho names of the respective shareholders, as follows :

Names.	No. Certificate.	No. Shares.	Amount.
Benton, Dr H A....	unissued	1	$20 00
Bouton, A P......	unissued	1	20 00
Constable, John L..	unissued	1	20 00
Collins, S W........	unissued	1	20 00
Edwards, M C......	unissued	1	20 00
McAllister, Hall....	unissued	2	40 00
Wolleh, Edward....	unissued	4	80 00
Richardson, Thos..	unissued	2	40 00
Rodda, Wm Henry.	unissued	2	40 00

And in accordance with law and an order of the Board of Trustees, made on the fourteenth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Company, No. 26 Hayward's Building, 419 California street, San Francisco, Cal., on Monday, the second day of May, 1870, at the hour of two o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. W. COLBURN, Secretary.

Office, Room 26 Hayward's Building, 419 California street, San Francisco. apr24

Latawana Mining Company.—Near Hamilton City, White Pine, Nevada.

Notice.—There are delinquent on the following described stock, on account of assessment levied on the nineteenth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
D M Hosmer.......	1	100	$15 00
D M Hosmer	2	100	15 00
D M Hosmer.............	3	50	7 50
D M Hosmer.............	4	50	7 50
D M Hosmer......	6	50	7 50
D M Hosmer.............	8	20	3 00
D M Hosmer.............	14	10	1 50
D M Hosmer.............	16	10	1 50
Richard Savage......	15	100	15 00
Richard Savage.........	17	100	15 00
Richard Savage......	19	50	7 50
Richard Savage..........	21	20	3 00
Richard Savage..........	22	20	3 00
Richard Savago....	23	20	3 00
Richard Savage..........	24	20	3 00
Richard Savage..........	25	20	3 00
Richard Savage	26	10	1 50
Richard Savage..........	27	10	1 50
Richard Savage..........	28	10	1 50
Richard Savage..........	29	10	1 50
Richard Savage..........	30	10	1 50
Richard Savage..........	38	20	3 00
Richard Savage..........	39	20	3 00
Richard Savage..........	40	20	3 00
Richard Savage..........	41	20	3 00
Richard Savage..........	42	20	3 00
Richard Savage..........	45	6	75
Richard Savage..........	46	5	75
Richard Savage....	47	5	75
Richard Savage.........	90	1000	150 00
Richard Savage..........	91	600	75 00
Richard Savage..........	92	100	15 00
Richard Savage....	93	100	15 00
Richard Savage..........	94	100	15 00
Richard Savage..........	95	100	15 00
L A Brown, Trustee......	70	100	15 00
L A Brown, Trustee......	71	100	15 00
L A Brown, Trustee......	72	100	15 00
L A Brown, Trustee......	73	100	15 00
L A Brown, Trustee......	74	100	15 00
L A Brown, Trustee......	75	100	15 00
L A Brown, Trustee......	76	100	15 00
L A Brown, Trustee......	77	100	15 00
O T Ames................	78	100	15 00
O T Ames................	79	100	15 00
O T Ames................	80	100	15 00
O T Ames................	81	100	15 00
O T Ames	82	100	15 00
O T Ames................	83	100	15 00
O T Ames.....	84	100	15 00
O T Ames................	85	100	15 00
O T Ames................	86	100	15 00
O T Ames................	87	188	28 20
P Conklin.................	59	2	30
P Conklin.................	60	3	45
P Conklin.................	61	6	75
P Conkliu.................	63	5	75
P Conklin.................	64	5	75
P Conklin.................	65	6	75
S E Holcombo...........	112	768	115 20
S E Holcombe...balance	127	10	50
Richard H Savage........	116	10	1 50
S Hilton..................	119	20	3 00
Wm M Grant......	120	354	63 10
Francis S Bowen	123	10	1 50
Wm Carrison..unissued.	124	4248	637 20
R Caulfield......balanco	128	40	2 00
D Walker, M D...balance	129	20	1 00
Jno Samud.... .balance	130	10	60
Jno Samud.... ..balance	131	10	60
Richard Savage.... unissued		2249	337 35

And in accordance with law and an order of the Board of Trustees, made on the nineteenth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction. at No. 526 California street, between Montgomery and Kearny, San Francisco, Cal., on Tuesday, the tenth day of May, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

CHAS. WELLINGTON, Secretary.

Office, 614 Merchant street, Room 26, or 626 California street, San Francisco. apr23

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of April, 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to tho Secretary, at the office of the Company, No. 408 California street, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the twenty-third day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, 408 California street, San Francisco. ap16

Miser's Dream Silver Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of April, 1870, an assessment of forty (40) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of tho Company, Room No. 35, New Merchants' Exchange, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the seventeenth day of May, 1870, shall be deemed delinquent. and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, tho fourteenth day of June, 1870. to pay the delinquent assessment, together with costs of advertising and expenses of sale.

W. F. R. SCHINDLER, Secretary.

Office, Room No. 36, New Merchants' Exchange, California street, San Francisco, California.

Office of the Placer Gold Mining and Canal Company.—Location of Works: Township No. Six (6), County of Placer, State of California

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the ninth day of April, 1870, an assessment (No. 1) of two dollars ($2) per sharo was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to tho Secretary, at the office of the Company, No. 802 Howard street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Friday, the twentieth day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall bo made before, will be sold on Friday, the tenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. S. HALEY, Secretary.

Office of Company, 802 Howard street, San Francisco, Cal. Office hours: 6 to 8 p. m. apr15

Pacific Pneumatic Gas Co.—Notice.—

A meeting of the stockholders of the Pacific Pneumatic Gas Company will be held at the office of the Pacific Iron Works, in San Francisco, on the First day of May, 1870, at 1 o'clock P. M., to consider the proposition to reduce the capital stock of said Company to the sum of two hundred and fifty thousand dollars ($250,000).

IRA P. RANKIN,
J. J. FELT,
J. W. STOW, Trustees.
mar26 A. P. BRAYTON,

EDEN DALE COMPANY,

For the Cultivation of

Semi-Tropical Fruits, Silk Culture, Etc.,

ON A TRACT OF

Six Thousand Acres

ADJOINING THE CUCAMONGO RANCH,

ON THE "MUTUAL" PLAN.

☞ Prospectus, Maps, etc., furnished at the office, 344 Montgomery street.

Shares payable in ANNUAL installments. 18v20-1w

Carmen Island Salt Works

MANUFACTURE AND OFFER FOR SALE

TABLE, DAIRY, COARSE-FINE,

CARMEN ISLAND ROCK,

AND LIVERPOOL COARSE AND FINE

SALT.

Dealers and Packers supplied in quantities to suit, at the lowest market prices.

MILL, 249 STEWART STREET.

HOLLADAY & BRENHAM, Agents,
11v20-3m 325 Front Street, San Francisco.

MAGAZINES.	P. An.
Harper's..............	$4 00
Atlantic..............	
Godey.................	
New York Ledger...	
Blackwood..........	
Hours at Home.....	
Good Words.........	
Peterson's............	3 00
Arthur................	
Lady's Friend.......	
Harper's Weekly....	6 00
Chimney Corner	
Literary Album......	
London Society.....	6 00
All the Year Round..	
London Ill. News...	16 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number.

MARTIN'S

Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

A gentleman who knows says emphatically that the Scientific Press will not commend any thing not known to be good; and that money will not buy its endorsement of an unworthy object. That is high praise but he did say it.—*The Pastor, Mayfield, March* 15.

New Advertisements.

San Pascual Plantation,

NEAR LOS ANGELES,

For the Cultivation of Raisins, Semi-Tropical Fruits, etc.

FOUR THOUSAND SHARES AT $50 EACH.

Ten Dollars to be paid at date of subscription, and $5 per year afterwards till paid.

Maps, etc., furnished at tho office, 344 Montgomery street. 18v20-1w

---

NOTICE.

Merchants' Exchange Bank,

OF SAN FRANCISCO.

The books for subscription to the Capital stock of the above Bank will be opened on THURSDAY, April 28, 1870, at Room No. 9. Hayward's Building, on California street, and subscriptions will then be received daily, from 9 o'clock a. m. to 3 o'clock p. m., until further notice.

18v20-1w GEO. H. WHEELER, Secretary.

Greatest Discovery Ever Made.

MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has been the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would be to those afflicted with this painful disease, he with great difficulty and expense obtained the secret of preparing the Plaster; and during the many years MR. MAC has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will be convinced by referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street; Michael Gorman, No. 6 Front street; Mrs. W. S. Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository American Tract Society, 657 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 a. m., 2 to 4 p. m. and 7 to 9 p. m.

18v20-3m

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO,

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

Railroads and Steamers.

SHORT ROUTE.

The following time will take effect

Sunday..............................April 24, 1870.

GOING NORTH—Daily (Sundays Excepted).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
7:00 A. M. 4:00 P. M.	11:45 A. M. 7:15 P. M.	11:20 A. M. 8:20 P. M.	1:00 P. M. 9:30 P. M.
ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M.

GOING SOUTH—Daily (Sundays Excepted).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M. 1:15 P. M.	6:45 A. M. 2:45 P. M.	6:15 A. M. 3:15 P. M.	10:30 A. M. 7:30 P. M.
ON SUNDAYS.			
10:15 A. M.	3:00 P. M.	2:30 P. M.	6:45 P. M.

TICKETS for sale at 313 Montgomery street, or on board steamer New World R. S. MATTISON, Superintendent.

L. C. FOWLER, General Freight and Passenger Agent.

Vallejo, April 24, 1870. 13v2-1y

Pacific Mail Steamship Company.—For

New York, via Panama. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

May 3..................................MONTANA,
Connecting with Alaska.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose do Guatemala; steamer of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

April 30—CHINA, Captain Doane.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.

13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation COMPANY,

Steamer CAPITAL.........................CAPT. E. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE................. —— ——
" CORNELIA...................CAPT. W. BROMLEY
" JULIA.......................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

13v12 **B. M. HARTSHORNE, President**

SAN ANTONIO

PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of

STONE WARE,

Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also

Chemical Ware, of Sorts Made to Order.

We manufacture to order

Terra Cotta Equal to the Best French.

Samples on hand.

FIRE BRICK.

A No. 1 article made to order, warranted superior to any imported.

Flower Pots and Ornamental Vases

Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

☞ Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.

8v20-tf

DR. F. SCHULTZ,

NO. 114 KEARNY STREET,

SAN FRANCISCO.

Office Hours—From 8 to 11 a. m. and from 2 to 6 p. m.

PARTICULAR ATTENTION GIVEN TO

SORE EYES, NEURALGIA,

RUNNING SORES and RHEUMATISM.

16v20-3m

MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, April 28, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ₩ 100 lbs.; Bar, 1@1½c ₩ lb; Sheet, polished, 3c ₩ lb; common, 1½@1¾c ₩ lb; Plate, 1½c ₩ lb; Pipe, 1½c ₩ lb; Galvanized, 2½c ₩ lb.

Scotch and Eng. Pig Iron, ₩ ton	$30 00	@	$32 00
White Pig, ₩ ton	28 00	@	— —
Refined Bar, bad assortment, ₩ lb.	— 03	@	— —
Refined Bar, good assortment, ₩ lb.	— 04	@	— —
Boiler, No. 1 to 4	— 04¾	@	— —
Plate, No. 5 to 9	— —	@	— 04½
Sheet, No. 10 to 13	— 04½	@	— 05
Sheet, No. 14 to 20	— 05	@	— 05½
Sheet, No. 24 to 27	— 05	@	— 06½

Copper.—Duty: Sheathing, 3½c ₩ lb; Pig and Bar, 2½c ₩ lb.

Sheathing, ₩ lb	— —	@	— 26
Sheathing, Yellow	— 20	@	— 21
Sheathing, Old Yellow	— 10	@	— 11
Composition Nails	— 21	@	— 22
Composition Bolts	— 21	@	— 22

Tin Plates.—Duty: 25 ₩ cent. ad valorem.

Plates, Charcoal, IX, ₩ box	12 00	@	— —
Plates, I C Charcoal	10 00	@	10 50
Roofing Plates	10 00	@	10 50
Banca Tin, Slabs, ₩ lb	— —	@	— 42
Steel.—English Cast Steel, ₩ lb	— —	@	— 15
Quicksilver.—₩ lb	— —	@	— 62½
Lead.—Pig, ₩ lb	— 7½	@	— 8
Sheet	— 10	@	— —
Pipe	— 11	@	— —
Bar	— 9	@	— 9
Zinc.—Sheets, ₩ lb	— 10½	@	— 11
Borax	— —	@	— 45

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON
Iron and Locomotive Works.

INCORPORATED..........APRIL 30, 1868.
CAPITAL..........$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Wm. Norris, Lloyd Tevis, Joseph Moore, John N. Risdon, Wm. Alvord, Chas. E. McLane,

JOHN N. RISDON..........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..........Secretary.

24v17-qy

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 Sacramento City

GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

J. C. THWING & CO.,

Successors to T. O. Durking & Co.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867. 2v17

R. SAVAGE. R. E. DORAN.

SAVAGE & CO.,

Empire Iron Foundry,

No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices. 9v20-3m

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and **15** Fremont street, near Market, San Francisco. 10v14qr

CALIFORNIA TOOL WORKS,

Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,

SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

San Francisco Wire Works,

No. 665 Mission Street, near Third.

SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,

Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

WM. W. CANTY, JNO. DUSH, F. PRETORIOUS, JNO. CONNER.

MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,

Between Howard and Folsom, San Francisco.

— ALL KINDS OF —

High and Low Pressure Boilers Built.

Sheet Iron Work, Etc., Etc.

☞ Repairing promptly attended to.

17v20-6m WM. W. CANTY, Manager.

THOMPSON BROTHERS,

EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street, San Francisco.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

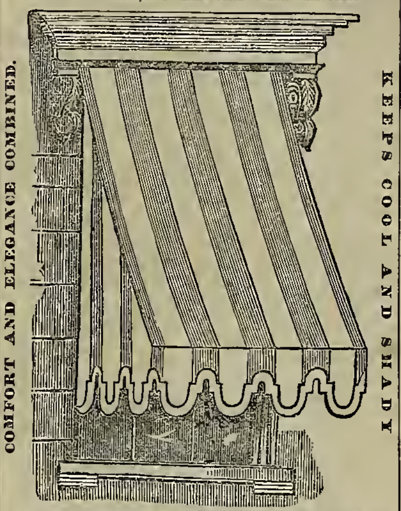
P. GALLAGHER. J. H. WEED V. KINGWELL

Our Home Physician.

AGENTS WANTED.—"OUR HOME PHYSICIAN."—New, complete, simple, reliable. The Pacific Medical and Surgical Journal says: "It is the best book on 'Popular Medicine' we know of." The Overland Monthly says: "The more generally this volume is introduced into families, the better it will be for them and the worse for quacks." Apply for circular fairly representing its character, at WESTERN PUBLISHING AGENCY, 411 Kearny street San Francisco. 6v20-3m

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.



Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

The Equalizing Institute.

SOMETHING NEW.

THE EQUALIZER,

A GUIDE TO HEALTH.

Cures all Chronic Diseases

BY VACUUM.

This treatment causes a thorough circulation of the blood throughout the system, creates new life, and reinstates perfect health. The following diseases can be cured by the above system: Paralysis, Nervous Debility, Neuralgia, Dyspepsia, Asthma, Curvature of the Spine, and other Spinal affections, Sciatica, Palsy, St. Vitus' Dance and Derangement of the Mind, and many other ailments, for particulars of which see our circular.

THE GUIDE TO HEALTH.

Testimonials.—P. Windsor, having suffered severely from four sun strokes, and in the last two years from four strokes of Paralysis and loss of speech, had recourse to the Equalizer as a treatment for same, and by means of the Equalizer was perfectly cured in the astonishing short period of four mouths; and as proof of the above, he can be seen at the Equalizing Institute, 650 Howard street, San Francisco.

San Francisco, April 5, 1870.

Sunday being the Sabbath Day,

THE EQUALIZER

Will be devoted to the treatment of all chronic diseases, exclusively to the poor, between the hours of nine and four o'clock, (not including paupers), free of all charges.

PROPRIETOR EQUALIZING INSTITUTE,
16v20-qy 650 Howard Street.

HIBBERD, SANBORN & CO.,

South Point Mills, Berry Street,

Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

SAN FRANCISCO
Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

☞ The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

USE

DR. S. GIRARD SMITH'S

ARAMIRACULAS

— FOR —

RHEUMATISM, GOUT AND NEURALGIA

CURES GUARANTEED.

Has cured Thousands. Has never been known
One bottle will relieve you.

OFFICE, No. 621 KEARNY STREET.

Agents Wanted in every City and Town.—Terms Liberal.

Dr. S. Girard Smith, 621 *Kearny street.*—Dear Sir It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Ayer's
Hair Vigor,

For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a

HAIR DRESSING,

nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.

Prepared by Dr. J. C. Ayer & Co.,

Practical and Analytical Chemists,

LOWELL, MASS.

PRICE $1.00.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, Wholesale Agents. 26v18-1y

New York Metal Market.

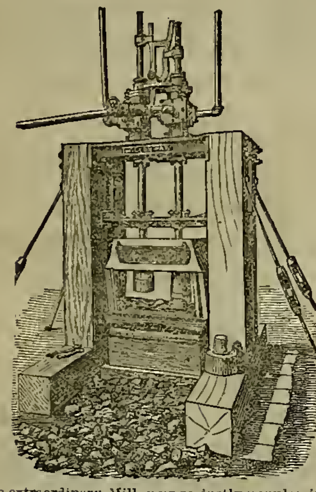
[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, April 16, 1870.

IRON.			
Pig, Scotch, No 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No. 2................	38 00	@	39 00
Swedish, ordinary sizes..............	140 00	@	155 00
Common..............................	87 50	@	92 50
Refined..............................	95 00	@	— —
Rods..................................	100 00	@	155 00
Horse-shoe..........................	115 00	@	— —
Hoop..................................	125 00	@	180 00
Scroll.................................	110 00	@	145 00
Nail-rods, per lb.....................	— 8½	@	— 9½
Spring................................	— 9½	@	— —
Tire...................................	— 9¼	@	— —
STEEL.			
Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast......................	— 23	@	— —
Sheet, second quality...............	— 20	@	— —
Sheet, third quality..................	— 18	@	— —
Saw-plates, circular..................	— 27	@	— —
Double-shear, warranted.............	— 23	@	— —
Single-shear..........................	— 19	@	— —
Montague & Co. (cast bars)........	— 18	@	— —
Machinery, round....................	— 16	@	— —
German, best.........................	— 16	@	— —
German, goat........................	— 13½	@	— —
German, eagle........................	— 12	@	— —
Blister, warranted....................	— 16	@	— —
Blister, common.....................	— 15	@	— —
Jessop & Sons', common............	— 17	@	— —
Double-refined.......................	— 26½	@	— —
Stone ax shapes......................	— 26½	@	— —

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,
For Durability, Efficiency,
AND ECONOMY OF WORKING,
HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S
PATENT AMALGAMATOR.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for hemselves, at the office, 229 Fremont street,
1v1 San Francisco.

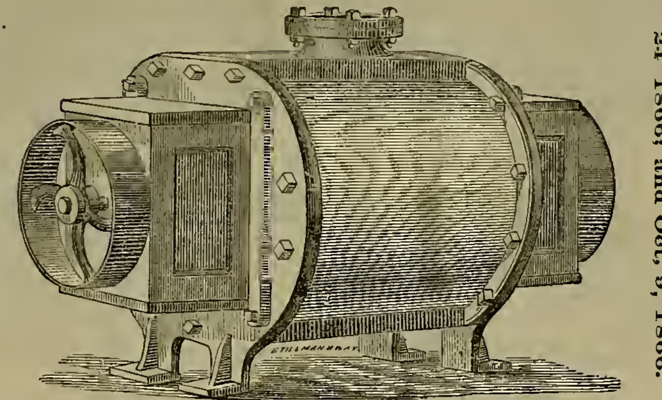
Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, SACRAMENTO. COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

---

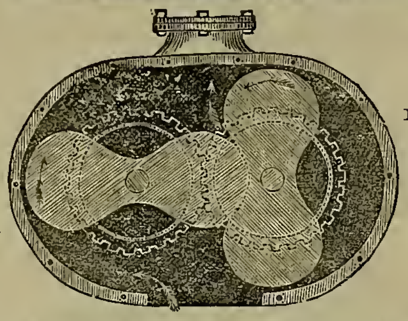
ROOT'S PATENT FORCE BLAST ROTARY BLOWER.
MANUFACTURED BY KEEP & BARGION,
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** LESS POWER **Than any Blower** Now in use.

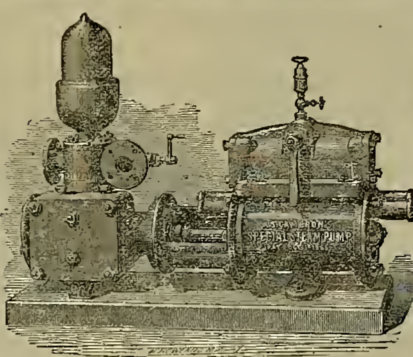
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
MARINE
ENGINES.
SURFACE
CONDENSERS.

DAVID STODDART,
BEALE STREET.

PAUL'S
DRY AMALGAMATING
Electric Process.

A SYSTEM FREE OF DUST, that will cheaply work Gold Ores, and gather flour gold, with the same readiness as the coarser, whether free or associated with iron, copper, lead, antimony, or zinc, or all together in one matrix, and produce bullion free of any or all of the base metals

That will work Silver Ores carrying any of the base metals to a higher percentage than any system of raw amalgamation, and produce bullion not less than .950 fine.

That where silver is associated with a large percentsge of lead, copper, zinc, or antimony, a certain percentage can be extracted in fine bullion—the percentage owing to ore—say 30 to 60 per cent, The residue in base metals can be taken up for smelting or roasting by concentration, at no additional expense; the bullion and concentration equaling 95 per cent. of value of ore.

[From Superintendent of Rosecrans S. M. Co.]

This is to certify, that I had worked at the Haskin & Grove Mill, Empire, 1,600 pounds of gold ore by Paul's Dry Amalgamating Process, as a test against my own working of same ore by the stamp mill, working wet, and that on comparing results the yield by the Paul Process exceeded the mill returns sixty-three per cent. per ton.

I am satisfied the Paul Process will gather the fine gold, and which it is not possible for a wet working mill to collect. AUG. GUIBOR.

☞ Pamphlets setting forth the practical working of the Process will be forwarded on receipt of any address. Parties interested in mining can gain further particulars by applying to

ALMARIN B. PAUL,
No. 408 California street, up stairs,
1 v20 San Francisco.

TO MILLMEN.

FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30 inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W. NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

---

FOR SALE.
A Ten-Stamp Quartz Mill,
NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

PARIS
Scouring and Blanket Cleaning
ESTABLISHMENT.

Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling*. Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

---

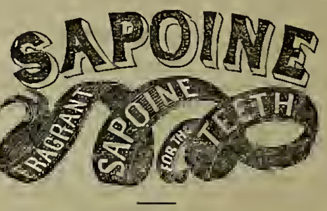
ECONOMY AND CLEANLINESS
Are to be found in the use of the
PATENT SPRING BED.

They are the cheapest and best in the market. Manufactory on Twelfth street, bet. C and D, SACRAMENTO. Caveat filed Aug. 9, 1869. [15v20] G. B. DEAN.

WHOLESALE DEALERS IN
DRUGS, CHEMICALS,
Patent Medicines,
DRUGGISTS' SUNDRIES,
TILDEN & CO'S
SOLID AND FLUID EXTRACTS,
Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.



THE GREAT MEDICAL DISCOVERY!
Dr. J. Walker's California
VINEGAR BITTERS.

More than 500,000 Persons

Bear testimony to their wonderful Curative Effects.

WHAT ARE THEY!

They are not a vile

FANCY DRINK,

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, FREE FROM ALL ALCOHOLIC STIMULANTS. They are the GREAT BLOOD-PURIFIER AND LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition. No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ SEND FOR A CIRCULAR. ☜

R. H. McDONALD & CO.,
Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞ SOLD BY ALL DRUGGISTS AND DEALERS.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

WM. H. MURRAY, California and Nevada.
S. H. HERRING - California.
THOMAS POYZER—California.
F. B. ALDERSON—California.

Resident Agents.

CENTERVILLE, Alameda Co., Cal.—L. G. Yates.
OAKLAND—W. H. Hardy.
SACRAMENTO—A. S. Hopkins, No. 70 J street.
JACKSON, Amador Co., Cal.—G. S. Andrews.
TREASURE CITY, Nev.—Thos. Starr.
CARSON CITY, Nev.—John G. Fox.
TREASURE CITY, Nev.—J. L. Robertson.
SHERMANTOWN, NEV.—P. C. Renfrew.
SILVER CITY, Idaho—J. Caples.
HELENA, Montana—E. W. Carpenter.
BLACK HAWK, C. T.—Harper M. Orahood.
CENTRAL CITY, C. T.—Richards & Crane.
GEORGETOWN, C. T.—John A. Lafferty, Postmaster.
DENVER CITY, C. T.—Woolworth & Moffat.
CHEYENNE, D. T.—Robert Beera.
OMAHA, N. T.—Barkalow & Brothers.
PHILADELPHIA, PA.—Fitler, Quigg & Co.
LONDON—George Street, 30 Cornhill, E. C.
HUDSON & MENET, 41 Park Row, New York.
A. C. KNOX, City Soliciting and Collecting Agent.

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
ILLUSTRATED CIRCULARS FREE.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT, Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co :—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street. San Francisco

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY. and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. v16-1y16p

WIESTER & CO.,

PATENT BROKERS,

No. 314 Bush Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

Odermatt & Ettlin's Fountain Pen.

PAT'D. AP. 6. 1869.

We call the attention of manufacturers to this new invention for supplying writing and drawing pens with a constant flow of ink. The pen-stalk contains sufficient ink to last for two or three days' constant use, and is provided with stop-cocks, which make it perfectly safe for carrying in the pocket. The flow of ink is under perfect control of the operator. A slight pressure on the thumb and fore-finger on the elastic sides of the holder is all that is required to regulate the flow of ink to suit the writer. It never blots unless forced to do so. The cost to manufacture is small, and the demand for a good Fountain Pen is very extensive among all classes of literary and business men. A sample of this invention can be seen and tried at our office, 314 Bush street, San Francisco. The entire Patent, or the Right for any State, can be bought on reasonable terms. Full particulars furnished on application.

NEW LIGHT ON A NEW PRINCIPLE.

Gas for everybody in the city and in the country. Equal to coal gas at one-half the cost. The gas is generated and burned in a new style Vapor Lamp. No wick, no chimney, no explosion; and no man who is out of business and has a few dollars should fail to purchase a County or State Right and commence making money. Parties owning territory get the Lamps at Manufacturers' prices. Call and examine the light, or write for particulars.

A NEW PAPER FILE AND MUSIC FOLIO.

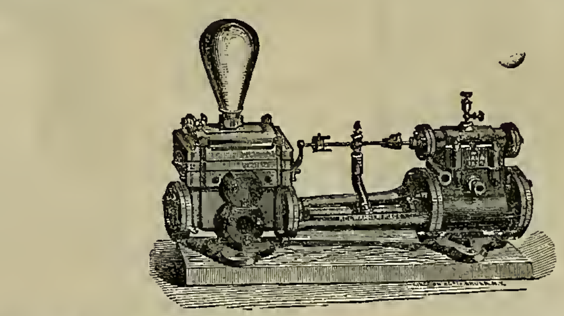
Two excellent inventions included in one patent. Either can be manufactured at a small cost, and neither has an equal in its line. No more expense for binding music. Each sheet has a complete and durable binding as soon as it is placed in the folio. The California Legislature has endorsed the Paper File by purchasing three hundred and fifty, to take the place of the old style binders. It certainly is the most complete article of the kind ever invented. Whoever buys the right to manufacture and sell this invention will secure a good basis for a profitable business. Only the Territory west of the Rocky Mountains for sale. Parties in the city should call and examine the article. Full particulars furnished on application.

WIESTER & CO.,
314 Bush Street, San Francisco.

LOCAL AGENTS WANTED.

One reliable business man wanted in each and every town on the Pacific Coast to sell Patent Articles. We deal in none but first-class Patents, and each agent receives the exclusive right to sell in his town. Address
WIESTER & CO.,
314 Bush street, San Francisco.

KNOWLES' PATENT STEAM PUMP.



This Pump has received the HIGHEST PREMIUM at every Fair where it has been exhibited. It is of superior make and finish; has all ground joints; no packing required. It is positive in its action It is impossible to stop it on centers. It will always start without using a starting bar. We have two hundred different styles and sizes adapted for Factories, Steamships, Sugar Refineries, Breweries, Distilleries, Gas Works, Oil Works, Soap Works, Paper Mills, Tanneries, Bleacheries, Laundries, Railroad Purposes, Quarries, Petroleum Mines, Drainage, etc. Large Pumps for Water Works. Fire and Wrecking Pumps. ☞ Pumps guaranteed for every situation.

E. T. STEEN & V. CUSHING,
SOLE AGENTS FOR THE PACIFIC COAST,
No. 9 FIRST STREET. SAN FRANCISCO.

NEW AND SECOND-HAND ENGINES, BOILERS, and MACHINERY OF ALL KINDS, constantly on hand.

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

THE CALIFORNIA
Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:

JAMES T. DEAN.................................President
JAMES MILBURN...............................Secretary.
RODGERS, MEYER & CO.....................Treasurers.

Company's office, 121 POST STREET, San Francisco,
12v20-3m

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

BARTON & RUTTER,
Importers and Dealers in
Guns, Pistols, Fishing Tackle
Pocket Cutlery, Etc.
SPORTING APPARATUS OF EVERY DESCRIPTION.
609 Clay Street, near Montgomery.
—SOLE AGENTS FOR—
Alexander's Celebrated Pocket Cutlery
For the State of California.
JNO. C. BARTON. R. A. RUTTER.
16v20-3m16p

PLATINUM
Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes.
H. M. RAYNOR,
67 Bond street, New York.
Platinum Scrap and Ore purchased. 16v20-1y16p

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,
—IMPORTERS OF—
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
—ALSO AGENTS FOR—
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY
54 K Street, Sacramento.
7v20-ng

WILCOX'S
PATENT STEAM
WATER LIFTER.
Requiring no Engine.

Send for circular containing full explanations, price list, testimonials and references.

M. & A. WILCOX,
16v20-3m-nhxh 74 K street, Sacramento.

N W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect.
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLED RAWHIDE, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ **Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** D8

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,066,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.
9v20-qy16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, May 7, 1870.

VOLUME XX.
Number 19.

The Diamond Pointed Drill.

It has long been well known that good progress could be made in rock-boring by using a rotary cutting action. The first machines of the kind were scarcely more than a sort of auger, yet they gave such results and offered such advantages over the common striking tool, especially in the matter of repairs, that there were many who predicted at the time that rotary machines would be improved so as to supersede all others.

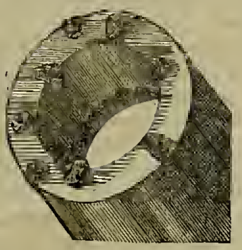


Fig. 1.

A most important step was made when in 1860 Prof. R. Leschot, a French engineer, conceived the idea of setting diamonds in an annular cutter. Before, these machines could be used in soft rocks; now they bid fair to be effective on the hardest. Leschot found that by arranging diamonds in his ring-shaped bit or boring head, as shown generally in Fig. 1, so as to cut out a core, he could work very rapidly and economically. His patent rights have become the property of Messrs. Severance and Holt, who are practical mechanics, and who have been long at work making improvements. They have rendered more secure and convenient the setting of the diamonds, increased the speed, and regulated the feed gear so as to adjust the feed to the varying hardness of the rock. They have added the swivel head, so that the drill may work at any angle, and have substituted the hollow screw shaft, besides making various other improvements. They have several styles of drill, the most common of which we illustrate. Fig. 2 shows a "No. 1 prospecting drill," so called, because of its general use in testing the character and value of mines and quarries. It consists of a small upright boiler, to one side of which is firmly bolted the cast-iron frame which supports the engine, A,—an oscillator of from five to seven horsepower—and swivel drill-head, gears and screw-shaft, B, with drill passing through it, as shown in the engraving. This shaft is made of hydraulic pipe from five to seven feet in length, with a coarse thread cut on the outside. This thread runs the entire length of the shaft, which also carries a spline by which it is feathered to its upper sleeve-gear. This gear is double and connects by its lower teeth with the beveled driving-gear, and by its upper teeth with the release-gear, E. This release-gear is feathered to the feed-shaft, F, at the bottom of which is a frictional gear fitting the lower gear on the screw-shaft, which has one or more teeth less than the frictional gear, whereby a differential feed is produced. This frictional gear is attached to bottom of feed-shaft, F, by a friction-nut, thus producing a combined differential and frictional feed, which renders the drill perfectly sensitive to the character of the rock through which it is passing, and maintains a uniform pressure upon the same. The severe and sudden strain upon the cutting-points, incidental to drilling through soft into hard rock with a positive feed, is thus avoided. The drill proper (passing through the screw-shaft, B), consists of a tubular boring bar, made of lap-weld pipe, with a steel bit or boring-head, D, screwed on to one end. This bit is a steel thimble about four inches in length, having three rows of black diamonds in their natural rough state firmly imbedded therein, so that the edges of those in one row project forward from its face, while the edges of those in the other two rows project from the outer and inner peripheries respectively.

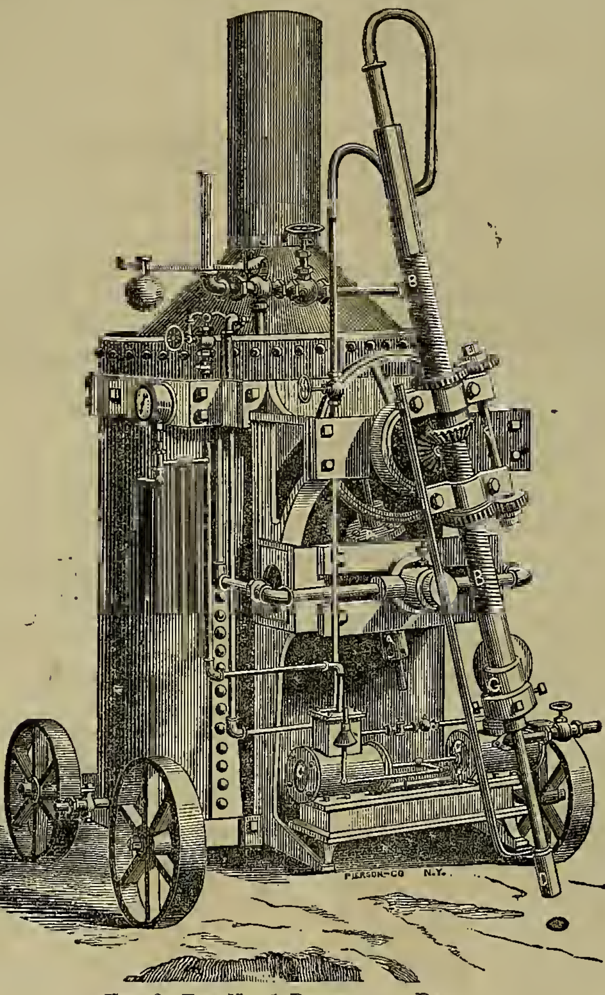


Fig. 2—The No. 1 Prospecting Drill.

The diamonds of the first-mentioned row cut the path of the drill in its forward progess, while those upon the outer and inner periphery of the tool enlarge the cavity around the same, and admit the free ingress and egress of the water as hereafter described. As the drill passes into the rock, cutting an annular channel, that portion of stone encircled by this channel is, of course, undisturbed, and passes up into the drill in the form of a solid cylinder. This core is drawn out with the drill in sections of from eight to ten feet in length.

The sides of the hollow bit are one-fourth of an inch thick, and the diamonds of the inner row project about one-eight of an inch, so that the core or cylinder produced by a two-inch drill (the ordinary size for testing), is one and a quarter inches in diameter.

Inside the bit, D, is placed a self-adjusting wedge, which allows the core to pass up into the drill without hindrance, but which impinges upon and holds it fast when the action of the drill is reversed—thus breaking it off at the bottom and bringing it to the surface when the drill is withdrawn. In order to withdraw the drill it is only necessary to throw out the release gear, E, by sliding it up the feed-shaft, F, to which it is feathered, when the drill runs up with the same motion of the engine which carried it down, but with a velocity sixty times greater; that is, the speed with which the drill leaves the rock, bringing the core with it, is to the speed with which it penetrates it as sixty to one—the revolving velocity in both cases being the same. The drill-rod may be extended to any desirable length by simply adding fresh pieces of pipe. Common gas pipe is found to serve admirably for this purpose, the successive lengths being quickly coupled together by an inside coupling four inches long, with a hole through the center of each to admit the water. The drill is held firmly in its place by the chuck, G, at the

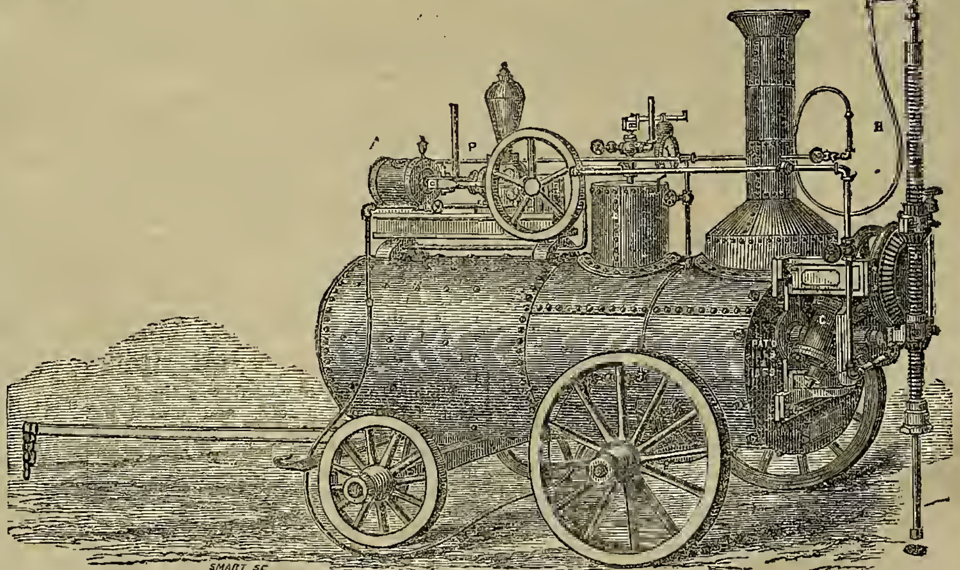


Fig. 3—No. 2 Prospecting Drill.

[Continued on page [illegible]03.]

The San Francisco Mint—Getting the Pure Metals.

In making money—that is, in transforming the crude bullion into the glittering specie—there are two distinct processes required; viz: first, purifying and separating the precious metals, and running them into proper bars and ingots; and secondly, subjecting these bars to operations in a great measure mechanical, such as rolling and stamping, by which they are shaped into coins. Only the first is performed in the "Assay Offices" of the Government, but both are done at the Mint.

Those persons in or near the city who are curious to see exactly how the precious metal is treated, can satisfy themselves by paying a visit to the Branch Mint here between the hours of nine and twelve in the morning, when they will be shown the whole of the works and have the details explained by the gentlemanly conductors of the institution. And if those of our readers who are too distant to visit the place in person will accompany us in spirit, we will endeavor to denote the various processes in a trip through the establishment, which we lately made by the kind permission of the superintendent, General La Grange, and under the special charge of Mr. Sam. Mayer, so well known in musical circles.

Weighing and Melting Rooms.

Our steps lead us first to the weigh-room, whither depositors bring the metals in the most varied shapes, and for which they get a receipt certifying the weight and apparent character of their deposits and the value of which they are paid as soon as this has been ascertained by assay. In this room our attention is attracted principally by the huge scales, strong enough to weigh at once some two thousand ounces, and yet sufficiently delicate to turn with the hundredth part of an ounce.

The bullion, having been weighed on these scales, and given a number, is placed in copper-lined boxes, together with a paper stating its number, character and weight. A similar but fuller account is entered in the books, and the deposit is sent down on a small railway to the room below—the melting room. Henceforth it is known only by its number.

We may as well remark here on the great strictness exercised to prevent any loss of precious metal. After every operation the bullion is carefully weighed so that it is impossible for any to be lost without the knowledge of the book-keeper, the head of the separate departments and all who have access to the books; and if any is unaccounted for, the operators in the process where the loss occurs are not allowed to leave the building until this is made up.

These and other regulations are so strictly observed that there is no possibility of dishonesty on the part of the employés, and any person who has heard stories of immense losses at the Mint need only to visit the place to be convinced that these stories cannot be true.

In the melting-room are several iron furnaces which contain crucibles buried in the red-hot coals. In these crucibles, together with a little borax and perhaps also some saltpetre—the latter only when the bullion is very impure—the gold is melted. When it has become thoroughly fluid and mixed, it is poured out into molds and cooled. Then its number is stamped on it, any grains collected from the flux, which is powdered for this purpose and the grains of metal taken out, are added to it, and it goes back to the weigh room, where it is weighed under official supervision to ascertain the loss in melting.

Assaying.

The bullion can now be assayed. This could not have been done previously on account of dirt which it might have contained, it not being homogeneous, etc. After the assay the depositor can get his money, receiving the full value, *minus* one per cent. for refining and coining charges.

As the process of assaying is generally understood, but a brief description is necessary. From opposite corners of our gold bar two assay pieces are clipped, taken to the assay room, hammered, and rolled into slips, and marked to show to what deposit they belong. One-half gramme (about one-sixtieth of an ounce) is accurately weighed out, twice the amount of pure silver and a small piece of pure copper wire added, the whole wrapped up in a piece of lead foil—about ten times as heavy as the gold and silver—and this sent to the furnace to be cupelled. The silver is added because in the process of parting the gold and silver it is necessary to have between two and three times as much silver as gold, else the acid will not be able to get at all the silver. The copper makes the gold tough, and by retarding the oxidation in cupelling, gives time for this to occur more perfectly. After cupellation the button is weighed and the silver dissolved out by nitric acid. In our California gold there is often quite an amount of iridium, which is now easily perceived as a black substance remaining undissolved with the gold.

Up to this time each deposit has been kept separate from all others; but now that its value is known this is no longer necessary, and it is mingled with others as required.

Parting the Gold and Silver.

In the melting room, whither our gold now goes, two parts of silver are added, for the purpose stated above, and a large amount is melted in a crucible and then dipped out and tossed with a peculiar jerk into a tank of cold water. The result of this last is, that it is obtained in the tank in granules or drops similar to pop-corn, which, by exposing a large surface to the action of the acid in the next process, shortens the time required for dissolving. The water is drained off and the metal carried to the parting room.

Here we see closets with sliding windows, arranged for carrying off the acid fumes, which we may often see issuing from the chimney as a dark brown smoke. In these closets are large porcelain jars, holding about twenty gallons each, which are set in water tanks and heated by steam pipes. Some 150 pounds of the metal are placed in each jar, about 10 gallons of nitric acid (of 38° Beaumé) added, and the whole kept boiling for six hours. Then the greenish solution of nitrate of silver is removed to a large tank, the gold is washed clean with warm water in a tub, whose bottom is a strainer composed of muslin and filtering paper, the wash water added to the rest of the nitrate of silver, and the gold, which is in the form of a dark brown powder, taken to a hydraulic press and subjected to a pressure of some two hundred tons, which forces out all remaining water and leaves us a solid cake, 12 inches in diameter and three inches thick, weighing about sixty pounds and worth eighteen or nineteen thousand dollars.

Our cake is now baked or dried in an oven, then melted in a crucible with a little borax and saltpetre, to get out any base metal, and then cast into bars some 16 inches long, an inch wide and half an inch thick, with a wedge shape end. This is numbered, and is now ready for coining.

Into the tank containing our nitrate of silver is led a strong solution of common salt. The silver is precipitated as a white wooly mass of chloride. When this precipitate no longer forms, and this is tested in a small becker glass, the solution is drawn off and the silver chloride is washed or "sweetened" with water in tanks with bottoms which form filters.

After being thoroughly washed, the chloride is placed in a large leaden vat in which is put water and granulated zinc. Here is formed metallic silver and chloride of zinc, the latter being soluble in water. Any small excess of zinc is dissolved by adding a little sulphuric acid and the solution is drawn off and thrown away. The silver, after being properly washed, is put in the hydraulic press and formed into cakes the same as the gold, and can be melted into bars or be used again in refining gold.

[TO BE CONTINUED.]

* * *

To Mend Rubber Hose.—Wm. Hunt, New York City, writes the *Club*: "The inclosed method of mending rubber hose ought to be known to everybody. I mended mine in several places two or three years ago, and it is yet strong and good. The plumbers said there was no other way but to use couplings costing a dollar each. I used iron pipe, cut to order, three inches long, costing three cents each. Cut the hose apart where it is defective; obtain from any gas-fitter a piece of iron pipe two or three inches long; twist the hose over it until the ends meet, wrap with strong twine, well waxed, and it will last a long time."

Mining in Humboldt County, Nevada.

[Written for the Scientific Press.]

Editors Press:—Battle Mountain Station, on the Central Pacific Railroad, 384 miles from Sacramento, is the stopping place for visitors to the Battle Mountain mines, some seven miles distant, and the depot of distribution for the surrounding country. Those bound for the mines secure here a seat in one of Mr. J. A. Blossom's fine coaches, which run to the mines, seven miles, and to Galena, seventeen miles distant, and enable one to make the trip quickly and with ease. Mr. Blossom has, moreover, a fine livery stable, and has also five large teams at work hauling ores for shipment to San Francisco or Liverpool.

Old Battle Mountain takes its name from a battle fought between a band of emigrants and a party of Indians, and the railroad station is named from the mining camp. The citizens of the latter place have, however, to prevent confusion, determined to change its name to Safford, in honor of the Governor of Arizona, who was formerly of Humboldt.

The mines here are chiefly of copper and galena, and are very rich in silver, with gold in some instances. The first acquaintance I made here was Mr. G. W. Fox, who, with Mr. R. McBeth, discovered the mines in 1867. These gentlemen were prospecting in the district and lost their horses. In the hope of being able to get a view of the animals they ascended a high mountain and came across the lead known now as the Little Giant.

Little Giant Mine and Mill.

Through the kindness of the Superintendent, Mr. A. Morrison, I was enabled to go through this mine, which has been worked steadily since that time. The ledge, which is well defined, is about one to three feet wide, and runs north 50° west with a dip of 50° to the southwest. The ore is rich in chlorides, and here and there in sulphide of silver.

We went in on tunnel No. 4, which extends in 150 feet on the ledge. Above this is tunnel No. 3, 190 feet long, then No. 2, 175 feet, and then No. 1, the distance from which to No. 4 is 500 feet. These are all on the ledge, and the work is carried on by stoping from one to the other. From what I have seen I think I am just fied in calling the mine one of the most promising of the district.

Two miles from the mine is the company's 5-stamp mill, run with a 25-horse power engine. Sagebrush is used as fuel. They are working with one Horn and two Wheeler pans and two large settlers, and anticipate setting up five extra stamps at an early day. The stamps run only during the daytime; the pans are at work day and night. The rock has averaged, I am told, $250 per ton for many months. I saw also at this mill Mr. U. Harris, who is working the tailings with the Evans patent riffles, which are giving some very good results and paying handsomely.

The Alaska and the Mary Ann.

Leaving the Little Giant we passed on over to the side of a mountain still larger than the one I left, and visited the Alaska mine. This is owned by D. B. Higgins & Co. Mr. Higgins, who is Recorder of the district, has been some eight years in Humboldt county, but has concluded to locate in this particular spot. His ledge is four feet wide and he has sunk down thirty-five feet, having a fine body of ore in sight all the way down. A contract has just been made for sinking 15 feet deeper, and the ore will be shipped to San Francisco for smelting.

The next mine we visited was the Mary Ann, taken up in 1868, and owned by Heintzlemann & Co. The vein appears very well, eight men being employed on it. Twenty tons have been sent to Mr. Fox's mill for treatment, but as this was being worked at the time of my visit, I cannot give the result. The ore assays well.

This is a very promising camp, which has sprung up within the last six months, and now contains a hotel, a blacksmith shop, a 5-stamp mill and about twenty-five houses. There are here about 150 men. Through the place runs a fine spring, furnishing a supply of excellent water. From here we ride further in Blossom's comfortable coaches to Galena. W. H. M.

Earthquakes in the Mississippi Valley.

A series of earthquake-shocks occurred in the Mississippi Valley at the close of 1811, continuing to 1813, which were violent enough to modify its surface to a considerable extent, converting dry land into lakes, some many miles in extent, raising low lands and creating yawning fissures. New Madrid, Missouri, appears to have been one of the foci of the disturbance, and here the shocks were repeated almost hourly for months in succession. The region being but sparsely inhabited, and the houses being mostly log cabins, the destructive force was not felt to so great an extent as if there had been a dense population, but the shocks were severe enough to have made such a city as San Francisco a mere mass of ruins.

Foster, in his work on the Mississippi Valley, has collected several descriptions of the shocks. The first occurred on the night of the 16th of December, 1811. About midnight, while the major part of the population of New Madrid were engaged in dancing and frollicking, the shock came with sufficient violence to shake down many of the houses. The greatest consternation prevailed. The entire population rushed into the open air; and there, in the midnight darkness and upon the rocking earth, Protestant and Catholic knelt side by side and offered supplications to the Mightiest.

The shocks extended over a period of twenty or thirty months. Sometimes they would come on gradually and finally culminate, and sometimes they would come suddenly with terrific force and gradually subside. In every instance the motion was propagated from the west or southwest. Fissures were formed six and even seven hundred feet long and twenty or thirty feet broad, through which water and sand would spout to the height of forty feet. There issued no burning flames, but flashes, such as result from the explosion of gas or from the passage of the electrical fluid from one cloud to another. Trees were often split in the center and left with one part standing on one side of the fissure and one part on the other. Whole tracts were covered with water which, when it retired, left a stratum of sand on the land which destroyed its value. As the concussions continued and the rumbling noises and explosions, the birds themselves lost all power and disposition to fly, and retreated to the bosoms of men. A few persons sank in the chasms, one died of fright, and one perished miserably on an island which retained its original level in the midst of a wide lake created by the earthquake. Houses were swallowed up, and often men were saved from the same fate by having felled trees at right angles to the fissures, and placed themselves on the trunks. So great was the destruction of property and so irretrievably ruined were many of the farms that Congress subsequently passed a law granting to each proprietor who had sustained a heavy loss, a section of land in the "Boon-Lick country" in exchange for his desolated farm.

Earthquake shocks still occur in this region, and blasts of air and gas yet find their way to the surface through many of the half-filled fissures; but there has been no repetition of the terrible phenomena witnessed in 1811-12.

* * *

Significant.—It is estimated that the aggregate amount of money deposited in all the savings banks of the United States is five hundred millions of dollars. An equal distribution would give each man, woman and child twelve dollars and fifty cents. The savings banks of San Francisco hold deposits amounting to over $29,000,000, or at the rate of $170 to each inhabitant—thirteen times more than the general average for the United States.

Lime spots on woolen clothes may be completely removed by strong vinegar.

Mechanical Progress.

Condensing Steam Donkey Pump.—*Engineering* for April 8th illustrates a new and ingenious pump of this kind, which is a French invention. We quote a portion of the description: "The main feature in this donkey pump—constructed by Claparède & Co., of St. Denis—is, that it is so arranged that the whole of the steam employed to work it is condensed by the water which it forces into the boiler, the heat of this steam being thus utilized as it is in Giffard's injector. * * The exhaust port of the steam cylinder communicates with a pipe, which passes up through a water casing formed by the suction pipe of the pump, and is fitted at its upper end with a valve, kept in its place by a light spring. At each stroke, as soon as the pressure in the suction pipe of the pump is less than that in the exhaust pipe, this valve opens and allows the exhaust steam to come into contact with the water, which is on its way to the pump, when, of course, it is instantly condensed, and thus communicates its heat to the water. At the same time a partial vacuum is produced behind the piston, the amount of this vacuum depending upon the height from which the pump is drawing water, and being, of course, always something less than the vacuum due to that height."

New Flux for Iron and Steel Welding.—The Philadelphia correspondent of the *Iron Age* gives, April 21st, a report of some experiments with a new flux recently purchased by the Pennsylvania Railroad Co. Among them were the following: Twenty-four Bessemer rails, two feet long, were piled and welded solid into an ingot weighing 732 lbs. A 60-inch Krupp's steel tire, 5⅜ inches wide and 1⅝ thick, was welded solid at two heats, and then broken only under hydraulic pressure of 35,000 lbs. A Vicker's steel axle was cut into and welded with a forked weld, and when cold subjected to a hydraulic pressure of 120 tons, which *bent it*, and then to a reversed pressure of 115 tons which broke it *across the weld*. Steel was burned until it crumbled, and restored to its original strength by dipping it in the melted flux, heating and hammering it.

Some experiments with this flux were also tried at Hos's Works, in New York. Welds were made of cast steel to malleable cast iron, and of the highest tempered cast steel to itself and to iron, and, further, of ⅜inch *copper rods* together. This latter operation, as the experimenter states, quite "brought down the house."

Mushet's Tool Steel.—A correspondent of *Engineering* says that having an extensive order for street rails, each requiring twelve ⅝-inch holes to be drilled, and being pressed for time, so that the drills had to be run at a high speed, it was found that hard skin upon the rails would turn the finest special Sheffield steel before it was possible to finish a single rail, and often by the sixth hole. Mushet's tool steel,—of which we have already spoken in the Press,—was tried; and a single drill carefully prepared completed nine rails, or 108 holes, before the edge was turned. The average number, however, was between 40 and 50.

Forty Years Ago.—At a late meeting of the Foremen Engineers, Sir J. Whitworth, in the course of some remarks upon the mechanical progress during the last forty years, particularly in the construction of self-acting machinery, said that twelve shillings per foot was then paid for the labor of chipping and filing iron surfaces. The same work is now frequently done on the planing machine for one penny.

New Propeller.—A new device separates the screw into three parts, one of which is keyed to the shaft, and the others made so as to work freely upon it. When in use, the three are secured together, forming a complete screw. When not required for the propulsion of the vessel, they are disengaged and secured in a line with each other; thus presenting a minimum surface of resistance.

Steel Car Tires—How Made.—"Mr. Ramsbottom, of the iron works at Crewe, England, casts his tire ingots in the form of a truncated cone, a usual size being two feet diameter at the bottom, six inches at the top, and thirty inches in height. This he hammers on its ends and sides till it assumes the shape of an ordinary flat cheese, with a thickness of about twelve inches. Another heat is taken on it, and it is then placed under a steam hammer furnished with a pointed conical tool, and by successive blows with this on both sides a hole is forced through the center of the disk, and this again expanded as the hammering proceeds, till the upper part of the tool, which is flat, comes down upon the tire and consolidates the metal by reducing its thickness. A third heat is then taken, and the ring so formed is placed over a stout beck projecting from the inclined side of an anvil, which maintains the ring in such a position as to give a suitable bevel to the outer face when struck by the hammer, while at the same time its diameter is considerably increased by the operation. After this third hammering it is ready for the tire rolls, and a fourth and last heat is taken for that purpose."—*Slade's Report.*

Band Saws for Cutting Metal.—The *Engineer* for March 25th describes a large machine of this kind recently built at Chelsea for Krupps' steel works at Essen. The table is eight feet square. The blade works around two pulleys at rates variable from 200 feet to 250 feet per minute, and passes through guides to keep it from swerving. The bottom pulley dips into a trough of soap and water, to keep the saw as cool as possible. The material is fed up to the saw through the agency of a lever attached by a chain to the guide just above the table. This machine is capable of cutting through ¾-in. plate at a speed of from 4 feet to 6 feet an hour, and ⅜-in. plate at about 10 feet an hour. When cutting large plate, iron balls are generally inserted between it and the table; this lessens friction and brings the material more completely under the control of the operator. The saw will, in average work, run from four to five hours without re-sharpening.

New Form of Hydraulic Press.—In the testing machines of MM. Desgoffe and Ollivier, of Paris, which are attracting some attention at this time, hydraulic power is employed. The manner in which their presses differ from those in ordinary use, is thus referred to by *Engineering:* "In ordinary hydraulic presses, the pressure is obtained by forcing into the press cylinder successive increments of water, whereas, MM. Desgoffe and Ollivier employ a constant quantity of water and obtain the requisite pressure by forcing into this water a solid body. The principal advantage of this system, to which they have given the name of *sterhydraulique*, is, that it enables the pressure to be increased with perfect steadiness instead of by a series of jerks, as is the case when an ordinary hydraulic press and pump are employed; and in the case of testing machines this is a matter of importance."

Manometer for Furnace Gases.—Bessemer measures the pressure of the gases in the pressure-furnaces for steel manufacture, by means of a manometer consisting of a vessel containing quicksilver, fastened to the outside of the furnace, and connected with the inside by an iron pipe open at both ends. The pressure of the gases causes the quicksilver to rise into a graduated glass tube, in the top of the vessel. A little stream of cold air is admitted from the blast-pipe into the iron tube, which prevents the heating of the quicksilver.

To Recover the Silver from Photographic Baths.—The following method is recommended by the *British Journal of Photography:* Dissolve oxalic acid in water and render the solution alkaline by carbonate of soda; make the silver bath also alkaline in the same way and add to it oxalate of soda as long as any precipitate is formed; collect the oxalate of silver thus thrown down upon a filter, dry, and mix it with equal weight of bicarbonate of soda in a Hessian crucible, and expose to strong heat in a furnace. The reduction takes place easily, and the silver will be found as a brilliant regulus in breaking the crucible.

Scientific Progress.

Hydrogenium-Amalgam.

The following is part of a paper read April 11th before the New York Lyceum of Natural History, by Oscar Loew, Chemical Assistant in the College of New York:

"When zinc-amalgam is shaken with water a slow decomposition of the latter takes place, which can be recognized by the formation of flocculi of hydrated oxide of zinc, and by small bubbles of hydrogen which escape, after the mixture stands for a time. The decomposition of water by zinc is intensified when a small amount of bichloride of platinum is added, in which case a spongy body is formed on the surface of the zinc-amalgam. This body I have found to be an alloy of hydrogenium and mercury. Hydrochloric acid does not act in a way similar to bichloride of platinum. * * The body thus obtained has the consistency and appearance of the ammonium-amalgam, and slowly develops hydrogen under water, as well as in the dry state; by which decomposition the volume will be found to have considerably increased. On heating it in a vessel containing air, it swells up and water is directly formed, the hydrogenium combining directly with the oxygen of the air. The marked reducing power of hydrogenium found by Graham in the palladium-hydrogen alloy may be observed here also. Ferridcyanide becomes ferrocyanide; perchloride of iron becomes protochloride. It has been a supposition of several chemists that the so-called ammonium-amalgam may be hydrogen-amalgam mixed with absorbed ammonia, and I found, indeed, that ammonia is taken up by hydrogenium-amalgam to a certain extent; but the behavior towards acids, and the investigations of Landolt and of our American chemist, Dr. Gallatin, have shown the existence of true ammonium-amalgam; so that these bodies are certainly not identical."

Isopurpuric Salts in Dyeing.—The *Journal of Applied Chemistry* translates from the German of C. Zulowsky an article upon the above subject, from which we quote: Under the term "Grenat soluble" (soluble garnet), a dye prepared by Casthelaz, in Paris, is stated to be the ammonia salt of the isopurpuric acid, which, as is known, is formed by the action of a soluble cyanogen metal upon picric acid. It is not prepared from the pure crystalized, but from an inferior kind of picric acid, and is probably destined to replace the archil in many cases, in imparting to wool all shades from garnet to chestnut brown. It may be readily combined with other pigments, so that a number of different colors may be obtained. According to Casthelaz, the dyeing of wool and silk is effected by the addition of an organic acid to the bath; for instance, acetic or tartaric acid, mineral acids being excluded. The dye bath for silk should be cold or tepid in the beginning. Different shades in red and brown are thus obtained that are dependent upon the concentration of the bath, the nature of the mordant and the time of the operation. These colors are exceedingly brilliant, similar to those that are obtained with archil, yet they are more stable when exposed to light and air.

Gas and Liquid States Continuous.—Dr. Thos. Andrews recently read a paper before the Royal Society, giving an account of extended experiments, from which he concludes that the gaseous and liquid states are only widely separated forms of the same condition of matter, and may be made to pass into one another by a series of gradation so gentle that the passage shall nowhere present any interruption or breach of continuity. From carbonic acid as a perfect gas to carbonic acid as a perfect liquid the transition may be accomplished by a continuous process, and the gas and liquid are only distant stages of a long series of continuous changes.

Antiquity of Man in North America.—In a paper on this subject by Dr. J. W Foster, published in the Transactions of the Chicago Academy of Sciences, he says, in summing up the proofs, that "the discovery by Prof. Whitney, of a human skull in California buried deep in the gold drift, and covered with five successive overflows of lava, carries back the advent of man to a period more remote than any evidences thus far afforded by the stone implements in the drift of Abbeville and Amiens, in the valley of the Somme, or the human skeleton in the loess of the Rhine."

Graham on Diffusion of Gases.—The following is an extract from the address of Prof. Williamson at the anniversary meeting in London of the Chemical Society on March 30th. He is speaking of Prof. Graham, whose scientific labors constitute the especial subject of the address at this the first annual meeting since his death: "The line of research which occupied most of his attention, and in which his results were perhaps the most important, was that of diffusion ; and it would be difficult to overestimate the importance to molecular chemistry of his measurements, of the relative velocities of these spontaneous motions of particles of matter, whether in the state of gas or in the liquid state. It was known that one part by weight of hydrogen occupies the same volume as sixteen parts by weight of oxygen when measured at like temperature, and under like pressure. Chemical investigations prove that these equal volumes of the two gases contain the same number of atoms. We also know that the atoms in such a gas are in rapid motion, and resist the pressure to which the gas is at any particular time exposed by striking against the surface which presses them together, with force equal to that which presses them together. Thus a given volume of hydrogen is maintained against the atmospheric pressure by an energy of atomic motion equal to that of the same volume of oxygen. Each atom of hydrogen accordingly exerts a mechanical energy equal to that of each atom of oxygen; but we have seen that the hydrogen atom is much lighter than the oxygen atom, and accordingly it must move with much greater velocity than the oxygen atom.

Now Graham allowed hydrogen to escape through a very small hole in a plate of platinum, and allowed oxygen to escape under similar circumstances. He found that each hydrogen atom moves out four times as fast as each oxygen atom. His experiments were so arranged as to enable him to measure the relative velocities of certain motions of the atoms—motions not imparted to them by any peculiar or unnatural conditions, but belonging to them of necessity in their natural state. He found, moreover, that heat increased the velocity of these atomic motions, whilst increasing the force with which a given weight of the gas resists the atmospheric pressure."

Walling and Van der Weyde.—We quote a paragraph from Dr. Van der Weyde's last answer to Prof. Walling, in the *Chemical Repertory*,—giving side by side the ideas of both in reference to the cause of motion. We have before made allusion to the discussion:

"That I also say, with Prof. Walling, that motion of matter must have a cause, is evident, my primary cause being gravitation, inseparably associated with matter; Prof. Walling's cause being a force filling the whole universe naturally dissociated from matter, but which occasionally becomes associated with it, and occasionally not; in the first case it manifests itself as gravitation or otherwise; in the second case it does not manifest itself at all, but still exists, 'acting in every direction, and thus according to the law of the composition of forces, its resultant will be zero.' Paired atoms 'intercept a portion of the force and consequently have a mutual tendency towards each other; this is the whole principle of gravitation."

National Academy of Science.—The semi-annual meeting of this body was held in Washington from the 12th to the 16th ult. Among the most valuable papers read were, one by Prof. Gibbs on the measurement of wave lengths; by Prof. Newcomb on the coming transit of Venus; by Mr. Hilgard on the measurement of meridional arcs; by Dr. Newcomb on the moon's mean motion; by Prof. Harkness on the deviations of the compass in iron ships, with a very complete set of experimental observations; and one by Prof. Poey on a new explanation of clouds, to be published by the Smithsonian Institution with full illustrations.

It is said that copper workers are apt to get their gums stained green, and that their perspiration is of a bluish green hue. This, however, seems to do them no specific injury, but, on the contrary, to preserve them from the attacks of cholera.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Mining Items.—*Miner*, April 23d: The rock in the Globe tunnel is working better and it cannot be over 30 feet to the lode. This company has a mill all ready to put up as soon as ore is found....Silver Glance tunnel is going forward at the rate of two feet each shift, in ore of low grade.... Rumor has it that the ore on the dump of the Morning Star, several hundred tons, has been purchased by parties who will ship it to London....The lower tunnel of the Schenectady is in harder rock, but it is thought a run of 20 feet will be made. ....The Pioneer mill has been running all the week, day shift, on Good Hope rock.

M. C. Tunnel No. 3.—The indications for finer ore were favorable yesterday. The Co. has run across a body of low grade ore, containing at least a half million tons, which will pay a profit with the improved appliances coming into use.

Leviathan.—The lower tunnel is run 25 feet a week, and a shift of men was on Monday put upon the croppings where the nice ore was struck. Prof. Rickard will finish the furnaces and be ready to fire up as soon as the materials can be hauled in.

Exchequer-Buckeye. — *Chronicle*, 23d: Work progressing finely. A shaft is being sunk preparatory to drifting in the 50-foot level. The next ore worked at the Stetefeldt furnace will show rich.

Mt. Bullion Co.—Operations suspended in the tunnel, but a shaft will be sunk on the Duke of Wellington,—the Co's main ledge.

AMADOR COUNTY.

Coney.—*Ledger*, April 30th: Work on this mine will be commenced as soon as the sale in bankruptcy is confirmed by the Commissioner.

Oneida.—Coal from a bed near Ione City will soon be used in the furnaces in place of wood.

BUTTE COUNTY.

Wyandotte.—Cor. of Oroville *Record*, April 30th: At Bidwell Bar mining is prosecuted with fair success. Madame Fitzgerald is working five hands on the "bluff claims," on the east bank of the Feather river. On the town side Mr. Marlow is working three hands, with fair profit. Bell & Co. are making a test of rock from the Bummer ledge, with their arastras. At Stringtown, Messrs. Mooney, Crandall, Tobin, Woodman, and others, are taking out enough to look cheerful. Mr. Slater's quartz mill has ceased to run, however, and times are dull in consequence. At Wyandotte, mining is as lively as ever.

CALAVERAS COUNTY

Rich.—*Chronicle*, 30th: On Tuesday, A. M. Harris, of the Woodhouse mine, Sandy gulch, brought to town the largest amount of amalgam we ever saw at one clean-up; not less than eight or ten thousand dollars. The rock was from the old Woodhouse claim, near the surface.

Big Yield.—Two tons of quartz from the mine of Cudell, Sanderson & Gay, near Railroad Flat, worked in the Thoss mill at West Point $76.50 per ton.

Railroad Flat.—Cor. of same: The Petticoat mill has been running steadily for three weeks. Mr. A. F. Burr is entering upon operations in the vicinity, having negotiated for the Hepburn quartz mill, which is being reconstructed and will be run by steam. A splendid engine has been purchased. The placer mines have not yet complained of scarcity of water, and, judging by the looks of Mr. Clark's ditch, I think it will be some time before they will.

EL DORADO COUNTY.

Rich Strike.—Placerville *Democrat*, April 30th: Stuckslager & Co. struck a rich vein of what appears to be decomposed sulphurets, in their claim near Uniontown, a few days since. They have already taken out several hundred dollars.

KERN COUNTY.

Los Angeles telegram, April 29th: Work on the Joe Walker mine has been resumed. The indications are good. Five large teams, with machinery for pumping out the mine, have made the crossing of Kern river at the Bakersfield ferry.

LOS ANGELES COUNTY.

Soledad.—Los Angeles telegram of 27th: A new mine, owned by Don Andreas Pico and others, develops a ledge two and a half feet wide; the rock is now paying $52.50 to the ton. A gold brick of 53 ounces, the clean-up of 16 tons of surface rock, was received to-day.

MARIPOSA COUNTY.

The Estate.—*Gazette*, 29th: In March the gold yield of the Mariposa Estates was $21,230, and in the first 14 days of the present month, at the Benton mills, the sum of $10,000 was turned out.

NEVADA COUNTY.

Deer Creek.—*Transcript*, April. 29th: A large number of men are at work along the channel. The claims are mostly owned by white men, who lease them to Chinese companies. On the creek there are probably 150 Chinese employed on claims, which, were it not for them, would remain idle.

At Little York things are lively.

At Eureka, three quartz mills are running, and prospects are fine.

At Quaker Hill, Jacobs & Co. have been working steadily with plenty of water.

Cement Hill.—Same of 30th: The New York, Mount Pleasant, North Star and Hawkeye claims have been purchased by a company recently organized. The Co. propose to put on the best modern appliances for hydraulic mining.

Spring Slide.—Same of May 1st: This gravel claim is on Cold Spring cañon. Last year they expended $5,000 in prospecting, and during the last two weeks they washed gravel which paid six dollars per day to the man. The company is to put up mining and hoisting works.

The Eureka Mine.—Grass Valley *Union*, April 27th: Yesterday was the regular semi-monthly melting day. The bricks cast were worth $29,800, and came from 12 days' run of the mill and mine, including sulphurets worked within the time.

Allison Ranch.—Same of May 1st: The miners are down 600 feet below the ground on which the old company worked. They are preparing to sink for a new level. In the present drift the ledge looks well both north and south of the shaft. During the last week or two, the mill, with 12 stamps, has crushed 22 tons of rock for each 24 hours. On Friday rock was being put through worth $60 per ton.

Bright.—This mine, near the Colfax road, has a crushing of 43 tons of rock at mill, giving a yield of about $30 per ton. The ledge has been worked as far as possible without steam, and Driscoll & Co., the owners, are negotiating for machinery.

Norambague.—The tunnel, 1,100 feet in, cuts the ledge at a depth of 250 feet. A crushing of 100 tons of the rock is to be put through mill, in the course of three weeks.

Gen. Grant.—A crushing will be put through at Perrin's mill next week. Only 30 feet depth has yet been reached, but indications are good.

Perrin's Mine.—Down 370 feet on the incline. The ledge is very flat. Forty men underground keep the mill supplied with rock. The mill has 10 stamps, and is capable of crushing 20 tons per day of rock from the Grant. A large water-wheel runs everything. A clean-up of the plates below the batteries last week gave $18,75 per ton, and the gold in the batteries will largely increase the figures.

Banner Mine. — *Gazette*, April 27th: Twenty of the forty stamps now run night and day. The rock averages $23 per ton.

Shanghai Mine.—Same of 28th: A lot of rock, just crushed, paid $56 per ton. The mine had been idle for some time.

Greenhorn.—They have a ledge five to seven feet in width, reached by a tunnel 200 feet long. It only costs $1.50 to get out a ton of rock and convey it to the mill. The mill has eight stamps and is kept humping itself. The rock averages $22 per ton, exclusive of sulphurets, which are worth $90.

Wigham Mine.—Fifteen tons sulphurets saved every month, worth $75 per ton. Shaft now down 520 feet. The rock averages $35 per ton.

PLACER COUNTY.

Mining Items.—*Stars and Stripes*, April 28th: The Mallet mine, owned by W. G Green, and others, has yielded 154 ounces of gold within the last two weeks, worth $16 per ounce. The Good Friday is again paying handsomely, It is estimated that the rock taken from the St. Patrick mine, on Saturday, will yield $1,000. A. O. Bell took out $1,000 from his mine last week.

St. Patrick Mine.—*Herald*, 30th: On Saturday the workmen reached rich rock, which has been growing richer and richer, until on Thursday the whole width of the ledge, twenty inches, for the full length of the shaft showed surpassingly rich rock. We are told by a good judge who visited the mine on Tuesday that there was a quantity of ore out that would pay fully $6,000 to the ton. There is now at the surface 20 tons of ore, not including the richer specimens, which will mill at least $8,000, and the richest ore yet seen is now at the bottom of the shaft.

Ophir.—Cor. of same: The Empire mill has enough quartz engaged to keep running for the next month. Staples & Co. are going to repair their mill. Chas. Pugh is refitting his old mill. The Indian Mound Co. are taking out better quartz than at any time since the discovery of the ledge. George Clark & Co. are taking out very rich quartz opposite Staples & Co's mill. A company of miners from Grass Valley made a purchase of the Hunter ledge lately, and are getting good rock. Wm. Green has taken out several thousand dollars within the last ten days. The St. Patrick is turning out gold by the pound. Since last Friday they have realized $3,000 or $4,000 in specimens. Mr. Eaton has already taken out more than he paid for the claim and all labor on it. McLaughlin has leased the Doeig ledge from Mr. Schnabel. It is near the St. Patrick. Several years ago the owners realized over $90,000 by the hand mortar process. The owners of the Peter Walter start up again about the first of May. Peter took out of this claim before he sold $30,000. The present owners intend to sink the shaft to the depth of 100 feet, and run levels, east and west. The Buckeye, near the Peter Walter, on Humbug flat, has a shaft 140 feet deep. This claim will be in operation in a short time. The Old mine, on Crater hill, owned by Spear & Lyon, will be moving along with the tide of prospecting next week. Reed & Browse, at the time they worked the vein, took out $60,000, and it was only partially worked to the depth of 65 feet, with gold in sight in the bottom level. Sweney & Puffer have realized $2,340 on their last crushing of 156 tons.

SISKIYOU COUNTY.

Quartz Mill.—Yreka *Union*, April 29th: The owners of the Norfolk and Lodi ledges, near Cottonwood, have made arrangements to have A. M. Jones, of Humbug, remove his mill, and put it up near said ledges, for the purpose of prospecting the quartz.

STANISLAUS COUNTY.

The Mines.—Tuolumne City *News*, April 29: The last heard from the party opening out what is called the "Lost claim" was, that they had not reached the bottom of the old shaft. We have just been shown returns from an assay of rock taken from the Nut Pine district, which has proven rich, both in gold and silver.

TRINITY COUNTY.

Keno Flat.—*Journal*, April 30th: Two day's washing last week paid ninety dollars.

Dutton Creek.—The boys expect to begin sluicing next week.

YUBA COUNTY.

Big Blast.—Telegram, April 26th: A large blast was exploded in the old Peterson claim, at Sucker Flat, Yuba county. Eight hundred kegs of powder, weighing 14,000 pounds, were fired at 2 p. m. to-day. The blast was a perfect success.

Arizona.

Walker District.—Prescott *Miner*, April 16th: Eureka 10-stamp mill was running, and Mr. Tiernan was testing the sulphurets. Uncle Billy Pointer had cleaned up his arastras, after working 8½ tons of ore, which paid $40 to the ton. Work upon the Accidental tunnel was progressing....C. Y. Shelton and others were taking ore from their ledges....The placer miners were making small wages. The water was failing rapidly. On Lower Lynx creek, the placer miners have been doing first rate. Jackson, Lovejoy & Co. took out, in five days, with three hands, eighteen ounces of dust, worth $18 per ounce.

Big Bug.—A miner who came over a few days ago, said the mill was running. Rich rock had been struck at the bottom of the 80-feet shaft, so rich that the gold was discernible in it by candle-light.

Hassayampa.—We learn that a clean-up was recently made at the Sterling. Owing to the scarcity of water, not many tons of ore were crushed. Mr. Beseler is working the sulphurets.

Martinez.—Messrs. Fine, Morgan, McAteer, Henry and others arrived here Thursday from this new district. Parties had commenced work on the Martinez lode. The Mayflower, a new lode, is said to be very rich.

Wickenburg.—It is rumored that very rich ore, and water, have been struck at the bottom of the deep shaft in the Vulture mine. The ore, it is said, will pay $1,000 to the ton....The owners of the White Picacho mine were confident of striking the vein this week, in their tunnel.

British Columbia.

The Victoria correspondent of the *Bulletin* writes, April 13th, that the news from the Peace River mines is anything but encouraging.

Idaho.

Bullion.—*Avalanche*, April 20th: Wells, Fargo & Co. shipped Wednesday to San Francisco ten bars Golden Chariot bullion, valued at $21,800, the product of 344 tons, an average yield of about $63.

Flint District.—Black's mill will start up Monday. There is rock ready for crushing from the Leviathan, Pioneer and other mines. Rising Star Co. will soon commence work.

Snake River Mines.—*Statesman*, April 26th: Placer mining is lively. Several hundred are engaged, and from eight to twenty-five dollars per day to the hand is taken out.

Montana.

Summit.—*Capital Times*, April 18th: The assay of the rock from the tunnel in the John How lode shows results varying from $2.50 to $74.50 per ton of gold.

Spring Gulch.—Same of 20th: This is distant from Virginia 15 miles. Prospects as high as $17 to the pan have been obtained in spots, but the drawback is want of water. Fourteen companies have started in at different times to bring in a ditch, seven and a half miles long, from Granite creek. Another company is now engaged on it who are determined to finish.

Madison County. — Same of 25th: Around Central, Nevada, Adobe Town, Junction, and down to the mouth of Alder, claim owners are hard at work. There is only one hindrance—a scarcity of men.

Fine Yield.—A gold retort, weighing 35 and 48-100 ounces, was the yield of nine tons of ore from the Golden Clipper lode, Silver Star, from a nine days' run on a small arastra.

Vawter Lode.—Helena *Gazette*, 25th: Fifty tons of the 350 taken out has been crushed, yielding $15 per ton. The tunnel is in 50 feet, and the vein is from 5 to 15 eet wide.

Philipsburg.—*Independent*, 23d: Horace Countryman made a large number of assays, all of which were flattering—the average from the Speckled Trout being $194 44. There is now ready for smelting four hundred tons of this ore. A smelter is being erected by Mr. Saunders. The shaft on the Speckled Trout is down 82 feet, and shows a body of ore four feet thick. Merrill & Co. are taking fine ore from the Van Timmens lode.

Prospects at Rocker City were never better. Several hundred men are wanted at from $5 to $6 per day.

Cable.—*New North-West*, 22d: Frazier, Carpenter, Hays, Aiken & Co. have their tunnel in 900 feet. It is so straight, newspapers can be read at the face of the tunnel about noon....Mr. Cameron expects to begin work on the 20th.

Silver Bow.—Cor. of same: Boitean, Burns & Co. and Burton & Sherman are putting flumes in Sage Brush gulch, and Gazzert, Lablin & Co. are fluming Conan flat and Pony gulch. Oakwood & Chime, in Pioneer, have their flume ready for water. The Pioneer & Rocker Ditch Co. are extending their ditch to cover Granite, Bully Boy, Bilk, Rabbit, Ready Cash, Star and Herring's gulches, also, Montana, Minnesota, Short, and Deep bars, and Harris' hill. All this ground has paid to haul to water in wagons, and will pay enormously to sluice. Ground is held at high figures. Wages are $6 per day, and men at present plenty, though if the water difficulty was settled there would be many more wanted.

Cedar Creek.—A. J. Simmons writes the Helena *Gazette* that the creek will be high and in many places unworkable, in the early part of the season, and many comers will be disappointed; although there are mines enough known to be paying to sustain several thousand miners when got in running shape.

Another correspondent of same says money will not be plenty until fall—for then only will the whole creek yield pay. Those who are at work are doing well. On Barrett's discovery claim, two days' sluicing, with two hands, yielded at the first run seven and a half ounces, and at the second, nine ounces of coarse gold. On No. 56 above discovery in the same district on Hugh O'Neil & Co's claim, one day's run gave $600. Claims are ranging from $1,200 to $5,000.

The *New North-West* has received the same figures from O'Neil's clean-up as are given above; but adds, that another informant says the said clean-up was only seven ounces.

New Mexico.

The Prospects.—*Press and Telegraph*, April 15th: These were never better. The miners are getting ready. The water supply will be more ample than for last year. This season there will be 60 stamps at work on quartz. Mr. Thomas Pollock on Saturday showed us seven ounces of gold, the result of the first three days' run in his claim at the mouth of Grouse Gulch. Carpenter & Lowthian are putting down 550 feet heavy galvanized 6-inch iron pipe in their claim.

The New Mines.—A correspondent of the *Alta* writes from Virginia district in conformation of the wonderful stories of the richness of the mines. The tradition of the "Lost Mine, and Cabin," is, he says, verified. "The cabin is of rock, 18 feet in diameter, and 4 to 6 feet in height, and in circular form, plastered in the inside with an opening some two feet square, and closed by two huge rocks; the covering consisted of cedar poles laid across and covered with dirt to the thickness of about one foot. At different places and in different ledges are found traces of ore having been removed. Several places on the Harpending, Brown, Idaho, Elias and other ledges furnish undeniable proof of the excavation of tons of rich sulphurets, such as would undoubtedly yield away up in the thousands; it is only when these gray sulphurets are found that any traces of work exist."

The Tucson *Arizonian* of April 9th confirms the stories, and says miners have commenced flowing into that place, and thence into the mountains south and east.

Nevada.

COPE DISTRICT.

Items.—Elko *Independent*, April 30th: C. F. Cutler will soon have mill running at Mountain City....Dyer & Walker received yesterday 150 ounces of gold dust from Cope. Among this was a nugget worth $126. The proceeds of the placers amount, it is said, to $500 per day....The Tucker boys are at work in Bull Run taking out ore to be sent below for milling. A large shipment will arrive from the Porter mine....Reinhart, Drew & Co's mill, at Mountain City, started up Wednesday on Argente ore. The mine owners have contracted to furnish 1,500 tons.

Bruno District.—In all instances where work has been done, the ledges improve in size and quality. The placers are paying well.

HUMBOLDT.

Golconda.—*Register*, April 30th: San Francisco parties are to erect smelting works for the Gold Run mine. Millions of tons of $30-ore can be had in this county at a depth of less than 10 feet.

Bald Mountain.—By letter we learn that extensive mines have been discovered.

Railroad District.—Cor. of *Independent*, 27th: Grant and Peak have sold their interests in the Broadhead mine to a Philadelphia party. The deed calls for $5,000. Mr. Franks is developing the Tycoon. It shows a body of ore 10 feet wide. Whitefield and Witham are turning out ore from the Lone mine. It proves argentiferous lead, containing $80 per ton in gold and silver. Grant & Co. are opening the Rhino, a galena mine, with splendid prospects. Brown, Paxton & Co. are raising ore from their copper mines, the Manhattan, Brown and Richmond. Uncle Fowler is sacking ore from the Bunker Hill. Uncle Sutton proposes to build a smelting furnace immediately. Prospecting continues. Several promising galena and copper veins have been discovered within a few days.

Unionville.—John C. Fall shipped 358 pounds of fine bullion from his mill during the week ending Monday.

REESE RIVER.

Mineral Hill.—*Independent*, April, 30th: The Ward and Spencer Co. has put on night shifts. Shipley turned out 5,000 bricks in five days' work for the new mill.

The Grass Valley *Union* has the following from J. C. King, recently returned from Mineral Hill: Four men, D. Macdonald, D. K. Northy, John Sheehee and James F. Ward, have 41 locations of from 600 to 1,000 feet each, and have opened 21 of them into the hill by running cuts. These cuts are all in mineral. This Co. have now on hand and in sacks 600 tons of ore, and are making preparations to build a mill. They have sent off and have worked 100 tons of ore, and the returns were $503.45 per ton.

WASHOE.

Yellow Jacket.—Gold Hill *News*, April 30th: Daily yield 300 tons. The ore at the 900-foot level has not been looking so well, owing to an extensive "horse."

Hale & Norcross.—Daily yield 150 tons, the principal supply being from the sixth level, and the assays show an improvement in the general character of the ore. The seventh level already gives a yield of 60 tons per day.

Virginia Consolidated.—The drift west at the 500-foot level is in 300 feet. The rock works favorably. Some good ore was developed in the upper workings Tuesday, 200 feet from the surface. Assays from it range above $500 to the ton.

Overman.—Yielding 100 tons daily. In the old Mary Ann chimney, some good ore is found, and the general yield shows improvement.

Hope.—The mine at Silver City is y - ing well. The new mill is completed, and started ten stamps Monday.

Occidental.—The lower tunnel is being driven ahead to effect the connection with the winze from the old mine above. This will take six weeks.

Ophir.—Thirty tons daily extracted from the old upper mine through the south shaft. None yet through the north.

Gould & Curry.—Daily yield 90 tons; assays $52 per ton.

Imperial-Empire.—Drifting west at the 1,200-foot station commenced. Sinking the shaft progresses well, considering the nature of the rock.

Belcher.—The ore streak in the 730-foot level has not turned out as good as anticipated. It is now proposed to raise upon it. The upper levels continue yielding 80 tons of $20-ore daily.

Chollar-Potosi.—Daily yield 100 tons, from the upper levels; average assays, $73 per ton. The dumps are all full and the mills well supplied.

Sierra Nevada.—Assays indicate an improvement in the ore passing through the mill.

Sacramento & Meredith.—The mill will shortly be ready to commence reducing ore,

Crown Point.—Incline 67 feet below the 1,000-foot station. Upper levels yielding 70 tons per day of low-grade ore.

Sutro Tunnel.—*Enterprise*, May 1st: An increased force of workmen are employed. The work progresses finely. The tunnel is in 1,000 feet. The ground is improving for blasting.

WHITE PINE.

Review.—*News*: A large number of base metal mines, heretofore idle, have been started up, and the district has a busy and prosperous appearance. Bullion shipments for the week ending April 25th foot up $17,162.25 to San Francisco, $12,281.21 to New York—total, $29,443.26—and 48,790 pounds of base bullion. Outside districts are attracting the attention of Eastern capitalists to an unusual extent. Pinto district made a sale, a few days since, for $25,000. Eureka has made a heavy sale to English capitalists, while Chicago is investing largely in Freiberg and Philadelphia in Silver Peak. Silver Park is now the most flourishing camp in Eastern Nevada; its two mills running; all the mines opening well, and new and rich discoveries being daily made. Shoshone sends in good reports and a considerable quantity of ore. Robinson district is commencing work on an extensive scale. Ely is languishing and waiting for freight, now en route. New York is investing largely in Reveille.

Items.—*News*: Secret Cañon ores tested so far yield on the average $500 to the ton. ....A new furnace near Swansea is nearly ready to fire up....Chicago manufacturers talk of erecting another separating establishment here, and engaging in the bullion trade....Shaft on the Elko mine is down 70 feet in a 7 foot vein....Frederick Voss now own the Shermantown smelting works. ....The Alsop works have turned out 170 tons bullion during the present run, and the furnace lining is still good....Native copper is now met with in Crown Point No. 8, and no lead is found. Between the two was a stratum of chloride of silver.... Eberhardt is looking better than a year ago. The lower tunnel shows the continuance of the rich deposit to a great depth. ....Eureka is meeting with very rich ore. ....The thousand pounds of Trench ore yielded $1,900 pounds of bullion which gave $1,500 in silver. This is a base metal mine.

Utah.

The Corinne *Reporter* of April 23d says that a party of prospectors from Odgen have developed a ledge of silver ore that is likely to exceed in richness anything ever before seen in Utah or Nevada. This discovery was made eight miles northeast of this city. The names of the discoverers are R. S. Beebe and George H. Bemis. Mr. Bemis informs us that an assay of the ore showed silver $400 to the ton.

The American Mills on California street are worked under renewed auspices. Mr. D. Boyle has bought out Mr. W. C. Benn's share, and thus enters into active partnership. Drugs and spices, besides grains of all kinds, are ground here, and the utmost attention paid to customers' desires.

San Francisco Mining Stock Market.

The interruption to the business of the Board by an adjournment on Monday last for that day, seems to have imparted more activity to operations, and considerable improvement is noticeable throughout the general list since then.

Hale & Norcross—has been rather dull of sale, at uniform rates. On the 1st inst., $24,723 in bullion was forwarded to the office in this city. At the above date, the winze had attained a depth of 76 feet below the sixth level, the ore being still of a good quality. They expect to connect this winze with the north drift from the seventh level in the latter part of the week. On the seventh level, the north drift is now 62 feet north of the shaft. The east cross-cut is now 32 feet east of this north drift, and they have not yet reached the east wall. North of this cross-cut, and east of the north drift, they have blasted out a chamber of ore 25 feet wide, 35 feet long, and 10 feet high, all the ore taken from this space being of good quality, and the vein, at this depth, is reported to exhibit evidence of permanence and extent. For the week closing April 30th, 319 tons of ore were taken from the upper mine, and 753¼ from the lower, making a total of 1,072¼ tons. In the dumps, they have 6,806¼ tons. A dividend of $7 60 per share will be disbursed on the 10th inst.

Overman—has been in the market to a moderate extent, at an advance. On the 2d inst., crude bullion estimated to be worth $35,000, was sent forward to the office in this city. During the week ending May 1st, they extracted 1,027 tons of ore. The body of ore on the 226 level, south, has the appearance of pitching down, and they have commenced running south on the lower levels, with the expectation of cutting this body of ore.

Chollar-Potosi—has been in the market to a larger extent than during the previous week, commanding increased rates. They extracted 1,022 tons of ore during the week ending April 29th, against 1,300 tons the previous week. The Blue Wing stope is looking quite as well as it did a week ago. At the new shaft, the north drift reached a heavy body of clay, and work has been suspended at this point until the clay stops swelling. The ore-slip of the 2d inst. shows that they sent 241 tons to five different mills on that day. This company will disburse a dividend of $1 per share on the 10th inst.

Imperial—has been less active, showing an improvement over opening rates. On the 3d inst., the southwest drift was still in white quartz. The "raise" from the 1,084 level is showing the ore much narrower as they go southward, and on the north line it has entirely cut out. The 1,200 station is in about sixteen feet.

Segregated Belcher—was inquired for to a limited extent. On the 3d inst., $11,397 80 in bullion was forwarded to the office in this city. The rock pays better than they expected, yielding a larger percentage of gold. They take out about thirty tons per day.——Belcher has been well maintained. On the 30th of April, $10,418 in bullion was shipped here. The 730 level is said to look more favorable, yielding better quartz.——Ophir was quite largely dealt in toward the close, under a slight recession. The north-west branch of the Walsh Tunnel is in a reddish quartz, and is reported to look somewhat more favorable, otherwise no change.

Sierra Nevada—sold to a moderate extent. The ore product for the week ending April 30th, amounted to 1,754 tons, 1,718 tons coming from the gravel deposit and 36 tons from the ledge.——Savage sold to a large extent toward the close, advancing to $37 per share. An assessment of $7 50 per share was levied on the 3d inst. ——Eureka (Cal.) will disburse a dividend of $7 50 per share on the 7th inst.——North Star (Cal.) is again paying dividends, having announced one of $1 per share for the present month.—*Commercial Herald.*

MINING STOCK QUOTATIONS, MAY 5, 1870.

WASHOE.

	Bid.	Asked.		Bid.	Asked.
Alpha Con.	$ 13½	$ 14	Gold Hill Q M C.	$ —	$ 15
American	—	—	Hale & Norcross	141	143
Belcher	23	23½	Imperial	35	36
Bullion	—	4	Justice	—	—
Crown Point	15	15½	Julia	—	—
Cole, Va.	—	—	Kentuck	—	70
Confidence	—	15	Lady Bryan	4	4½
Chollar-Potosi	29½	31	Occidental	—	6
Con. Virginia	—	13	Ophir	16¼	16¾
Daney	5	5¼	Overman	—	.90
Empire	—	15	Savage	36	37
Exchequer	—	10	Sierra Nevada	7	7½
Flowery	—	—	Seg. Belcher	7	7¼
Gould & Curry	173	175	Yellow Jacket	48	48½

WHITE PINE.

	Bid.	Asked.		Bid.	Asked
Aurora Con.	$ 4	$ 4½	Noonday	2¼	2¾
Brodt	—	—	Orig. Hidden Tr.	—	18
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	1	Silver Wave	3	3¼
Mammoth	2⅜	2⅝	Virginia	—	—

CALIFORNIA.

	Bid.	Asked.		Bid.	Asked.
Amador	$220	$ —	Eureka	$275	$280

IDAHO.

	Bid.	Asked.		Bid.	Asked.
Golden Char't.	$ 14	$ 15	Silver Cord	$—	$—
Rising Star	—	—			

San Francisco Prices of Copper Ores.

San Francisco, May 5, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	26 65	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	62 50
16 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

◆

Patents on the Pacific Coast.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast we say, subscribe for the Scientific Press, published by Dewey & Co., San Francisco, Cal., at $4 per year. The opening of the railway across the continent has given to all patents a much higher value in that portion of our country known as the Pacific slope, and all interested will find the paper above alluded to a valuable reference.—*Mechanic and Inventor, Detroit, Michigan.*

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alban, Storey co., March 21, 5c	April 25	May 14*
Bromide Tunnel, W. P. April 20, 40c	May 55	June 13
Continental, W. P., March 26, 30c	April 30	May 25*
Cherokee Flat B. G. April 14, $5	May 16	June 2
Cayuga Chief, W. P., April 29, 15c	May 31	June 21*
Eagle Quicksilver, March 14 $20	April 16	May 2*
Empire M. & M., S. co., April 22, $10	May 27	June 18
Green Monster, Inyo co., March 10, $1	April 16	May 16*
Hormiguera, L. Cal., March 11, $2.50	April 15	May 6
Hidden Treas. Cons., March 28, 25c	May 3	May 24
Lady Bryan, Virginia, March 17, $2	April 18	May 19
Latawana, W. P., March 19, 15c	April 23	May 10*
Meadow Valley, Ely Dist., Mar 26, 75c	April 28	May 20
Mountain City, Elko co., April 8, 50c	May 23	July 11*
Miser's Dream, W. P., April 14, 40c	May 17	June 14*
N. Bloomfield Gravel, March 28, $2.60	April 30	May 17
Nevada L. & M., Elko co., May 3, 3c	June 7	June 23*
Oriental, Sierra co., April 22, 20c	May 26	June 16
Peytona, Va. Dist., March 18, $1	April 19	May 4
Placer G. & C., Placer co., April 9, $2	May 20	June 10*
Pocahontas, El Dorado, March 2, $4	April 2	May 14*
Pinto, W. P., May 2, 10c	June 2	June 20*
Rising Star, Idaho, April 6, 50c	May 14	June 4
Sterling, Arizona, March 9, $5	April 18	May 17
Sierra, Douglas co., March 29, $2	April 29	May 20
Silver Wave, W. P., April 21, $3	May 23	June 13
Savage, Storey co., May 3, $7.50	June 6	June 25
Silver Vault W. P., May 3, 5c	June 9	June 29*
Yellow Jacket, March 16, $7	April 18	May 19

MEETINGS TO BE HELD.

Hearst	Annual Meeting June 6
Oneida	Annual Meeting June 6
Pacific Consolidated	Annual Meeting May 17
Pacific Cons	Annual Meeting May 17
Rising Star	Annual Meeting May 16
Wells	Annual Meeting May 12
White Pine Mutual M. & M.	Meeting May 16

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable April 11, 1870
Eureka, div., $7.50	Payable May 7, 1870
Golden Rule, div., 50c	Payable March 26, 1870
Hale & Norcross, div., $6	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
North Star, div.	Payable May 5
San Marcial, div., 50c	Payable Jan. 10, 1870

——*Advertised in this journal.

◆

The Richmond Disaster.—On the 28th ult., when the court room of the State Court of Appeals was crowded to hear the decision with regard to the contested mayorship, the gallery gave way and precipitated the spectators to the main floor. This in turn fell through, and sixty souls were launched into eternity. Many of them evidently died from suffocation, as their bodies showed no external wounds. Besides these a large number were seriously injured. The fire alarm was sounded, and the fire companies, aided by citizens, repaired to the rescue and the bodies were removed from the ruins. The stores in the city closed and the news carried sorrow everywhere. Some of the most prominent citizens of Richmond were killed, and expressions of sympathy have been sent with offers of pecuniary aid to the families of the victims from many eastern cities. Was the builder of the edifice responsible for this disaster?

◆

Mr. J. S. Hunt, whose advertisement will be found in another column, has shown us some mantles, which were so like real marble that every one would consider them such. They are of the handsomest appearance, and being comparatively very cheap, as they are marbleized slate, and form an exceedingly lasting article, are being used extensively at the East in the finest residences. Persons intending to build should examine the samples which Mr. Hunt has on hand.

◆

Hudson & Menet's Annual for 1870 is a valuable publication for business men everywhere. It gives the name of every State and county in the United States, and nearly all the cities of any note; also, every paper and periodical published, so far as obtainable, with the name of the publisher and locality of the publication. Messrs. H. & M. are General Advertising Agents, at No. 41 Park Row, New York City.

◆

Mechanics, stair-builders and workers in wood will find it profitable and interesting to visit the shop of H. G. Stilley, whose advertisement may be found in another column. Mr. Stilley has a reputation for superior workmanship, and for fidelity in executing orders. We believe that he is the only plane-maker in the city. Stair-builder's routers of every description are made, and every variety of moulding tools repaired.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Century Plants About to Bloom.

The Oakland *News* says that a century plant *(Agave Americana)*, in the garden of General Kirkham, on Oak street, in that city, is about coming into bloom. The plant has already spread its leaves to a diameter of sixteen feet, and is ten feet in height. From its great size and present indications, it is thought the flower stem may reach the very unusual height of forty feet. Our Eastern visitors, the present summer, who may be here when the plant is in bloom, will thus have an opportunity of inspecting a specimen the most magnificent floral curiosity in the vegetable kingdom.

We notice by the Stockton papers that there is also a century plant in that city, which it is expected will bloom the present season. As there are now a great number of these plants scattered throughout the central portions of the State, it will be but a few years before their presentation of bloom will become an ordinary affair, exciting very little interest except from strangers. The period required for these plants to come into bloom varies with the climate in which they are grown. Under favorable conditions, as in Mexico, where they are indigenous, they often bloom in ten years from the time of planting. Their period of blooming in this State varies from fifteen to twenty years. In the Northeastern Atlantic States, where they have to be kept in hot-houses the greater part of the time, that period varies from 70 to 100 years—hence the name of century plant. The plant never blooms but once. After blooming and perfecting its seeds, it drops them naturally to the ground, where they take root; while the parent plant, having fulfilled its mission, gradually withers and dies; thus returning its substance to the earth to feed and nourish its successors.

The English Wheat Market.—Accounts from Europe still report large importations of grain from the Baltic provinces of Russia to Liverpool, with the intimation that arrivals from that quarter will probably be kept up to an extent sufficient to continue the present depressed state of the wheat market in that city.

This intelligence has already exerted such an influence on the wheat-growers of the Mississippi States as to induce the farmers there to greatly reduce their breadth of this cereal. Many will reduce their wheat one-half and double their corn, converting the latter into pork. The increased railroad facilities in Europe, whereby the great granaries of that continent may be more easily reached, will soon destroy the European market for American breadstuffs, and force our farmers into the necessity of other cultivation, or an increase of our manufacturing interests, in order to provide a home market for our cereals. California farmers will do well to make a note of this, and turn their attention more generally to other crops than wheat. There is no need that we should continue to raise wheat at a small margin or no margin at all for profit, so long as we import from other States more than half of our butter, cheese, beef, pork, etc. We are also importing fibers of jute, flax, wool, cotton and silk to an amount exceeding our present wheat exportations, all of which ought to be produced on our own soil.

Artificial Incubation.—A gentleman near Alameda has now in process of incubation 700 hens' eggs, from which he expects to realize an equal number of chickens, with the aid of artificial heat generated by an ordinary coal-oil lamp. The eggs are placed on shelves, in an air-tight box, and the hatching process can be easily heard by an attentive listener.

Tropical Fruits in California.

It is encouraging to witness the rapid increase in the production of tropical and semi-tropical fruits in this State. The central and southern portions of California are capable of producing all the oranges, lemons, limes, olives, and all other species of semi-tropical fruits required to supply the wants of all the States in the Union. Great profits have already been realized from this branch of fruit-growing, in simply supplying the market of this city. The time is not far distant when such fruits, grown in this State, will find a large market, *via* the Pacific Railroad, all through the interior portion of the continent and the present "Western" States of the Union. Grapes, English walnuts, figs, raisins, almonds, etc., should also be added to the list.

Orange trees, in this State, bear all the year round. Ripe oranges and orange blossoms may be picked from the same tree nearly every month in the year.

The orange is a comparatively hardy tree, long-lived and a great bearer. One orange grove, owned by B. D. Wilson, at the Lake Vineyard, Los Angeles county, consists of 600 trees in bearing, which last year produced an average of 1,200 oranges each, which were sold for an aggregate of $21,000. This grove covers ten acres of land. The trees are young and not yet in full bearing. At the Mission San Gabriel, in the same county, there are thirty trees, sixty years old, which average about 3,000 each. There is a single tree at this Mission, eighty years old, 5½ feet in circumference, which last year produced 5,000 oranges! On the Wolfskill ranch, also in Los Angeles county, is a grove covering eight acres, from the product of which there was, last year, realized $14,000. The oranges, lemons and limes of Los Angeles are mostly natural fruit, and commence bearing at from six to seven years of age. At ten years they will generally average from 1,000 to 1,500 oranges each, worth, on the ground, generally about $2 per hundred.

Olives make a fine growth in almost all parts of the State, and, like other fruit, are generally raised without irrigation—in fact, the best specimens are thus raised. Trees, four years from the cutting, will measure seven inches in circumference.

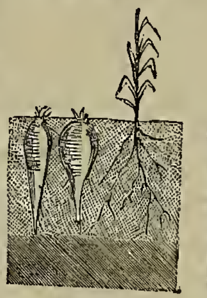
The same may be said of the almond. There is an almond tree in the door-yard of Mr. Furbush, at Santa Barbara, only thirteen years old, which measures forty inches in circumference, three feet above the ground. For the last three years it has borne an average of eighty pounds of almonds, worth from $35 to $40. It was set out merely for a shade—quite a valuable shade tree! Messrs. Ferrold, Blanchard & Towle, in the same place, have for some time had 500 almond trees in bearing; next year their number of bearing almond trees will be increased to 2,500. There are many other almond orchards in the same vicinity and in other parts of the State. The almond of California is not excelled by that produced in any other part of the world.

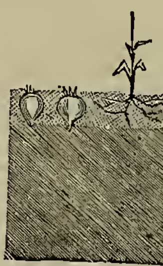
It would probably take this State fifty years to put itself in a condition to supply the full demand of the United States with the tropical and semi-tropical fruits which our present and rapidly-increasing wants will demand, even if our fruit-growers were to make special and general efforts in that direction. That our people are not altogether idle or lacking in consideration in this matter, may be inferred from the present rapid increase in the number of such trees which are being set out in all parts of the central and southern portions of the State. From the Agricultural Report of 1868 we have the number of a few of the trees alluded to which were then growing in the State, as follows: Orange trees, 17,281; lemon, 3,712; olive, 14,838; prune, 6,527; almond, 25,319; walnut, 15,614; fig, 33,924,—total, 116,471.

By the report of 1869 it appears that the number had increased to the following figures: Orange, 30,569; lemon, 5,280; olive, 19,946; prune, 8,569; almond, 32,400; walnut, 22,888; fig, 40,819,—total, 162,471; or an increase of 39 per cent. in a single year. The activity manifested in that direction, the present year, warrants us in saying that the report for 1870 will show a still larger percentage.

Agriculture for California—Practical Views.

We would call the reader's special attention to an article in another column, under the above head. The writer is evidently a man of intelligence and practical experience. His views with regard to the system of culture applicable to a large portion of the farming land of this State, are correct, and in full accordance with the opinions often expressed in the columns of the Scientific Press. Indeed we reproduce, in connection herewith, a small figure employed a few weeks since to illustrate the same views in one of our own articles. We do not know how we could better illustrate the experiment reported by the correspondent of the *Bulletin*, than by the two figures herewith presented. If the roots of a plant are kept near the surface, by shallow plowing, they *must* suffer when drouth comes; on the contrary, if we plow or "dig" deep and loosen the soil so that the roots can easily go downwards for moisture, instead of running off at right angles in a vain search therefor, in the dry and shallow bed to which they are necessarily confined by shallow culture, a healthy and vigorous growth will be the result, both above and below ground, as represented above. Pulverize the soil then, and let the roots go down, as they will, to where moisture always exists, in all cultivated soil. Such a course, in most cases, is far preferable to, besides being much cheaper than, surface irrigation.


Deep Tillage.


Shallow Tillage.

We are pleased to add the benefit of our circulation to that of the *Bulletin* in giving publicity to the views and facts therein stated. True, they should "be applied with proper discrimination with reference to local peculiarities of soil and climate;" but actual experience is what is wanted, and the success or failure of an intelligent cultivation is always the surest guide to others.

Successful Tree Planting.—We mentioned, four or five months ago, that Mr. Tuttle, of Grass Valley, had brought from Missouri a quantity of tree seeds, and had distributed them freely among the people here. The consequence of that public-spirited enterprise, says the *Union* of that place, is, that Grass Valley has numerous varieties of the oak not indigenous to the soil, black walnut, persimmon, hawthorne, and other trees, starting into vigorous life, with every appearance of a determination to be successful. A little more attention to such things will make this coast prosperous, despite the wastefulness which has been committed.

It is proposed to form a Wine Growers' Association in the county of Amador for the advancement of the interests of those engaged in the cultivation of the grape. Amador might undoubtedly be made one of the best grape-growing counties in the State.

A Few Hints About Deep Tillage.

When the soil is stirred very deep, especially for grain, it should be done long enough before sowing to attain a sufficient compactness, at its lower portion, to favor the production of a multiplicity of small fibrous roots, rather than a few large ones. An open, porous soil, not sufficiently pulverized, favors the formation of large roots, and does not admit of the very ready ascent of moisture from below.

In plowing, especially in adobe soils, the plow should run no deeper than the soil can be thoroughly pulverized. It is better to plow five inches deep, with thorough pulverization, than ten or twelve where the furrow-slice at the bottom is merely turned over and not thoroughly broken up. An open and porous lower strata causes the soil to dry down to the bottom of the furrow, in consequence of the capillary attraction of the soil being destroyed; while if it was thoroughly pulverized throughout its entire depth, capillary attraction would be constantly at work bringing up moisture from the subsoil to the roots of the plant. The unfavorable results so often reported from deep plowing in adobe soil, may, in all probability, be universally attributed to the fact here stated. The best pulverizer for the soil yet invented is the Standish steam plow. It will be worth millions to California if that plow can be made a practical success.

Fluids will rise, by attraction, higher and more readily in small tubes than in large ones; and just in proportion as the soil possesses an infinitessimal number of small tubes or pores, over large ones, so is its power to draw up moisture from below or receive it from the moist atmosphere above. Deep plowing is worse than useless on dry soils, unless attended by thorough pulverization.

In deep plowing, care should be taken not to mix any considerable quantity of subsoil with the loam. The subsoil in most cases may be stirred and loosened up to advantage, but not brought to the surface to any extent. As a general thing, Nature should be followed in promoting vegetable productions. The subsoil should remain where it belongs naturally; it is thus in its proper place and fitted to do its proper work. Don't reverse the order of Nature.

Many turn up the subsoil with the view of thus mixing with the loam some of the salts necessary for plant food, which have been carried downward by the leaching action of rains. The practice is bad; more detriment than benefit is likely to occur therefrom.

It is true that all soils lose more or less of their essential salts by the leaching process produced by rain; but the best way to recover such salts is to loosen up the subsoil by itself, and let the rootlets of the plants go down after them. They will do it if you give them anything like a fair chance.

The practice of digging holes for the reception of trees far below the surface into the subsoil, and filling up the same with loam and vegetable refuse, is rather to be avoided, for several reasons. Such holes, especially in heavy clay soils, are apt to become huge flower pots, without the usual facilities for drainage. The water in them becomes stagnant and unfit for nourishing the tree. Again, as soon as the lower roots have extended beyond the "filling in," and into the side-walls, which they will do by the second or third year, the change in the soil is so sudden and marked as oftentimes to affect the roots very injuriously.

The surface soil for such planting, when shallow, may be made a little deeper than it naturally exists, and the subsoil may be loosened to a considerable depth and breadth. It may be shovelled out and thrown in again, with a very little loam mixed with it. The walls of the opening should not be made with a clean, smooth cut, as in sinking a well. Let them be jagged and irregular, so that the roots as they grow out into them may not be subjected to any very sudden change in the soil.

Importance of the Poultry Business.

Few persons are aware of the immense importance of the poultry business of this and other countries. New York City, alone, takes annually not less than four million dollars' worth of poultry and eggs; Boston consumes over two million dollars' worth, while Cincinnati annually buys from the neighboring country and sends away, after satisfying her own appetite, twenty-five million eggs alone, which, at only twelve cents per dozen, amounts to $250,000. The total consumption of poultry and eggs throughout the country must largely exceed $100,000,000, or more than three times the annual production of gold and silver on the Pacific coast!

John Bull also has a taste for good things, other than beef; as the single city of London receives not less than $12,000,000 in annual value of eggs alone, from Ireland, Belgium and France, aside from what that big city can gobble up from its own surroundings. Johnny Crapeau, too, does not depend alone upon soup and frogs for luxuries; as the statistics show that France, after sending out less than six million dollars in value of eggs to London, reserves for her own consumption over $200,000,000, of which amount Paris alone takes $10,000,000.

From these facts it will be seen that the consumption of eggs is vastly larger, in proportion to population in England and France, than it is in the United States—in fact, France probably consumes three times as many eggs, in proportion to her population, as do the people of the United States.

The poultry statistics of California are very meagre. We have never seen any estimate of the amount of eggs produced or consumed. The number of chickens in the State was set down in the Assessor's returns for 1868 at 1,450,069; but by the returns of 1869, they appear to have fallen off to 913,318; turkeys in 1868, 157,228; in 1869, 140,052; geese in '68, 25,537; in '69, 34,114; ducks in '68, 81,289; in '69, 63,046. It is difficult to account for the large falling off in 1969; so difficult, in fact, that we prefer to consider the report incorrect.

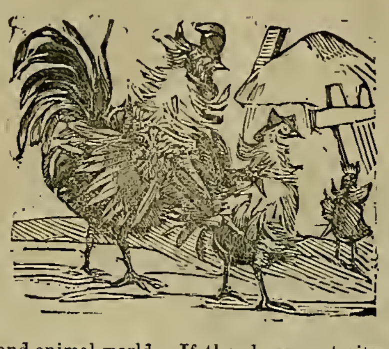
Quite too little attention is evidently paid to the poultry business in California, for, notwithstanding the enormously high prices paid here for eggs and poultry, immense amounts of the former, especially, are shipped to this city from Oregon, and shipments have also been made from Chicago. Turkeys have even been driven from the Southwestern States across the plains to this State. Were it not for the excessive rates of transportation and jobbers' commissions, eggs and poultry might be retailed in this city at less prices than in New York or Boston. Food and land is cheaper here; while the greater advantages of our climate more than counterbalance the difference in the cost of labor.

There is no branch of rural economy more sure or profitable than this. Small as it may appear to some, the above figures abundantly show that it is no trifling concern. It not only produces an immense article of consumption and commerce, but it enlivens and beautifies every rural home. It is, moreover, a business which is in no danger of being overdone. The consumption, per capita, of our population, would undoubtedly be doubled by a reduction of the price to its lowest, reasonably remunerative figure. There is no reason why a dollar should be sent out of the State to purchase either eggs or any species of fowls, other than such as it might be desirable to introduce for their blood.

Too little attention, we fear, is paid to the breed of our poultry, also to the *care* of the stock. When the best breeds are kept, poultry cannot fail to pay in this State, if reasonable care is taken to give them a plenty of fresh water, gravel, lime, good clean food (not refuse grain), a reasonable supply of flesh, clean roosts and shelter. Of course, every poultry raiser knows that great numbers should not be kept in a single inclosure. The inclosures, moreover, should be separated by some little distance, so that the air of no one may be vitiated by the noxious gases from any adjoining inclosure. The most popular breeds are the Black Spanish, the crested or Poland, the Dominiques, Dorkings, the Shanghai and central Asiatic (Brama Pootra) varieties.

The Crisp-Feathered Fowl.

Dame Nature often cuts curious freaks in her canny work, both in the vegetable and animal world. If the above portraits, which we copy from the *Rural New-Yorker*, are from life, they surely exhibit one of her most funny freaks. They are a curiosity, to say the least of them; and are certainly the most demoralized looking pair of fowls whose features and pictures have ever been brought to our notice. They are called, by the correspondent of the *Rural*, the "crisp-feathered fowl," and the question is asked, whether they are in any way related to the French "frizzled fowl?" The *Rural* sees no difference; but judging from the portraits of the two, we should suppose there was quite a marked distinction. In the make of the frizzled fowl, Nature has evinced her caprice by simply turning a portion of the feathers along the back and some other parts of the body around, and making them point towards the head, while the tail-feathers, in both the cock and hen, are quite regular. In the portraits here presented the feathers appear to have been stuck upon the bird, in a gale of wind, pointing every and all ways. Our readers will no doubt be impressed with their novel appearance.



It is said that this breed of fowls does not possess any peculiar advantages over the common barnyard fowl. It is probably more interesting as a curiosity, than valuable for practical purposes.

Castor Oil Beans—Proposed New Oil Mill.—Mr. C. H. Hodges has planted some 200 acres of castor beans the present year, and twenty-one acres of black or Norway oats, on his ranch near Marysville. There are several other ranches in that neighborhood where the bean is being cultivated to a greater or less extent. Dr. McDaniels planted some 200 acres last year, and we presume he has not decreased the amount for the present year. There are some five or six hundred acres devoted to the cultivation of castor beans in Yuba and Sutter counties. We see it stated that the erection of a mill for expressing and manufacturing the oil is contemplated at Marysville. We believe that Dr. McDaniels has a small mill on his ranch, which has been in operation for several years.

Bananas in Florida.—The banana is making rapid growth in Florida. A correspondent of a New York paper, on a visit to that State says: "Once a day we go to see the growth of the bananas which are now fruiting. The largest planted last year is about twenty-seven feet high, the stalk ten inches in diameter. On warm days a leaf will grow between three and four inches. The buds are inclosed in a large purple sheath, Each day it deigns to open, one leaf of the sheath is cast off, and the fruit, with the flowers on its tip, appears. The fruit, unlike most other fruits, forms in the matrix." Equally good results will no doubt soon be realized from similar experiments recently undertaken in this State.

What I Know of Farming—No. 16.

Thorough Tillage.

My little, hilly, rocky farm teaches lessons of thoroughness which I would gladly impart to the boys of to-day who are destined to be the farmers of this last quarter of this century. I am sure they will find profit in farming better than their grandfathers did, and especially in putting their land into the best possible condition for effective tillage. There were stones in my fields varying in size from that of a brass kettle up to that of a hay-cock—some of them raising their heads above the surface, others burrowing just below it—which had been plowed around and over perhaps a hundred times, till I went at them with team and bar, or (where necessary) with drill and blast, turned or blew them out, and hauled them away, so that they will interfere with cultivation nevermore. I insist that this is a profitable operation—that a field which will not pay for such clearing should be planted with trees and thrown out of cultivation entirely. Dodging and skulking from rock to rock is hard upon team, plow, and plowman, and it can rarely pay. Land ribbed and spotted with fast rocks will pay if judiciously planted with timber—possibly if well set in fruit—but tilling it from year to year is a thankless task, and its owner may better work by the day for his neighbors than try to make his bread by such tillage.

So with fields soaked by springs or sodden with stagnant water. If you say you cannot afford to drain your wet land, I respond that you can still less afford to till it without draining. If you really cannot afford to fit it for cultivation, your next best course is to let it severely alone.

A poor man who has a rough, rugged, sterile farm, which he is unable to bring to its best possible condition at once, yet what he clings to and must live from, should resolve that, if life and health be spared him, he will reclaim one field each year until all that is not devoted to timber shall have been brought into high condition. When his summer harvest is over, and his fall crops have received their last cultivation, there will generally be from one to two autumn months which he can devote mainly to this work. Let him take hold of it with reasonable purpose to improve every available hour, not by running over the largest possible area, but by dealing with one field so thoroughly that it will need no more during a long lifetime. If it has stone that the plow will reach, dig them out; if it needs draining, drain it so thoroughly that it may hereafter be plowed in spring so soon as the frost leaves it; and now let soil and subsoil be so loosened and pulverized that roots may freely penetrate them to a depth of fifteen to twenty inches, finding nourishment all the way, with incitement to go further if ever failing moisture shall render this necessary Drouth habitually shortens our fall crops from ten to fifty per cent.; it is sure to injure us more gravely as our forests are swept away by ax and fire; and, while much may be done to mitigate its ravages by enriching the soil so as to give your crops an early start, and a rank, luxuriant growth, the farmer's chief reliance must still be a depth of soil adequate to withstand weeks of the fiercest sunshine.

I have considered what is urged as to the disposition of roots to run just beneath the surface, and it does not signify. Roots seek at once heat and moisture; if the moisture awaits them close to the surface, of course they mainly run there, because the heat is there greatest. If moisture fails there, they must descent to seek it, even at the cost of finding the heat inadequate—though heat increases and descends under the fervid suns which rob the surface of moisture. Make the soil rich and mellow ever so far down, and you need not fear that the roots will descend an inch lower than they should. *They* understand their business; it is *your* sagacity that may possibly prove deficient.

I suspect that the average farmer does far too little plowing—by which I mean, not that he plows too few acres, for he often plows to many, but that he should plow oftener as well as deeper and more thoroughly. I spent three or four of my boyish summers planting and tilling corn and potatoes on fields broken up just before they were planted, never cross-plowed, and of course tough and intractable throughout the season. The yield of corn was middling, considering the season. That of potatoes more than middling; yet, if those fields had been well plowed in the previous autumn, cross-plowed early in the spring, and thoroughly harrowed just before planting-time, I am confident that the yield would have been far greater, and the labor (save in harvesting) rather less—the cost of the fall plowing being overbalanced by the saving of half the time necessarily given to the planting and hoeing.

Fall plowing has this recommendation—it lightens labor at the business season, by transferring it to one of comparative dullness. I may have said that I consider him a good farmer who knows how to make a rainy day equally effective with one that is dry and fair; and, in the same spirit, I count him my master in this art who can make a day's work in autumn or winter save a day's work in spring or summer. Show me a farmer who has no land plowed when May opens, and is just waking up to a consciousness that his fences need mending and his trees want trimming, and I will guess that the sheriff will be after him before May comes round again.

There is no superstition in the belief that land is (or may be) enriched by fall plowing. The autumn gales are freighted with the more volatile elements of decaying vegetation. These, taken up wherever they are given off in excess, are wafted to and deposited in the soil best fitted for their reception. Regarded simply as a method of fertilizing, I do not say that fall plowing is the cheapest; I *do* say that any poor field, if well plowed in the fall, will be in better heart the next spring for what wind and rain will meantime have deposited thereon.

Frost, too, in any region where the ground freezes, especially where it freezes and thaws repeatedly, plays an important and beneficient part in aerating and pulverizing a freshly-plowed soil, especially one thrown up into ridges, so as to be most thoroughly exposed to the action of the more volatile elements. The farmer who has a good team may profitably keep the plow running in autumn until every rod that he means to till next season has been thoroughly pulverized.

In this section, our minute chequer-work of fences operates to obstruct and impede plowing. Our predecessors wished to clear their fields, at least superficially, of the loose, troublesome boulders of granite wherewith they were so thickly sown; they mistakenly fancied that they could lighten their own toil by sending their cattle to graze, browse and gnaw, wherever a crop was not actually on the ground; so they fenced their farms into patches of two or ten acres, and thought they had thereby increased their value! That was a sad miscalculation. Weeds, briars and bushes were sheltered and nourished by these walls; weasels, rats, and other destructive animals, found protection and impunity therein; a wide belt on either side was made useless or worse; while plowing was rendered laborious, difficult and inefficient, by the necessity of turning after every few hundred steps. We are growing slowly wiser, and burying a part of these walls, or building them into concrete barns or other useful structures; but they are still far too plentiful, and need to be dealt with more sternly. O squatter on a wide prairie, on the bleak plains, or in a broad Pacific valley, where wood must be hauled for miles and loose stones are rarely visible, thank God for the benignant dispensation which has precluded you from half spoiling your farm by a multiplicity of obstructing, deforming fences, and so left its soil free and open to be everywhere pervaded, loosened, permeated, by the renovating plow!—*Horace Greeley.*

A New Fertilizer.—Mr. De Yerg, of Poughkeepsie, N. Y., is manufacturing from the slag of iron or other smelting furnaces, a new fertilizer—a soluble phospho-silicate. It is well known that the most fertile soil in the world is formed from the *debris* of volcanic overflows. Such soil is simply a decomposed scoria, the process of decomposition having been going on for ages by atmospheric and other material agencies. In the manufacture of his phospho-silicates, Mr. De Yerg simply imitates this action of Nature by a more rapid disintegration and decomposition. At the suggestion of Professor Tilmen, of Albany, specimens of this fertilizer have been submitted to the notice of the American Farmers' Club at New York, which body has appointed a competent committee to examine and report upon the same.

Candles may be made to burn their own wicks, by saturating them with a strong solution of nitre and then thoroughly drying them. The cause of the wicks of candles refusing to burn is, that the air cannot get access to them. The nitre, however, at a high temperature, will supply oxygen enough for this purpose.

Scientific Press.

DOUBLE SHEET—24 PAGES.

W. B. EWER..........................Senior Editor.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance..................$4 00
One copy, eix months, in advance.................. 2 50
Delivered by city carriers, per month............ 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month.......................... 3 00
One column, one month.......................... 40 00
One column, one year........................... 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanke for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, May 7, 1870.

Table of Contents.

The Diamond Drill—Ill. 296
The S. F. Mint.........297
Humboldt Co., Nevada..297
Earthquakes in the Mississippi Valley..........297
How Crops Feed........306
Packing Eggs, Fruit, etc.—Ill...................306
Vegetable Giants in Australia.................306
The Central Pacific Railroad—Ill..............304
Curiosities of Flour... 305
Agriculture for California.......................305
Wood Fiber from Air...305
Vegetable Instincts....305
Artificial Propagation of Fish—Ill.............317
An Excellent Institution 308
Improved Awning—Ill. 308
Qualifications of Patent Agents...............308
S. F. Stock Market......300
S. F. Shareholders' Directory....................300
S. F. Metal Market..... 317
S. F. Market Report....300
New York Metal Market 318
Full List of Patents....30
Pacific Coast Pearl Fishery.......................307
Loud-Cole Patent Case..319
Sulphur for Mildew....315
Farming and Gardening.—Century Plants About to Bloom; English Wheat Market; Tropical Fruits in California; Practical Views—Ill; About Deep Tillage; Importance of the Poultry Business; The Crisp-Feathered Fowl—Ill; What I Know of Farming, etc......... 301
Mechanical Progress.—Steam Donkey Pump; New Flux; Steel Car Tires; Band Saws, etc. 298
Scientific Progress — Hydrogenium-Amalgam; Isopurpuric Salts; Graham on Diffusion of Gases; Walling and Van der Weyde, etc............298
Reading for the Hour.—The Last Patent—Ill; A Recent Invasion in France; Where Fat and Flesh Come From; When is a Farmer Rich, etc., 315
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Colorado, Nevada, Oregon, Utah, New Mexico and Montana..................299

Although our paper this week is a double-sheet, yet we are obliged to leave over considerable matter which we shall publish at the earliest possible moment. Among the communications thus delayed by press of matter we have to acknowledge a letter from "E. N. S.," on hydraulic mining in El Dorado county, one from Stockton on the Root blower and one on the Stockton and Copperopolis Railroad. We shall also illustrate in our next issues Barber's device for steaming rovings, Archibald's machine for the manufacture of iron hub wheels, a number of band saws, hub and rail car morticing machines, Tavean's sulky harrow and other devices, besides presenting our readers with a fine view of the East River bridge, and continuing our illustrations on the various branches of mining, mechanics and agriculture.

* * *

Mechanics' Institute Lectures.—The managers of the Polytechnic Branch of the Mechanics' Institute have arranged for weekly lectures for six weeks to come, and for monthly lectures for one year. Efforts will be made to continue lectures weekly, if possible through the year. At all events semi-monthly lectures can be counted on with almost a certainty. These lectures will all be of a high order. The next of the series will be given on Saturday evening the 17th instant, by Prof. Joseph Le Conte, of the State University; subject —"The Universal Law of Civilization, or Cyclical Movements." These lectures are *free*, and are always useful and instructive. The public generally are invited to attend.

* * *

The New Pile Driver.—The new patent steam pile driver, which we described several weeks since, is working regularly on the new railroad track at Oakland Point. It is said to accomplish two-thirds more work than the ordinary driver. Being more complicated, however, it is, of course, more likely to get out of order. How it will answer in the long run, we presume, remains yet to be proven.

The Diamond Drill.

[Continued from page 298.]

bottom of the screw shaft below the engine is the small steam pump, C C, connected by rubber hose with any convenient stream or reservoir of water, and also with the outer end of the drill-pipe by a similar hose having a swivel joint, as shown in the cut. Through this hose a one-fourth-inch stream of water is forced by the pump into the drill, from which it escapes between the diamond teeth at the bottom of the bit, D, and passes rapidly out of the hole at the surface of the rock, carrying away all the grit and borings as fast as produced. Where water is scarce or difficult of access, a spout is laid from the mouth of the hole to the tank or reservoir and a strainer attached to the connecting hose, so that the same water may be used over and over again with but little loss.

Fig. 3 shows a "No. 2 prospecting drill.' This machine is similar in construction and operation to the first, but larger and more powerful, has double engines, and is geared to twice the speed of No. 1. The engines are two oscillators, C, C, of 4¾-inch cylinder, 5-inch stroke, both attached to the same crank shaft. The boiler is tubular, 3½ feet by 7 feet, of superior construction, and designed expressly for this purpose; flues, 3 inches diameter; steam capacity, 12 horse power. The pump, P and water hose, H, fill the same offices as those in Fig. 2. This pattern is mounted on large wheels with broad felloes, for easy transportation in rough mining districts, and, like No. 1, is all complete in itself. It is especially adapted to well-boring, draining and prospecting. Bores holes from two to five inches in diameter, as desired, and to any required depth. Total weight, about 3,800 pounds.

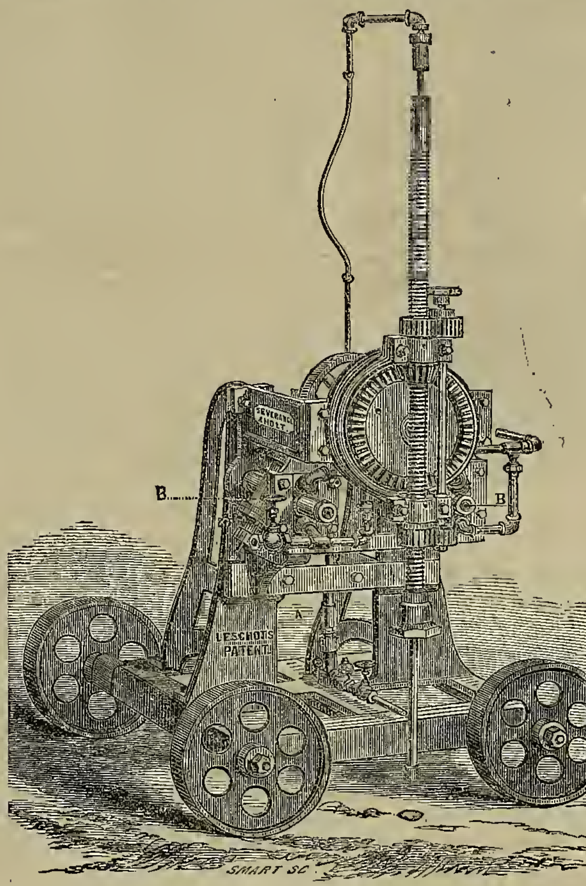


Fig. 4—Quarry Drill.

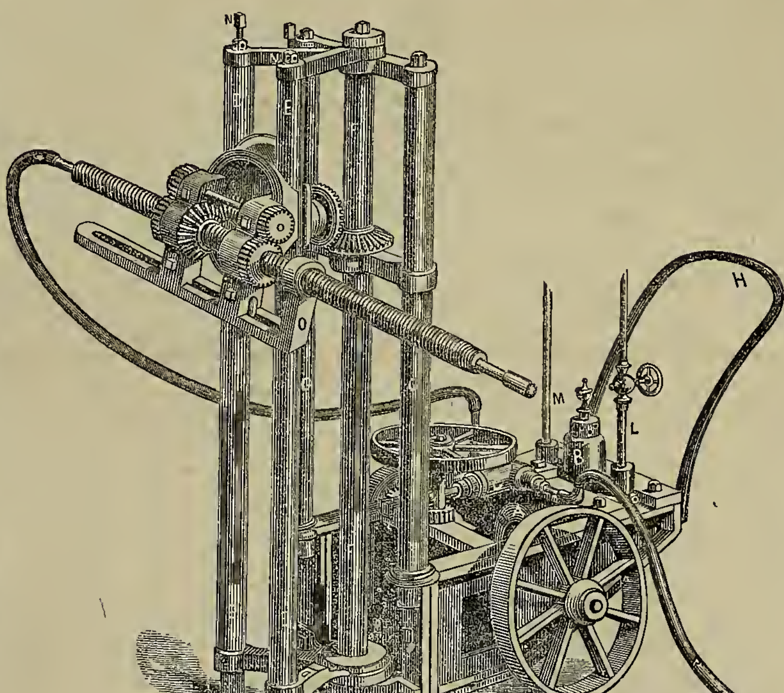


Fig. 5—Tunnel Drill.

Fig. 4 is an open cut or quarry drill, for railroad grading, quarrying and all surface excavations. Fig. 5 is the most approved form of steam tunnel drill, which is light and portable, being easily wheeled about by one man and will operate in tunnels from three to fifteen feet high. The essential points of these are identical with the preceding.

The value of this machine for prospecting, as it takes out a continuous core which shows the character of the ground it passes through, is especially great, and the testimonials of its successful working are exceedingly flattering. The diamonds last a long time, and can be reset with small cost by any mechanic, and other repairs are seldom needed. The speed of boring depends, of course, on the hardness and quality of the rock. We have seen it in operation both in the East and on this coast, and, although at first a little fearful that in hard rock it might not be able to compete economically with hand power, we have such certificates that we are compelled to recommend it.

In Colorado it has bored a *horizontal* hole 417½ feet long, with about ten dollars, cos for diamond points. It has bored 30 feet a day through hard trap rock in a number of places, and has sunk holes hundreds of feet deep. We have no room for the many testimonials from the East certifying to its remarkable success. Suffice it to say that it has been used in this State in Tuolumne county, in prospecting for the ancient river beds with succes; that it has sunk holes 300 feet deep in Telegraph hill; that an artesian well at the foot of Fourth street in this city is already 300 feet down, water enough to flow out of the top being obtained at a depth of 207 feet; that parties at Smartsville, desirous of testing it, sent down a block of tough granite, "almost as hard as crystallized quartz," which was bored at the rate of a foot in 3½ minutes; and that several other tests have been equally successful. It certainly appears to meet with wonderful success, and miners ought to examine it. Mr. A. J. Severance, one of the proprietors, is now in this city, and can be found by applying at the Grand Hotel, or parties may apply to Severance & Holt, 16 Wall street, New York. Personally, we have the greatest hopes with regard to this diamond drilling machine.

* * *

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending April 26th.

Metallic Packing for Stationary Joints.—Harvey T. Lee, Marysville, Cal.

Steam Generator.—John C. Ludwig, Stockton, Cal.

Needle.—James W. Donaldson and Daniel Sheets, Suisun, Cal.

Animal Trap.—James H. Lord, San Francisco, Cal.

Rotary Mechanical Movement.—Addison Goodyear Waterhouse, San Francisco.

Pruning Shears.—Eli L. Nichols and F. A. Edler, Folsom, Cal.

Descriptions of these will be given in our next issue.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

* * *

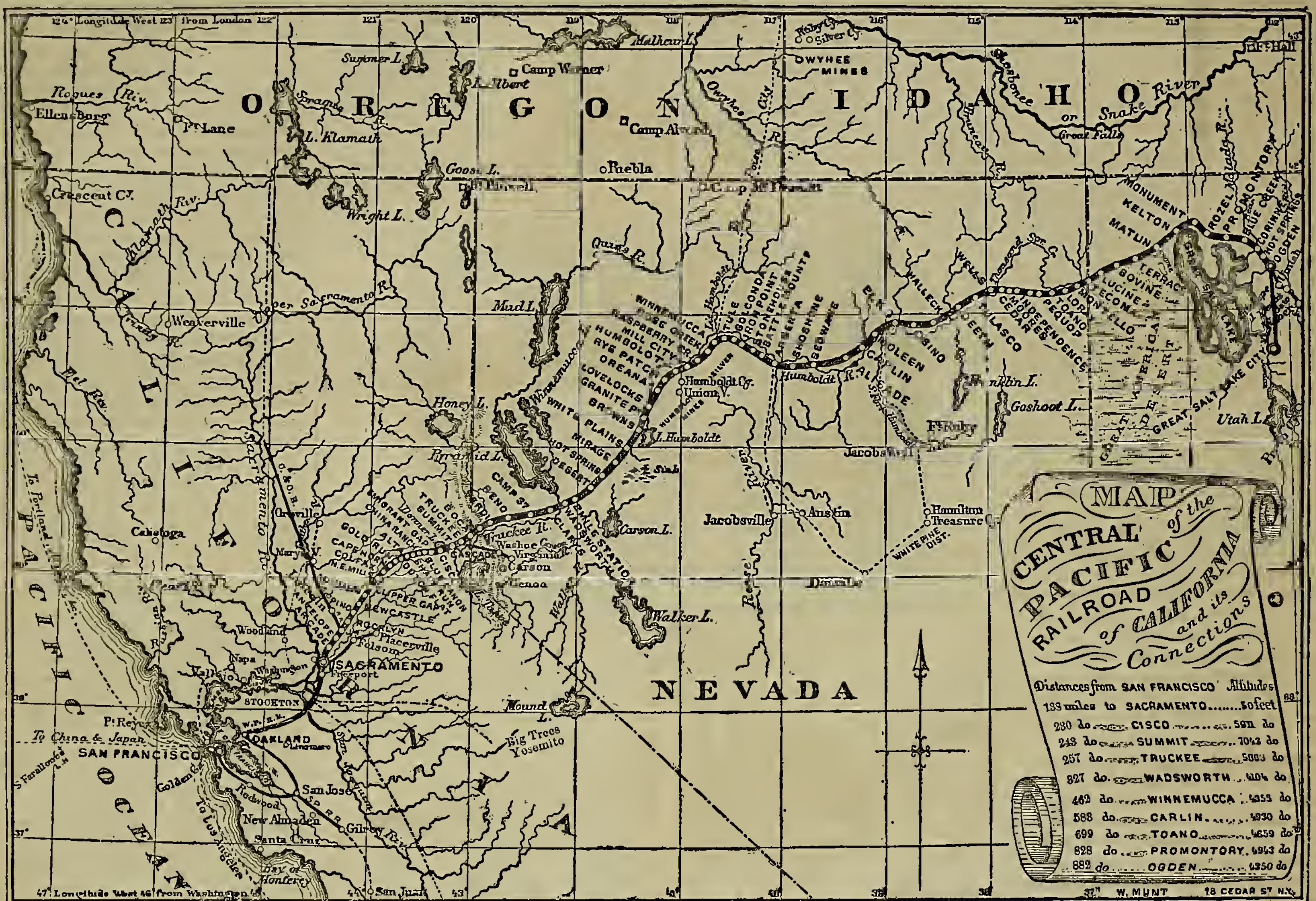
The coal deposit near Seattle, Washington Territory, has recently changed hands, and the new owners intend building a railroad to Lake Washington, where the coal can be shipped. The coal is said to be of good quality, containing but little sulphur. Half a ton was tested in the press rooms of the San Francisco *Bulletin*, and is pronounced a very good steam coal. The new company are to commence shipments to this city next fall.

* * *

Mr. A. B. Paul is soon to leave this city, we are informed, for the White Mountain district, Nevada. He is to put up his apparatus there for working the ores. We wish him all success.

The Central Pacific Railroad.

Years ago, many persons at the East were "pestered" with an individual, perhaps individnals, who broached the idea that the country needed an iron connecting link which shonld bind together the Atlantic and Pacific coasts. This idea, so generally oonsidered as an insane fancy at first, grew and gradually fonnd more and more supporters as the importance of onr extreme western settlements increased. Its valne, its necessity was urged upon the people, who slowly, at least on our Eastern border, recognized it, and to-day we cannot separate the history of onr country from that of the Pacific Railroad.


O R E G O N
I D A H O
C A L I F O R N I A
N E V A D A
P A C I F I C O C E A N
MAP of the CENTRAL PACIFIC RAILROAD of CALIFORNIA and its Connections
Distances from SAN FRANCISCO Altitudes
138 miles to SACRAMENTO........50 feet
230 do CISCO 5911 do
243 do SUMMIT 7042 do
257 do TRUCKEE 5863 do
327 do. WADSWORTH 4104 do
462 do WINNEMUCCA 4355 do
588 do CARLIN 4930 do
699 do TOANO 4659 do
828 do PROMONTORY 4943 do
882 do OGDEN 4350 do
W. MUNT 18 CEDAR ST N.Y.
SAN FRANCISCO
OAKLAND
SACRAMENTO
STOCKTON
To China & Japan
Longitude West from London
Longitude West from Washington

The bnilding of the Union Pacific Road was, after the line had been determined, a matter of comparative ease; not so, however, that of the Central Pacific. The engineer had to contend not only with great elevations, but also with the most unfavorable quality of ground. The western slope of the Sierra Nevada is so irregular, so broken up with ravines and cañons, often several thousand feet deep, with almost perpendicular sides, aud with narrow and sharp intervening ridges, that only the greatest skill combined with indefatigable energy and will could hope to overcome these obstacles. But these characteristics existed in California, and the Central Pacific, now an accomplished fact, is a noble monument of California enterprise.

It is getting to be the fashion to decry the grasping spirit of "huge monopolies." Let us, however, consider in this case, before joining in the popular cry, not only what our State owes to the promoters of tho railroad, but also how they persevered amid the greatest discouragement, and risked their reputation and their money at a time when no one else would venture, even in this daring State, to invest in so problematic a scheme! If they are reaping great rewards to-day, it is only what they have earned by their courage and foresight.

We had intended speaking more fully of the history of the road and of tho engineering difficulties, bnt the press of matter forbids our giving the details which we conld wish, and to make general mention of the fifteen tunnels, runuing up some six thousand odd feet, or the twenty-nine bridges, measuring over twelve thousand feet in length; or to speak briefly of the miles of snow-sheds, the deep cuts, the dizzy escarpments, would be but to repeat what has been published to satiety so lately. It would be well, however, to call attention to the immensity of the work of running a road some seven hundred and fifty miles long, and passing through the most varied country and climate, rising from nearly the level of the sea to an altitude of over seven thousand feet. And this length of road is patrolled daily by the sectiou men, whose duty it is to see that every bridge, culvert, shed, switch, rail or tie is in proper condition.

Some conception of the amount of traffic may be obtained from the figures relating to the rolling stock, the company possessing 167 locomotives, 133 passenger cars (first and second class), 1,928 freight, 9 express and 16 baggage cars, and by visiting the twenty-three acres of land covered with workshops at Sacrameuto. But we must cull from the data on hand only the fewest facts which will interest the reader and give him an idea of this gigantic undertaking, and perhaps we cannot attain this object better than taking the following data from the *Chronicle:*

The average cost of a locomotive is $12,500; of a passenger car, $7,500; of box freight cars, $900; platform freight cars, $600; sleeping cars, $11,500; Pullman's palace-cars cost $18,000 to $22,000. Remembering the number of cars and locomotives owned by the company, and doing a little multiplication, one gets some idea of the first cost of rolling stock.

In one month last year 911 men were employed in the work-shops at Sacramento, and 141 locomotives were in active service, giving employment to 108 engineers and 101 firemen; the pay roll for that month was $112,007. The total number of employés approximated to 5,000, with an extra force of 2,200 engaged in building new roads. There were traveled 286,641 miles, and matorial consumed to the amount of $139,280. The locomotives burned 8,250 cords of wood. These fignres include the Western Pacifio.

The following table of costs will be interesting to many: Total number of miles run on the Central Pacific Railroad, 212,106; pints of oil consumed, 18,349; cords of wood, 6,152; average cost of repairs per mile, in cents, 8.87. Average cost of engine-men per mile, in cents, 6.89; of stores, 1.59 cents; of wood, 20.09 cents; miles run to one pint of oil, 11.56; to one cord of wood, 34.47. Total cost of oil, tallow, waste, wood and engine-men per mile, 37.44 cents.

The men who manage this great work have, so far, shown a liberality of spirit in meeting the requirements for making their road popular with the public. Usually corporations, with such powers as are held by this company, are found to be shortsighted, and by high fares and high freight tariffs impoverish the revenue of their lines, and drive patronage and immigration away from their borders. But whenever a petition has been made by our wine merchants, frnit growers, and others, with good reasons for special reductions of freight, they have been met promptly and generously by the Central Pacific managers. It is well known that from the first they were ready to put down the through fares to a lower notoh than the oonnecting lines East were willing to join in.

The very men connected with this great railway seem to advance with the spirit of thoir work. We realize this when we visit Oakland and see the wonderful change which has taken place in a few months' management of the local road which forms the terminating link of the Western Pacific, the extra number of trains and cars that are run, the increased speed, the more comfortable seated coaches, and the wide-awake style in which the road is run and its improvements constructed. Several miles of extra wharf is being completed at Oakland Point. The company will soon have their cars running to a point near Goat Island, so that passengers from the East and from Oakland will reach the wharf in San Francisco within about fifteen minutes from the terminus.

The Central Pacifio Road proper extends from Ogden to Sacramento, but the company owns the connecting line of the Western Pacific, so that there is no change until one takes the boat at the pier at Oakland Point for this city. And this has been extended out to the close proximity of Goat Island, so that soon there will be a ferry passage of but fifteen minutes. It has branches south to San José and Gilroy (to be extended still further south), and to Stockton and Visalia, to be built immediately to the latter place. It extends north to Marysville on the way to Oregon, and other branches and connecting lines will be finished at no distant day. Its completion has infused a lively spirit of railroad engineering, and rendered necessary what, without it, would be but foolish expenditure, and thereby has vivified the whole State.

The traffic, as we before remarked, is rapidly increasing. The productive capacities of the State are so great that the trains are loaded to their greatest capacity, and more are being continually put on. We have now a daily through train, and it is expected that in a short time two such daily trains will be run; while every Wednesday, at 8 A. M. the Hotel Express starts with "palace accommodations;" so that, from the time of leaving San Francisco nntil reaching New York the passenger is not obliged to get out of the car. Besides these we have emigrant trains at greatly reduced rates. For the further benefit of parties, excursion tickets are issued to twenty or more persons, the charges varying, according to the number of excursionists, from $170 to $130 (currency), from San Francisco to Omaha for first class passage. Such tickets are good for thirty days, but will be extended, on request, to sixty.

The names of the prominent men connected with this road are widely known and will long be famous. Governor Stanford, the President, Crocker, Huntington, Hopkins and others, have held the highest places; the Chief Engineer, S. S. Montague; the General Superintendent, A. N. Towne, and the General Passenger Agent, T. H. Goodman, are familiarly known through their works to all on the coast; and the reputation of T. H. Judah, the former Chief Engineer, to whose exertions, in a very great measure, the building of the road must be ascribed, is dear to the whole Pacific slope.

Curiosities of Flour.

Wheaten flour becomes whiter with age; but at the expense of deterioration in flavor, sweetness and nutritive properties.

Some kinds of flour will keep better than others, under the same circumstances; that which contains the most gluten spoils soonest. When there is a large excess of gluten, it will sometimes spoil within a year, even when well put up in casks and kept in a cool and well-ventilated warehouse.

A part of the starch in wheat is often converted into sugar, in the process of grinding—as much as four per cent. of the starch is sometimes thus changed. This change is most readily affected when there is an excess of natural moisture in the wheat. A mutual action of the moisture and gluten seems to be induced by the heat produced in the process of grinding, which brings about this injurious change, if the flour is not soon cooled.

When flour comes from the stones very warm and is placed immediately in the large heap, without being allowed to cool, the series of changes likely to occur will be about as follows: Decomposition first sets in, during which a portion of the starch is first changed to dextrine, the dextrine into sugar, the sugar into alcohol, and, if the process continues, the alcohol to vinegar—*and so we have sour flour*. This action always commences in the middle of the heap, where the heat is longest continued, and increased by chemical action. Heat is finally communicated again to portions of the heap nearer the surface, which have been cooled by radiation, so that after a while the entire mass is spoiled.

From this it will be seen that flour, as soon as ground, should be conveyed to properly constructed receptacles or chambers, and cooled as quickly as possible. Much of the damaged flour thrown upon he market, in the Eastern States, becomes o by inattention in this particular. California flour is less liable to such damage, from the fact that our wheat is so dry that the incipient decomposition cannot readily take place.

We sometimes hear it stated that California wheat is *too dry* to make good flour. The trouble in such cases is that the bran will not separate to a sufficient extent to make *white* flour—still the darker quality of flour so made is really better and more healthy than that which has been made more perfectly white, by a cleaner separation.

Millers sometimes moisten the wheat previous to grinding, to make the separation more perfect. If such flour is immediately packed in sacks or barrels, without being allowed to dry or cool, some, or all of the changes mentioned above are very likely to take place, and we have *musty* or *sour* flour, according to the extent to which tho change goes on. If decomposition takes place without much heat, we have *musty* flour; if that action is accompanied with a sufficient degree of heat, we have *sour* flour, by the progressive changes from starch to sugar, to alcohol and to vinegar.

From these considerations our readers will infer the advantages of buying, for household use, freshly-ground flour, and that which has been properly manipulated.

Agriculture for California—Practical Views.

We are having just now a very good agricultural season, in spite of our fears during the early winter. These fears will not be so groundless always, for we are sure to have that dry winter at some time. It is therefore wise to anticipate and be ready for it. The disaster which one winter of only four or five inches of rain would bring to the State, under our present system of farming, is worthy of general consideration. It is not only the farmer who would suffer, but financial distress, if not ruin, would overtake half the mercantile and industrial interests of the State. With a proper system of cultivation of the soil, a rainfall of only five inches would guarantee a fair crop.

Irrigation, which has been suggested by many of the newspapers of California, is impracticable to any great extent here. A few bottom lands and a strip along the base of the Sierra Nevada might, with great expense, be subjected to irrigation by means of reservoirs, canals and ditches, but these would be local and very limited (except with inadequate expenditure) in their application. But no application of water to a plant is so serviceable as that which is furnished at the root and not upon the surface of the ground.

Heat and moisture are the indispensable requisites to vegetation; and the greater the amount of the two elements administered in proportionate quantities, the greater will be the growth. This is instanced in tropical regions where the great swamps, bayous and river bottoms, under the intense heat of the equatorial sun, produce the rankest and most luxurious vegetation.

It is thought that owing to the absence of summer rains in California, we are unable to produce root crops such as require to be planted after the season of frosts has passed and with it the season of rain. This is a great mistake. A very little moisture with heat will cause almost any (except the hardest) seeds to germinate; and once the germ is put forth in a loose and friable bed of earth where its roots may easily penetrate and distribute themselves, a small amount of moisture will keep up the growth of the part above ground as well as that below.

This condition is to be obtained more readily by subsoiling than by irrigation; for, by the former, the ground is broken to a depth of twenty inches, in which mellow bed the roots will penetrate as far down as the loosened soil exists, and will there receive the moisture which always exists in the earth, and which, by the sun's heat, is drawn towards the surface and evaporated; while, by irrigation upon the surface of the ground, tilled in the ordinary manner, a crust of hardened earth becomes formed, through which, unless it be kept soft by great and almost constant saturation, vegetation is able to make but sickly growth, its roots having but little depth of loosened earth in which to penetrate. In fact, in irrigated soils the roots will seek the surface where it is most moist, rather than the hard ground just beneath the plowed soil, whereas on subsoiled land the twenty inches of loosened earth, like a sponge, absorbs moisture from below, and the roots, seeking that source of moisture, penetrate downward, receiving nourishment, vigor and fruition.

As an illustration of what subsoiling will do for vegetation after one of our dry winters, I will mention an experiment made after the winter of 1863-64, when but ten inches of rain fell. On the first day of July, 1864, I selected on the highest part of my land at San Mateo upon hilly ground, a smooth, hard piece of sod ground, a rod square, that had never been plowed, and which was to all appearances as dry as the peak of Mount Diablo. I had it dug out with pick and spade to a depth of twenty inches, throwing all the earth out of the excavation, and then putting it back again. I thus had a good mellow bed. The earth for the first six inches was as dry and hard as if it had been in an oven. Below that depth it contained only dampness sufficient to distinguish it from being dry. In this rod square of loosened earth I planted about thirty pieces of potato, and raked the ground over smoothly, and left the experiment to its results. Not a drop of water was put upon it. Of course no rain fell on it that season, and nothing whatever was done but to leave Nature to its course. For five weekst here was no sign of vegetation apparent. Not a weed nor potatoe top was to be seen; and after daily inspecting my dry dust bed for that period, and I had begun to consider the experiment a failure, I found the green buds of my potatoes just peeping through the surface. From this time they grew marvelously, and before the first day of October the whole rod square was one thick bed of potato tops, of the deepest green color, an inch in diameter, two feet in height, and covering the ground so that the soil was not visible. On the first day of November I had the crop dug up, and got 125 pounds of potatoes as large as my double fist, and as fine as any I ever saw or ate.

After the experiment it would be useless for any one to try to convince me that potatoes, and beets, and turnips, and melons, cannot be successfully grown in California upon any but what is known as bottom land, or that they must be planted before the rainy season has terminated. On the contrary, I am convinced that there are very few places in this State where all the root crops may not, with subsoil plowing, be cultivated quite as successfully as in any other part of the world.

With regard to the cultivation of grain, the same system of subsoiling would always insure a crop in the dryest season, besides permitting later sowing of the seed.

The additional expense of subsoiling would not exceed $10 per acre, and the grain to the crop would be not less than 50 per cent. The increase cost would be more than counterbalanced by the saving in many respects; to wi: in the quantity of land required and the interest on its value; the lessened area to be fenced, the saving in seed, and the diminished cost of reaping; one acre producing the crop usually got from one and a half acres.

Should subsoiling be too expensive for all farmers to adopt, I would suggest, as an improvement upon our present system of grain sowing in the spring months, after the rainy season has been almost consumed in preparing the ground, that we take a lesson from the example that Nature here affords us. The wild oats of our hills drops its seed upon the ground in May, and the volunteer crops of grain, which are often as good as those fresh sown, come from seed dropped during the harvest months of June and July.

I would then sow the grain, not in winter, but in summer. At the time of harvest the soil, having been shaded by the growing grain in the early summer months, has not become hard and baked as it becomes while in the stubble. It is still mellow from the winter's plowing, and at that time can be plowed almost as easily as after the first rain of autumn. The days are long and work not interrupted by rainy weather. Laborers are abundant and on the premises, and were the ground then plowed and the seed then sown, the farmer's work would be at an end, and with the first shower of winter he would find his growing grain giving certain promise of abundant harvest, be the season wet or dry. In this State too much weight has been attached to the advantages or necessities of irrigation in the growth of grain, vegetables or fruits.

I have an orchard of 1,100 assorted fruit trees and a vineyard of 3,000 vines, both planted upon a hillside, and now under cultivation under my own supervision for fifteen years past. In planting both trees and vines through several years (as they were not all set out in one season) some were put into the ground as late as the month of April, and in no instance was ever a drop of water applied to either tree or vine except that which fell in heaven's own showers. Large and deep holes were made to receive the roots, and this subsoiling plan succeeded. My orchard produces as fine fruit as ever grew—peaches, pears and apples often weighing nearly a pound each. My vines produce an average of fifteen pounds of grapes each, with bunches often of three or four pounds weight.

What can be done on the hills of San Mateo can be done on the hills of Sonoma or Contra Costa, or of the Sierra Nevada.

The State is rich in fertile lands upon the hills as well as in the valleys, and under its genial climate we can, with intelligence and industry and the wise application of Nature's lessons, make it the garden of the nation and the paradise of its people.—*Evening Bulletin*,

* * *

To Remove Mildew from Clothes.—Mix soft-soap with powdered starch, half as much salt, and the juice of a lemon, lay it on the part with a brush; lay it on the grass day and night till the stain comes out. Iron stains may be removed by the salt of lemons. Many stains may be removed by dipping the linen in sour buttermilk, and then drying it in a hot sun; wash it in cold water; repeat this three or four times. Stains caused by acids may be removed by tying some pearlash up in the stained part; scrape some soap in cold soft water, and boil the linen till the stain is gone.

Wood Fiber from the Air.

A work of science gives the following novel experiment, which settles questions of some importance in philosophy: Two hundred pounds weight of earth were dried in an oven, and afterward put into an earthen vessel. The earth was then moistened with rain water, and a willow tree, weighing five pounds, was planted therein. During the space of five years the earth was carefully watered with rain water, or pure water; the willow grew and flourished, and to prevent the earth being mixed with fresh earth, or dust blown to it by the winds, it was covered with a metal plate perforated with a great number of small holes, suitable for the admission of air only. After growing in the air for five years, the tree was removed, and found to weigh 169 pounds and about three ounces; the leaves which fell from the tree every autumn were not included in this weight.

The earth was then removed from the vessel, again dried in the oven and afterwards weighed; it was afterwards discovered to have lost only about two ouncesof its original weight; thus 169 pounds of woody fiber, brake, or roots, were certainly produced, but from what source? The air has been discovered to be the source of the solid element at least. This statement may at first appear incredible, but on slight reflection its truth is proved, because the atmosphere contains a notable amount of carbonic acid, which is a compound of oxygen and carbon—the latter forming nearly the entire weight of the wood after the extraction therefrom of the water or sap. Moreover, the rain water which was used from time to time in moistening th earth, also contains, in solution, quite a number of substances which go to make up the wood. Even the silica, lime, potash, magnesia, iron, etc., which form the incombustible portions or ashes of the wood might all have been obtained from the water, taken into solution possibly, while passing over the roof form which it was caught. Had distilled water been used differet results would no doubt have been obtained.

Vegetable Instincts.

A tree which is fond of water, when planted near some brook will set off all its principal roots in that direction. How does it know the water to be there? And how does it know that it will be able to reach the border of it? To say, in popular phrase, that the water attracts the roots in that direction, is to invent a new and very remarkable sort of attraction that pulls at roots in the ground, and turns them out at the point of starting—is a something created to account for the fact in question, which is even more difficult than the fact itself. Mr. Madison, for example, had an aqueduct of logs, which, in reaching his house, passed by a tree especially fond of water, at a considerable distance from it. Abreast of the tree there was an auger hole in the log that had been filled with a plug of soft wood. Exactly thitherward the tree sent off a long stretch of roots, which forced their way through the plug, choking up the passage, and were found there drinking like so many thirsty animals. Was it then the soft wood plug that attracted these roots? It certainly should be, on the attraction principle; for the water was just as near at other points as here. It is said that a strawberry planted in sand, with good earth a little way off, will turn its runners all in the latter direction, and if the good earth is too far off to be reached, the plant will make no effort on that side more than on the other—which is equivalent to the saying that the plant has, in its life-principle, an instinct of measurement. It does not measure the ground and then itself, and then compare the two; but it has an adaptive power by which, without comparison, it graduates its action by its possibilities.

* * *

Tall Stories from Florida.—In Florida there are many lakes which have holes in the bottom and underground communication, so that they will sometimes shrink away to a mere cupful, leaving many square miles of surface uncovered, and then again fill up from below and spread out over their former area. Some of them have outlets in the ocean far from shore, bursting up a perpetual spring of fresh water in the very midst of the briny saltness of the sea. In times of low water, during a long, exhaustive, dry season, men have gone underground in one of these subterranean rivers from lake to lake, a distance of eight miles.—*Lippincott's Magazine.*

"How Crops Feed."

To write a book that is both interesting and valuable is an art that is understood by only a few of our best book-makers. But such a book is now before us, under the above title, published by Orange Judd & Co., of New York, and written by S. W. Johnson, Agricultural Professor of the Sheffield Scientific School, of New Haven, Conn.

"How Crops Feed" is a companion and complement of "How Crops Grow," written by the same accomplished hand, now well known and appreciated both in this country and Europe. The latter consists of a treatise on the chemical composition, structure and life of plants; while the one now before us treats upon the atmosphere of the soil, as related to the nutrition of plants.

The author "has not sought to excite the imagination with high-wrought pictures of overflowing fertility as the immediate result of scientific discussion or experiment, nor has he attempted to make a show of revolutionizing his subject by bold and striking speculations. His office has been to digest the cumbrous mass of evidence in which the truths of vegetable nutrition lie buried out of the reach of the ordinary inquirer and to set them forth in proper order and in plain dress for their legitimate and sober uses."

This book will be most cordially welcomed by all who appreciate the present scientific aspects of agriculture and hold to the generally-accepted fact that true theory is the surest guide to successful practice. The collection and arrangement of facts therein set forth must have cost the writer long and severe study and labor. His method has been to place before the reader all accessible facts, to present their evidence in as plain and simple a manner as the subject will admit of, and to merely record the verdict according to testimony. The opportunities of the author have evidently fitted him for this work; and his familiar and easy style enables him to bring his thoughts down to the comprehension of everyone. Mr. Johnson is a thoroughly practical man. He was brought up a working farmer, and carried his practical knowledge into the laboratory, where for twenty or twenty-five years he has devoted his labor and time to the thorough study of the science of agriculture.

In the mechanics of agriculture, there has been a steady advance for the last hundred years; but the chemistry of soils and their action and that of the air and other gases upon the growth of plants are subjects the knowledge of which dates back but little over twenty-five years. The study of agricultural chemistry is now held at its true value; and books like the series which Mr. Johnson is now publishing are beginning to be properly appreciated.

It is but a few years since we were taught that the roots of plants took up little particles of dirt and manure and transformed them into vegetable structure. But science has now revealed the fact that all compounds, whether mineral or organic, must first be decomposed into their original elements before they can form plant food. Science has also taught us how one can greatly assist Nature in this work of transformation by placing in mutual presence the minerals and organisms which Nature needs to carry on her works. "For instance,"—quoting from a distinguished agricultural writer,—"we are treating a soil that is sterile after a liberal appropriation of manure; we puzzle over the reason until an analysis shows the presence of copperas, a poison to plant as to animal life. Without further information we might be at a loss to remove the poison and renovate the soil; but the chemist, aware that lime will displace the oxide of iron from its combination with sulphuric acid, suggests the use of that mineral, not as a manure, but as a chemical agent, the problem is solved. The noxious substance is changed to harmless sulphate of lime and inert oxide of iron, and crops *grow* thriftily where they refused to *sprout* before. A similar illustration may be found in another use of lime, in the reclamation of swamps and peaty lands. Research has made known the existence in such soils of acids derived from organic decay, and not only hurtful to plants, but locking away from their reach the ammonia that would otherwise feed them. The chemist explains that lime attacks these compounds, neutralizes the acids, and liberates the ammonia, so that the scientific farmer, turning against Nature the force of her own laws, makes available by art for the benefit of his crops the substance that the natural chemistry of the earth had cunningly hidden from their reach. Chemistry not only tells how, in these and a hundred other ways, we may change and ameliorate the condition of the soil, but tells why and wherefore some soils are naturally better than others."

As a preliminary work and a familiar hand-book for scientific farming we know of no more valuable treatises than the two we have named. Our farmers should buy and read them both. Either, however, may be profitably read and studied by itself. "How Crops Feed," especially, contains much that every farmer should know. For sale by A. Roman & Co., of this city. Price, $2. It may be interesting to some of our readers to know that Prof. Johnson is now at work on a third volume.

Shasta County.—A large mass meeting was held lately in Shasta county to protest against the Deputy United States Surveyor, who has returned the mineral lands of the county, it is said, as agricultural. While a considerable portion *is* agricultural, still this action is manifestly wrong if it denotes *all* as farming lands, and we hope that the committee appointed by the meeting will be able to get the matter righted without delay or troublesome expense.

Fig 2

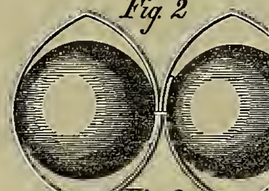
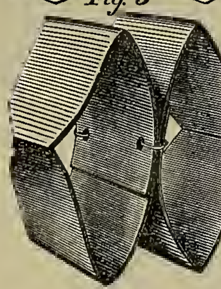


Fig 3



The Geological Observations of the so-called Lime Mountain at Segeberg in Holstein led to the conclusion that rock-salt was present at some depth below the surface. A prospecting hole was sunk, and after sinking 472 feet, salt solutions and pieces of salt were obtained, and the operations are being pushed on to determine the character and size of the deposit.

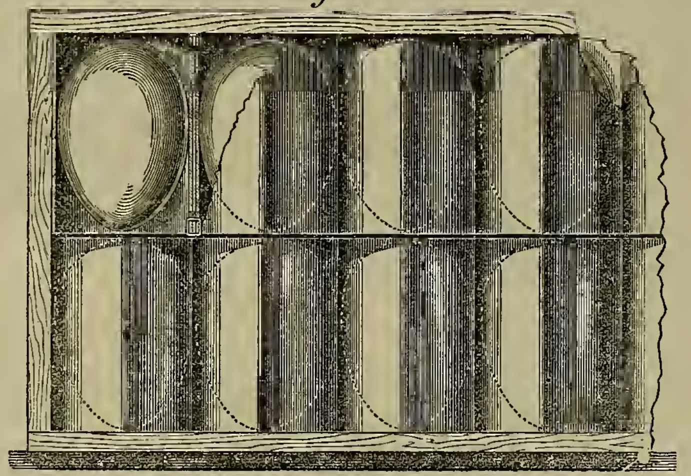
The Sutro tunnel is in over 1,000 feet, and is progressing favorably. An increased force of workmen is employed.

Packing Eggs, Fruit, etc.

A neat device for this purpose, which has the merit of being exceedingly cheap and is said to answer its object very well indeed, consists in the employment of pockets, made in pairs, of strips of stiff paper, leather, or bark, folded in the manner shown in Fig. 3, of the proper size, and arranged in tiers in a box or other case, with dividing boards of stiff paper between each tier to prevent the egg or other substance from coming in contact with its fellow, and also to provide for a free circulation of air, whereby the package may be kept perfectly cool.

Fig. 1 represents a package of eggs arranged in this manner for transportation, and Fig. 2 represents a top view of one pair of pockets. The device is very simple and is made by bending the strips of leather or other material into the shape shown and fastening the two ends and the centre part by a couple of strings. By this mode of packing, each tier is supported by the pockets below so that the articles packed do not press on one another. It is claimed that there is an economy of space and weight over the common methods of packing in oats and the like, and that there is less loss by heating, jamming or breaking.

Fig. 1



SMITH'S DEVICE FOR PACKING FRUIT, EGGS, ETC.

The package can be used, the inventor says, for transporting grapes, by running a stick through the middle hole and letting it rest on the notched sides, so that the bunches can hang down inside. He applies it also for various other purposes. It was patented in November, 1869, by Austin S. Smith, of Lawrence, Mass., to whom may be made any application for further information or for the purchase of State rights.

The most northerly mining works in the world are at the Altenfjord, on the northwestern coast of Norway. A piece of copper ore, found by a Lap-woman, was shown to an English merchant in Hammerfest in 1825. This merchant obtained a privilege from the government for the working of the mines, and raised a company in London with a capital of $375,000. Marmier reported, in 1842, that more than 1,000 workmen were employed in these works, and that often upwards of ten vessels at a time were busy unloading coals at Kaafjord for the smelting of the ores. Other works were afterwards opened on the opposite side of the bay at Paipass.

Hammerfest, on the island of Hvalö, in 70° 49′, is the most northerly town in the world. It has a population of some 1,200. Its chief traffic is in fish, reindeer skins, wolf and bear skins, train oil, walrus tusks and the like. Although situated so far to the north, in summer the heat is sometimes oppressive, and in winter it is never too cold to prevent fishing. The mildness of the temperature is due to the large expanse of water in the neighborhood and to the influence of the gulf stream.

The Scarlet Fever and How to Treat It.

A lady residing at Reno, Nevada, where the scarlet fever has lately been raging among the helpless innocents, cutting down, as it always does where it prevails, many a sweet child, the sunbeam of the household and the hope of loving parents, writes to a sister, and from the letter we are permitted to extract the following. We have strong faith in good nursing. An intelligent, thoughtful and courageous mother's tender and affectionate care is the very best shield against the ills and dangers that assail weak and frail childhood. While medical treatment is often necessary, good, careful nursing is always indispensable:

"The scarlet fever has been fearful among the children here this season. Several have died with it. Two of my precious ones—E. and L.—have had the fever, but, with the permission of Providence, I have saved them without the aid of a physician. I tended and took care of them myself, and they got through better than any other children that I know about. I will tell you my manner of treatment. You may, perhaps, be sometime obliged to encounter the disease. We never know till trials are upon us the importance and satisfaction of being equal to emergencies. My experience in this case may help you to better understand what is proper to be done in such fevers.

The room I kept carefully warm both day and night. Thorough ventilation is requisite, but no draft of air should be allowed to strike upon the patient. One can not be too particular about having plenty of pure air, and of guarding against exposure to drafts.

Externally I applied "Pain Killer" freely to the throat and chest; I also gave it internally mixed with a little milk and sugar very sweet, as a *gargle* and as a *drink*. Every second day I gave a little Hamburg Tea; after the breaking out, warm lemonade. I also gave cold water in small quantities whenever the patient wanted it. I used vinegar and water on the head, face and hands as often as required. When the fever was high I bathed with warm lye water, applying with a sponge as much under the cover of the quilts as possible. To avoid giving the patient a cold the greatest care should be used in bathing the body while the fever is raging. I was so successful with my children that Mrs. H. followed my advice with little Alice, and she is well. You may be surprised at the simplicity of my treatment; but Nature's ways are always simple, although it often requires much study to find them out."

Vegetable Giants in Australia.

Within a day's journey of the metropolis of Victoria may be seen the loftiest trees of Australia, and perhaps of the world. In the gulleys of Dandenong, as well as in some of the remote valleys of the Upper Yarra, a kind of Eucalyptus, botanically known as *E. Amdelena* (almond-leaved gum tree), attains such a marvelous height as to rival in this respect the *Washingtonia* of California. The stems rise as straight as masts, but far exceeding the masts of any naval structure. The height of the loftiest ranges from 400 to 500 feet!

A fallen tree measured from 480 to 500 feet in length. Another in Dandenong showed a height of 290 feet to the first branch. At the height of 365 feet, it measured nine feet in circumference. A still larger tree at Berwick measured eighty-one feet in circumference at a distance of four feet from the ground. The stems, with the exception of the base, are beautifully smooth and of an ashy color. The wood is excellent for shingles, and splits with facility.

Large numbers and several varieties of the *Eucalypti* have been planted in this State. They are beautiful for ornament, useful for timber, and grow with great rapidity. The seeds are very minute, yet they germinate with the utmost facility.

Rye, as a crop, is not properly appreciated. It springs up early in the season and is valuable as a grain crop long before clover is large enough for feed, and as a seed crop, it is valuable for bread—more wholesome mixed with corn than wheat bread. Sown early, it makes excellent fall feed for stock after grass has ceased to supply pasture for stock.

Artificial Propagation of Fish.

This subject is assuming a national importance. The destruction of fish is carried on with such wholesale rapidity that, unless some earnest measures are taken, no place inhabited by man will long furnish a sufficient supply of this valuable article of food. We have at present an abundance of certain kinds of the finny tribe, but cannot hope to retain the supply with the present rate of destruction—witness the reported wanton slaughter at Lake Tahoe by means of submerged explosives—unless we take speedy action on the subject. The Connecticut river was once, it is believed, as good a salmon-producing stream as any in America, but for years this fish has scarcely been known in its waters. Let us take warning. The Department of Agriculture declares, with regard to the Pacific salmon rivers, that "if the strong arm of law is not interposed, but few years will elapse before the efforts of fish-breeders will be called into requisition to restore the salmon to those waters. If protected, they may continue to yield millions annually; if neglected for a few seasons, they will shortly become worthless."

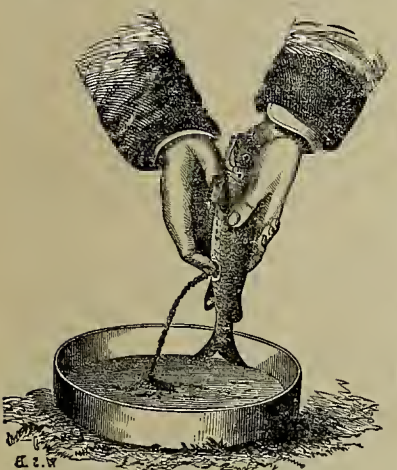


Fig. 1—Mode of Discharging Ova.

In view of the present state of affairs, and in the hope of interesting some one in a subject at once important and conducive to the education and gratification of a taste for rural pursuits, we propose giving some facts to our readers about this matter, which is attracting so much attention at the East at the present time.

Its History.

In other countries the value of fish culture has been recognized for some time past and the art practiced with considerable success. Pisciculturists have traced it back to the Chinese, who have practiced it for ages. From China the old Romans imported it, and thereby supplied their tables with the choicest dainties. From Rome we trace it later to the Monks of the Mountain, by one of whom the present plan of hatching the fish in boxes is said to have been invented. The art seems, however, to have had but a very limited range, and we hear not much of it until a German by the name of Jacobi discovered the method of artificial fecundation, and published an account, in the *Hanover Magazine*, in 1763, of the result of thirty years of research. In the kingdom of Hanover, near Nortolem, the first trials were made with great success. In 1837 Mr. John Shaw put the process into practice with salmon in Scotland, and in 1841 Mr. Boccius stocked several streams in England. MM. Gehin and Remy, through personal observation, discovered the process in France in 1841, but the subject did not attract much attention until 1848, when the French Academy of Sciences was apprised of the fact, and immediately appointed a commission to investigate the matter. In 1852 a government establishment was erected at Huningen, and the results there obtained for the first time, apparently, really attracted public attention and established the popularity of the practice. Since then the various European States have enjoyed a manifest increase of fish through artificial propagation. Several of the States of this country have entered into the matter, and the governments of the Eastern and Middle States have appointed commissioners of fisheries.

Natural Production and Hatching.

The method in which the fish spawn in nature was observed in the case of trout by MM. Gehen and Remy, who gave the following results of their observations:

The trout come together in a shoal and choose a current with a gravelly bottom. They dig a round hole and place in this a line of stones. The female then passes over this line, gliding over and rubbing against or resting upon them. This she does some twenty or thirty times until her eggs are all laid in the crevices of the gravel. After this the male in the same manner emits the milt which covers and fecundates the eggs; then with tail, fins, head and belly he covers the eggs with gravel. Now a second female commences and in the same manner lays her eggs in a parallel line with and against the first row. When the fecundation is complete, all unite and heap up stones and gravel over the eggs. These remain in this way a month or so, when the little fish come out between the interstices of the gravel and seek in the tranquil waters near the shore a place of safety.

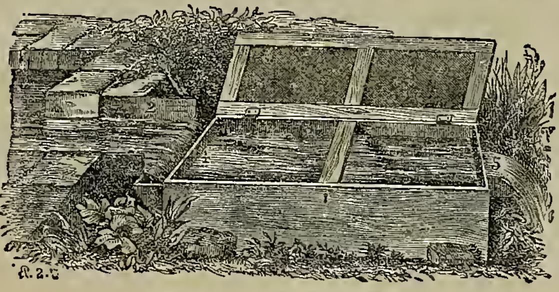


Fig. 2—Hatching Boxes.

Process of Artificial Fecundation.

The fish should be watched for several weeks beforehand so as to know when they are ready to spawn, or they may be caught when they appear to have nearly reached their term and be confined in some good, roomy place (but not in boxes), where they can be taken out with a net and examined. When ripe they may be distinguished by their swollen sides and pouting anus and their uneasy movements, and, on being taken from the water and examined, by the fact that the slightest pressure suffices to express the eggs or the milt.

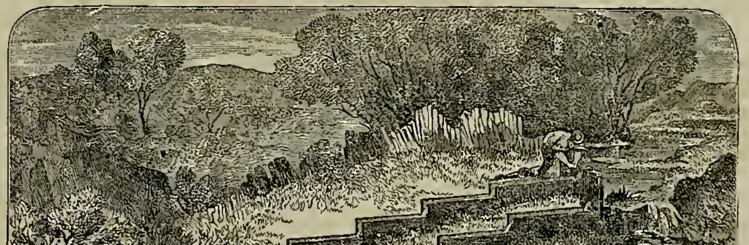


Fig. 3—Hatching Boxes.

When the proper time has arrived a few fish are caught with a net and placed in a tub or bucket. As they are taken they are examined one by one to see if they are ripe. Those not ready are put back into the water. For the reception of the eggs almost any flat vessel will answer if it is broad enough so that the eggs will not be heaped up, and if carefully cleaned. This is filled about three-quarters full of clear cold water.

A female fish is now taken and held over the vessel (as shown in Fig. 1) by the head and thorax with the left hand, while the right hand, its thumb on the belly and its fingers on the back and sides, is passed, like a ring, lightly from the head to the tail, thus pressing out the eggs. If these are ripe the lightest pressure suffices to expel them. But if it appears that a greater pressure is necessary, one may be sure that the operation is premature and the female must be replaced in the pond, and allowed to remain there until her full time is accomplished. Care must be taken that this will soon occur, for if a female fish is kept captive any great length of time in a circumscribed place her eggs will spoil.

If the fish is too large for one operator, another can aid by passing his fingers in the gills; and, if the convulsive struggles are very violent, it may be necessary also to hold the tail.

Eggs which have lost the reproductive faculty may be recognized by two characteristics: the flowing out with them of a foreign matter, which gives the water a muddy hue when the eggs begin to fall into it; and the white color of the eggs when they come in contact with the water. If neither of these appearances can be observed, we may be almost sure that the operation will be successful. Eggs must not be piled up too thickly in the vessel, as, in this case, they may not all come in proper contact with the milt of the male. If the process of expressing the spawn has brought out any of the mucus secreted in the intestines, the water must be immediately changed to free it from any impurity, care being taken that the eggs do not become dry. If the eggs are agglutinated together naturally—as in the case of the perch, carp, bream, roach, etc.—care must be taken not to pull them apart.

The male is then treated in the same manner to express the milt, which, if ripe, will flow abundantly, white and thick, like cream. The water is sufficiently saturated when it has assumed a whey-like appearance.

To spread the fecundating particles everywhere and uniformly, the mixture is agitated and the eggs turned over with the hand or a fine hair brush. After two or three minutes rest, the fecundation is accomplished and the eggs and water are emptied into the hatching basins. Many prefer to change the water with the milt of the male first, and then to express the spawn into this. The milt of a single male will suffice to fecundate the eggs of a large number of females, if he is treated properly. Undoubtedly by this process many breeds can be crossed and varieties produced.

Hatching Apparatus.

For hatching are required clear running water, boxes of some kind to hold the spawn, and protection from enemies. Spring water, of 40 to 45 degrees temperature, appears to be best adapted for the business for several reasons, the temperature of springs being more equable than that of rivers, and there being less danger from sudden increase of volume, etc. The boxes are of various forms and construction, but their general principle is the same.

In Fig. 2 we give the box introduced by Mr. F. Francis, and adopted by the Thames Angling Preservation Society. The box is made of elm and is 4 feet long, 15 inches wide and 10 inches deep. At the upper end is a zinc trough (3) which is about three quarters of the width of the box. At each end of the box a piece is cut out six or seven inches in width, and through these the water flows into (and out of) each box. These openings are covered with perforated zinc, which allows the water to flow through, but keeps foes out and the young fry in. The openings are not carried all across the boxes, as the shoulders left make eddies, favorable as resting places to the fish when first hatched. The water from a reservoir (1), made by bricking up a small rill, flows over a shoot (2) into the trough (3), and, after passing through the box, is led by a zinc shoot (5) into the trough of the next box placed at a somewhat lower level. There is a cover to the box to keep off mice, birds, and also men.

Fig. 3 shows another apparatus described by Mr. F. Buckland as employed at the Galway Salmon Fisheries. The boxes are 6 feet long, 1 foot wide and 7 inches deep. Each box overlaps the succeeding. The water of a stream is dammed up and the supply regulated by a gate at the upper end of the boxes. Perforated zinc here protects against foes.

The bottom of the hatching apparatus is covered a couple of inches deep with coarse gravel, from the size of gooseberries to that of plums, and of irregular shapes, with larger stones here and there. An inch depth of water is sufficient to cover the ova. The eggs are distributed regularly over the gravelly bed and among the interstices of the gravel, care being taken to place them in the crevices. Such a box as that shown by Fig. 2 will hold four or five thousand eggs. Over these a layer of coarse stones—an inch or an inch and a half square—may be placed. A small amount of water is sufficient; but it is better to have more while the ova are unhatched than is necessary for the young fish, so as to prevent deposits being formed over the eggs. If the water used is not very clear it may be filtered through gravel, charcoal, etc.

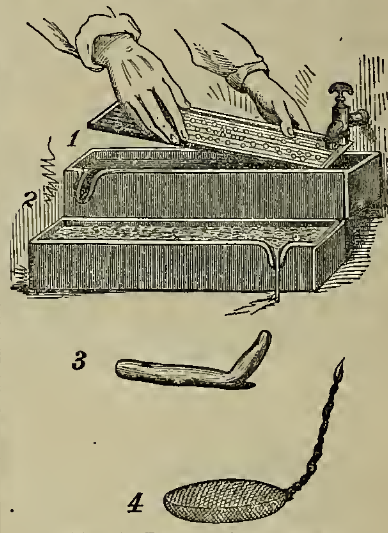


Fig. 4—In-door Apparatus.

The in-door apparatus is considered preferable in England to the out door, especially for experimenting on a small scale. One of these, recommended by Mr. Buckland in his work on "Fish-Hatching," is shown in Fig. 4. The troughs are made of zinc, two feet long, five inches wide, four inches deep, with one side of glass. No. 1 is furnished with a bed of glass rods, which the operator is placing in the upper tank. Beds of gravel are just as good as these glass rods, except that the latter afford a better opportunity of observing the eggs at their various stages of development. Boards are fitted on the tops of the troughs to exclude the light while the eggs are being developed, and there must be a steady flow of a gentle stream of water. No. 3 is the catcher, for moving the eggs without touching them. Place the finger on the end of the straight tube, immerse it in the water and bring the lower end opposite the egg or impurity to be removed. Then, withdrawing the finger, the water rushes into the tube and with it the object to be withdrawn. No. 4 is a net of common wire for catching the young fish. This apparatus can be fixed up almost anywhere under cover, except in a *hot* greenhouse.

[TO BE CONTINUED.]

The *Galaxy* for May comes to hand in reasonable time. The enterprising management has added another feature of interest to the magazine by securing the services of Mark Twain, who edits a department under the head of "Memoranda," and which is peculiarly Twainish in style. The *Galaxy* is one of the best of the kind which we receive.

An Excellent Institution.

Last December the Victorian Mining Museum at Melbourne, Victoria, was thrown open to the public. Here were collected ores and minerals from all parts of the colony, so arranged and labelled that persons could see the occurrence of different metals in different regions, and not only gain a knowledge of what had been found, but also receive some little clue as to what one might be likely to find or not to find. The scope and plan of the institution seem most excellent and worthy of imitation. Mr. R. Brough Smythe, in his opening speech, made a fow remarks on the origin of the collection, the methods used, and the objects sought for.

"It occurred to me in 1859, that if a system were adopted under which all the ores and metals discovered by mining surveyors, and other persons willing to contribute, could be collected and examined, and their character and value ascertained, and the information thus gained made known, much good would be done—even if the results did not extend beyond the preventing prospectors and miners from wasting their time and money in unprofitable labors; and during the ten years in which I have been engaged in collecting specimens, I can safely say that thousands of pounds have been saved by the information afforded to miners and others who have sought for advice.

"Much light has been thrown on the geology and physical geography of the country by keeping up a connection of this kind with prospectors; and the reports emanating from the department and many scientific works lately published in Europe, show that substantial aid has likewise been rendered to the mineralogist and the geologist.

"I am not aware that in any country in the world except Victoria has an attempt been made to collect systematically and to analyze all the mineral products which are from time to time discovered.

"Had such a system been in operation in Britain some twenty years ago, several millions sterling would have been saved to the people, because the ironmasters would have known of the occurrence of iron ores in localities where they are plentiful, and can be cheaply wrought, long before a mere accident brought them into notice. In the manufacture of aluminium, fit for the production of aluminium bronze, the minerals at present indispensable were discovered by chance, and not as the result of systematic inquiry. But little even at the present day is known of the character of the pyritous minerals in which Britain is so rich, and whence she derives so much wealth. A hundred instances could be adduced of minerals being discovered recently by accidont which, under the system we have in this colony, would have been known long ago, and much loss to manufacturers thereby prevented.

"In order to test practically the theories of those geologiets who maintain that quartz veins decrease in productiveness in a ratio with the depth from the surface, I caused to be collected in all parts of the colony blocks of quartz from the veins. From the descriptions in the catalogue you will observe that each block is carefully described; its obvious physical characteristics are noted, the proportion of sulphides in it, the yield of gold per ton, the depth from the surface at which it was obtained, the depth of the water line, and the thickness of the reef, are given on the authority of the mine-owners. All the facts are plainly and clearly stated, and the result has been to prove beyond doubt that reefs do not as a rule decrease in richness with the increase of the depth from the surface. More than this, we have gained some slight clue to the mode in which gold occurs in reefs, and to its distribution."

◆

The Russian Government has decided to sell all the mines and smelting-works belonging to it. As conducted heretofore, it has been considered necessary, apparently to have an official with a long sword to superintend the labor of about every two workmen; which renders operations rather expensive and dividends exceedingly small.

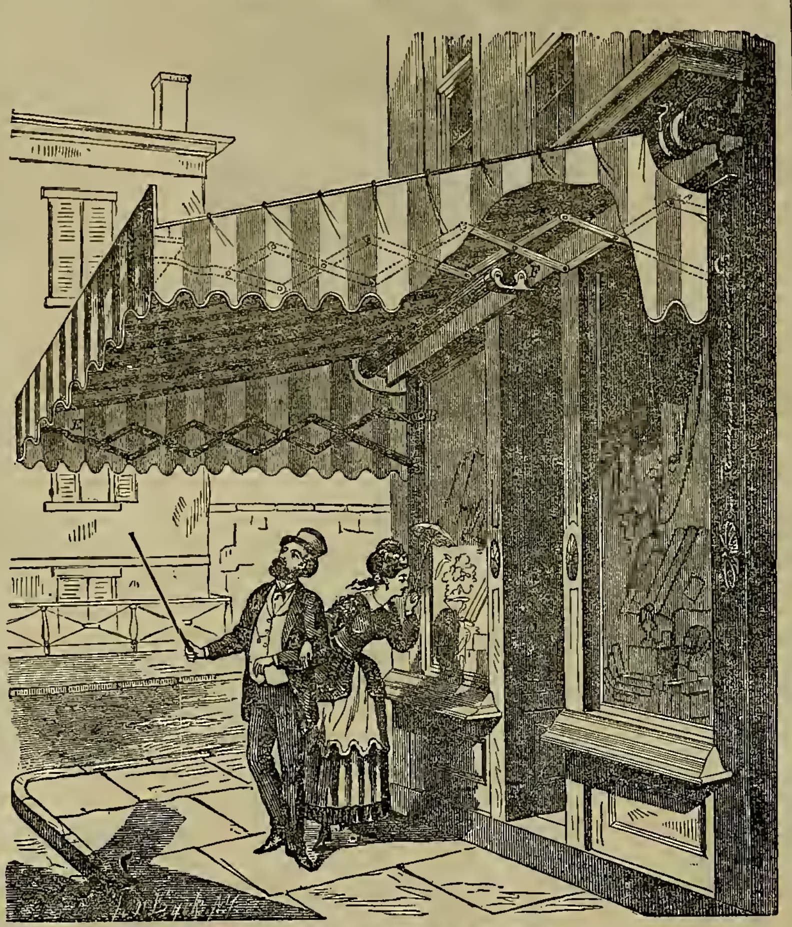
The Stetefeldt furnace continues doing well according to all accounts. Mr. Stetefeldt was lately in this city preparing drawings for the new furnace to be erected at the Manhatatn mill at Austin, and has now gone, we are informed, to superintend its erection.

Improved Awning.

In the matter of awnings, we have room for great improvemont in this city. No one can pass along Montgomery or other streets where they exist without being struck with their hideousness and general ineffectiveness; and in a rain, in many cases, they are worse than nothing, serving merely to collect the water in small dirty streams and pouring them down to the detriment of one's person and to the injury of one's temper.

Under these circumstances we feel ourselves fully justified in calling attention to and recommending a simple, neat and effective dovice, called the Miller & McClellan Awning, of which we give an illustration. Fig. 1 shows the awning extended, a portion of one of the side flaps being removed to show how the roller is supported at the middle, and Fig. 2 shows it rolled up. The framo consists of a pair of lazy tongs, which are shown extended in Fig. 1 and folded in Fig. 2. Each of these is provided at the inner end with a spiral spring, as at B (Fig. 1), which keeps the lazy tonge extended when the awning is used, and also aids in causing the cloth to wind up smoothly on the rollers when being rolled up. The outer end of the lazy tongs is formed into a hook, which is fastened to two boards, D, placed at right angles. These boards form the front part of the frame to which the awning is attached, and, moreover, protect the cloth when wound up on the roller, as shown in Fig. 2. The center of the main roller is supported on a pair of smaller rollers, F, which provent it from sagging. The side flaps run by means of rings on cords, which wind up on the roller and slide the rings together on the inner side thus folding the flaps. By means of the cord, C, the awning can readily be rolled up or extended, as desired.

By means of this device, no supporting parts are required, and the sidewalk in front of the store or house is left entirely unobstructed. The drop curtain always furnishes a sign, either up or down. When rolled up, the cloth on the roller is protected by the board from water, and the whole device is very neat and ornamental in appearance. It is not liable to get out of order, and can easily be worked by means of the cord.



MILLER & McCLELLAN'S PATENT AWNING.

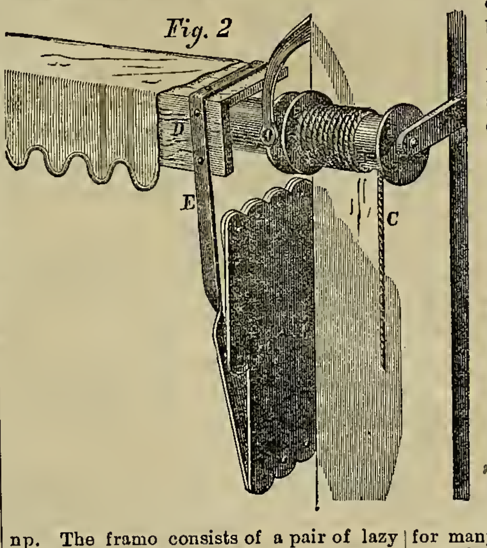


Fig. 2

This invention was patented in November, 1867, and has been assigned to J. B. Armstrong, President National Bank at Urbana, Ohio, to whom any communications concerning the purchase of rights or licenses should be addressed.

◆

An Old English Patent.—It is said that the following is the first patent ever granted in England for the preservation of food: "A. D. 1691, Oct. 7. No. 278 Porter Thomas and White John. A grant unto them of the sole use, exercise, and benefit of their new invencon of keeping and preserving by liquors *or otherwise* all sorts of fleshe, fowle and fish, and many other things, either in pieces or in whole bodies, at a cheaper rate, for many years in all clymates, without changing the nature, quality, taste, smell, or color thereof, as good, palatable, and wholesome, to be eaten and made use of for any intent and purpose whatsoever, as when first killed and put in such livuor; to hold and enjoy the same for 14 years, according to the statute."

◆

In several coal mines in the vicinity of Aux-la Chappelle safety lamps for burning petroleum have been introduced.

Qualifications of Patent Agents.

Considerable trouble has arisen, and considerable loss is being continually entailed on inventors, through the operations of unprincipled or unqualified patent agents. We hear every day of such cases, for which, however, there is no legal remedy. The only way to do is to go only to those agents who have attained a reputation, which is a guarantee both of their success and of their honesty. Dealing with agents who have no reputation nor well known connections is always dangerous; responsiblo parties only should be trusted. Our readers will find much that is interesting and valuable in the following extracts from the pamphlet of our London agent:

Here it may not be out of place to say a few words on the requisite qualifications of a patent agent. In the first place, he should be a person of studious habits and good education, because, in order to advise on the novelty of an invention, he must study very carefully those already patented; and in order to explain them clearly in the specification, it is evident that he must be able to commit his ideas to paper in a clear, intelligible manner. It is true, no man can be expected to understand perfectly all the subjects, mechanical and chemical, that may be brought before him; but if he has education, and industry to apply himself assiduously to what will be explained to him by the inventor, he will certainly have no difficulty in making himself sufficiently master of the subject to specify it intelligibly. I have made these few remarks as a guide to inventors, to enable them to judge of the requisite qualifications of a patent agent, as I am sorry to say I have known persons who have presumed to style themselves patent agents, civil engineers, etc., whose education was so limited that they could not put two consecutive sentences of the English language together correctly, and the extent of their engineering acquirements has been to drive a locomotive or feed a boiler. But perhaps the first and principal qualification required is honesty of intention. If the agent knows that the same identical invention has been previously secured, it is his duty to inform his client of the fact, before he allows him to spend any money upon it. I do not pretend to say that it is the duty of a patent agent to advise on the utility of an invention; that ought to be left to the judgment of the inventor himself;—indeed, I doubt if it be possible to advise inventors on that point; their enthusiasm is always so very great that it is almost impossible to persuade them that their inventions are impracticable; however, if the patent agent gives his opinion honestly, regardless of pecuniary considerations, he has done his duty; but I regret to say this is not always the case. We have had agents who have even received fees for patents to very large amounts, and used them for their own private purposes, without obtaining them; have become bankrupts, or passed through the Insolvent Court, and scheduled their clients for monies received for the special purpose of securing their inventions. I name these circumstances merely to caution inventors against consulting ignorant, unprincipled agents, as the law does not provide any remedy for those evils. Patent agents are not responsible to any one, except their clients, for neglect of duty,—it would be well if they were under the control of the Commissioner of Patents, as solicitors are under the Lord Chancellor, so that in case of neglect or misconduct they should be prevented from practising.

◆

The Pacific Business College offers many inducements to young men desiring a business education. The instructors are all persons of large business experience, and, therefore, well qualified to give students such teaching as will fit them for the practical operations of life. The situation is central, being at No. 27 Post street, in the Mechanics' Institute building.

◆

M. House, attorney, 78 Nassau street, is sending out orders to have his advertisement inserted for three months, etc., etc. The advertisement commences, "Absolute Divorces Legally Obtained." For three years we have made faithful efforts to collect fifty dollars due us from this gentleman. He says we were very *green* to trust him, and we are of the same opinion.—*G. P. Rowell's Advertiser's Gazette.*

How many are *sold* in California?

R.H. McDONALD & CO.
DRUGGISTS
SAN FRANCISCO, CAL.
ESTABLISHED 1849

WHOLESALE DEALERS IN

DRUGS, CHEMICALS,

Patent Medicines,

DRUGGISTS' SUNDRIES,

TILDEN & CO'S

SOLID AND FLUID EXTRACTS,

Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.

SAPOINE

FRAGRANT SAPOINE FOR THE TEETH

THE GREAT MEDICAL DISCOVERY!

Dr. J. Walker's California

VINEGAR BITTERS.

More than 500,000 Persons

Bear testimony to their wonderful Curative Effects.

WHAT ARE THEY!

They are not a vile

FANCY DRINK,

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, FREE FROM ALL ALCOHOLIC STIMULANTS. They are the GREAT BLOOD-PURIFIER AND LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ SEND FOR A CIRCULAR.

R. H. McDONALD & CO.,

Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞ SOLD BY ALL DRUGGISTS AND DEALERS.

PACIFIC BUSINESS COLLEGE,

Mechanics' Institute, 27 Post Street,

BET. MONTGOMERY AND KEARNY, SAN FRANCISCO.

THE PIONEER AND ONLY BUSINESS COLLEGE

On the Pacific Coast where BOOK-KEEPING is taught as practiced in the Counting-room.

PENMANSHIP.

In this useful and very important branch we challenge competition.

PROF. SEREGNI

Has obtained First Premiums at all the Fairs on this coast where his Penmanship was exhibited, and was awarded the MEDAL at the Seventh Industrial Exhibition of the Mechanics' Institute in 1869 over all competitors. His success as a Teacher is unequalled.

TELEGRAPHING.

The only place in the city where Telegraphing is taught by an experienced Operator.

We cordially invite the public to call and examine the merits of the College. Our Institute is patronized by the youth of fifteen and the man of fifty, where they receive instruction in Single and Double Entry Book-Keeping, Commercial Arithmetic, Commission Jobbing, Business and Ornamental Penmanship, Commercial Correspondence, Actual Business, Merchandising, Banking, Importing Railroading, Steamboating, Mining, Real Estate, Brokerage and Exchange, Mechanical and Architectural Drawing, Telegraphy, Orthography, French, Spanish, Italian, German and English Grammar. No CLASS SYSTEM. Each student receives individual instruction. No Vacations.

Sessions Day and Evening.

12v20-12t VINSONHALER, JULIAN & CO.

Air—Daisy Deane.

'Twas down in the kitchen a turkey she was stuffing,
And trimming it with parsley fresh and green;
And the kettle on the stove was bubbling and singing,
When I first met my darling Daisy Deane,
None knew thee but to love thee, thou dear one of my heart,
Oh! thy cabbages were ever fresh and green;
Though the squash pie is gone, and stuffed hearts be eaten,
Still I love thee, my darling Daisy Deane.

While walking on the levee, she fell into the river,
And she floundered like a fish caught in a seine;
By the wetting she took cold and a racking cough soon followed,
It settled on the lungs of my darling Daisy Deane.
None knew thee, etc.

My bright flower seemed fading, like a rose that had fallen,
Though they dosed her with pills and kerosene;
For the doctors all agreed she'd die before the morrow,
Oh! my dear one, my darling Daisy Deane.
None knew thee, etc.

So down to the drug store I despondingly did wander,
To end my existence with a glass of glycerine;
But ALLEN'S PECTORAL BALSAM was placed within my grasp,
Just one bottle cured my darling Daisy Deane.
None knew thee, etc.

☞ Ask for ALLEN'S PECTORAL BALSAM, and see that the proprietor's signature (as below) is written across the wrapper in red ink. SOLD BY ALL DRUGGISTS AND GROCERS.

Depot—139 J Street, Sacramento.

Isaac Allen

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good SAUCE The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed,

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

A GENTLEMAN who knows says emphatically that the SCIENTIFIC PRESS will not commend any thing not known to be good; and that money will not buy its endorsement of an unworthy object. That is high praise, but he did say it.—*The Pastor, Mayfield, March* 15.

FIRE PROOF

— AND —

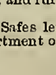
Fire and Burglar Proof Safes.

J. J. DUNN,

NOS. 317 AND 319 BATTERY STREET,

Sole Agent for JONATHAN KITTRIDGE'S

Fire Proof and Fire and Burglar Proof Safes.



Constantly on hand a large assortment of Fire Proof and Fire and Burglar Proof SAFES. Also the celebrated MONITOR SAFES. Steel Lined Bank Vaults, Silver Safes, and Safes of every description, made to order. SAFES REPAIRED, and furnished with new Combination Locks.

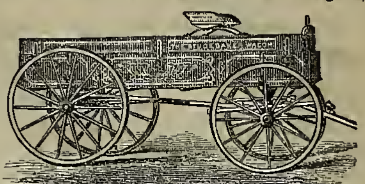
New Safes exchanged for second-hand ones. Safes let by the month on reasonable terms. An assortment of the most approved COMBINATION BANK LOCKS.

15v20-1am-3m

Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, SACRAMENTO COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

The Celebrated Studebaker Wagon,



Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

FIRST.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover.

SECOND.—They are made by experienced mechanics.

THIRD.—The lightest running and most durable Wagon in the market.

FOURTH.—Their Thimble Skeins never break, while all others do.

FIFTH.—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not

SIXTH.—The only Wagon in which the SLOPE SHOULDER SPOKE is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying.

SEVENTH.—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction.

EIGHTH.—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road.

NINTH.—Last, but not least, Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others. Sold by

COPELAND & DEFREES,
K street, bet. Seventh and Eighth,
SACRAMENTO, CAL.

☞ PIONEER AGENTS FOR THE PACIFIC COAST. 15v20-3m

AMES & WOOLVERTON,

General Agents for the Pacific Coast

FOR THE CELEBRATED

STUDEBAKER

Farm and Team Wagons,

Manufactured at South Bend, Indiana.

OFFICE AND GENERAL DEPOT

— WITH —

THE KIMBALL MANUFACTURING CO.,

SAN FRANCISCO, CAL.

☞ Orders and correspondence solicited. 15v20-3m

"Salus populi suprema lex."
"Sub hoc signo vinces."

Farm Wagons For Sale.

We have contracted for the manufacture in this city and vicinity of a large number of Two-horse Farm Wagons—light, medium size and heavy, made either with Iron Axles or Thimble Skeins, which we will sell as low as Eastern-made Wagons are sold for here, and guarantee both the work and materials. Orders from the country from persons who have facilities for disposing of them are respectfully solicited, and any reasonable number promptly furnished. Price Lists sent on application.

MEEKER, JAMES & CO.,
Corner California and Davis sts.

March 26, 1870, 14v20-1am3m

SPECIAL NOTICE.

TO DEALERS AND CONSUMERS

— OF THE —

H & L

AXLE GREASE!

Having received your liberal patronage and support during the last fifteen years, and desiring to further extend its consumption, and if possible meet the market of our Chicago friends, we have made a great reduction in prices, and from our long experience we will satisfy you that there is none BETTER, and through your liberal patronage that there is none CHEAPER.

HUCKS & LAMBERT,

144 Natoma Street.

Depot, 320 Jackson Street.

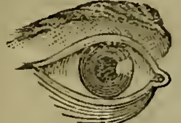
N. B.—We are prepared to furnish Bulk Packages to contractors on equally liberal terms.

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up IN TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List. to Giant Cement Manufacturing Co, 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

DR. ABORN,



Oculist, Aurist,

AND

CATARRH, THROAT

AND

Lung Physician.

No. 22 KEARNY STREET,

SAN FRANCISCO, CAL.

Testimonials from Well-known Citizens of California as evidence of his success.

Card from Charles N. Fox Esq., of the firm of Campbell, Fox & Campbell, Attorneys, 528 California Street.

I have for many months suffered from Catarrh, accompanied with unpleasant sensations and sounds in the ears. Recently I found my hearing impaired. and at once applied to Dr. Ahorn, No. 22 Kearny street, San Francisco. He improved my hearing almost instantaneously, and now, after being under his care six days only, I feel as if entirely cured, and my hearing is restored. CHARLES N. FOX.
San Francisco (Cal.), Jan, 10, 1870.

Card from S. O. Houghton, Esq., Attorney at Law.

I have been afflicted with severe nasal Catarrh for two years, which a few months since extended to my throat, producing a distressing cough, and seriously impairing my health generally. I have been under treatment hy Dr. Aborn, at 22 Kearny street. San Francisco, for about three weeks, and have been already greatly relieved—my cough has almost disappeared and my health greatly improved. By one application, Dr. Ahorn relieved me of a very severe neuralgic pain, and with four applications it was entirely cured. S. O. HOUGHTON.
San Jose (Cal,), Nov. 22, 1869.

From Hon. Jas. A. Johnson, M. C., California.

To whom it may Concern.—Having heen a sufferer with Catarrh and a severe bronchial affection for more than seven years, and having found great relief hy submitting myself to Dr. Aborn's treatment for a few days only, I take pleasure in saying Dr. Aborn, with his new and improved instruments for local applications to the lungs, air passages, eyes and ears, should encourage all who are affected in those parts to cherish a lively hope that they may find quick and permanent relief. Very truly, JAMES A. JOHNSON, M. C., California.

A Wonderful Cure.

Having heen afflicted for over twenty years with a disease in the left nostril, which has been called by different names—cancer, scrofula and ozena—different physicians have tried their skill in attempting its cure, hut without success. It has rendered me incapable of labor for the last two years. Since the beginning of June last I have heen in the Sacramento hospital reduced to a mere skeleton. On the 23d of November I left the hospital, and since the 26th have heen under the treatment of Dr. Aborn in this city, and the disease is already nearly cured, and my strength and general health very much improved, and I have full confidence of a perfect cure. Already I have gained many pounds in weight, and look and feel like another person. The success of Dr. Aborn's treatment in my case should be sufficient to encourage all who have chronic diseasesto make another trial for that good prize—health.
WILLIAM BEARDSLEE.
Pacific House, San Francisco, Dec. 13, 1869.

Another Remarkable Cure.

For the benefit of the afflicted and as an act of justice to the skill of Dr. Aborn, I make the following statement: For about two years I was seriously afflicted with a bronchial affection. I had a distressing cough, difficulty of breathing, expectoration, night sweats, and was losing flesh very rapidly. I was treated by five physicians without any benefit, but continued to grow worse, and was finally advised hy them to leave the city, as in their opinions I could not be cured in this climate; hut my business relations were such as to preclude a change of climate, although my health was declining so fast that I could not have lived long without relief. Two months ago, when Dr. Ahorn arrived, I read his publications and the testimonials of his remarkable cures, which led me to believe that there must he merit in his treatment. So I placed myself under his care, and it is with great pleasure that I am able to say that he has cured me of those distressing and dangerous bronchial affections; also, the night sweats, cough, etc. I was unable to attend to business since April last, until after being under Dr. Aborn's treatment for one week. My improvement was so rapid that in one week's time I was able to resume my business, and I have continued to gain ever since so rapidly that even my friends are surprised at the remarkable results of his treatment.
VINCENT MONATTI,
Corner of Dupont and Green streets.
San Francisco, Dec. 25, 1869 7v20-3m

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil

PATENT CANS.

5v17-tf 414 Front street, San Francisco

JOHN WRIGHT & CO.,

DEALERS IN PICKS AND PICK HANDLES.

Sole Agents for Washoe Tool Company.

Nos. 13 and 15 Fremont Street, at Nelson & Doble's, San Francisco.

LIST OF PRICES OF PICKS:

No.		lbs.	Price	No.		lbs.	Price
No. 1	Round Eye Surface,	4 lbs	$16	No. 16	Drifting	4 lbs	16
" 2	" "	4½ "	16	" 17	"	4½ "	18
" 3	" "	5 "	16	" 18	"	5 "	18
" 4	" "	5½ "	18	" 19	"	5½ "	20
" 5	" "	6 "	20	" 20	"	6 "	22
" 6	" "	6½ "	22	" 21	Poll	4 "	18
" 7	" "	7 "	24	" 22	"	4½ "	18
" 8	Flat Eye Surface	4 "	16	" 23	"	5 "	20
" 9	" "	4½ "	16	" 24	"	5½ "	20
" 10	" "	5 "	16	" 25	"	6 "	22
" 11	" "	5½ "	18	" 26	"	6½ "	24
" 12	" "	6 "	20	" 27	"	7 "	30
" 13	" "	6½ "	22	" 28	Coal	2 "	15
" 14	" "	7 "	24	" 29	"	2½ "	15
" 15	Drifting	3½ "	16	" 30	"	3 "	16

No. 31 Coal.............. 3½ lbs.................. 16

Also, PICK EYES, ready for the steel, for the Blacksmiths, which will be sold cheap.

I wish to call especial attention to

MY NEW ADZE EYE PICK,

Which was made under my own supervision while in New York.

For Beauty, Strength and Durability they are unequaled.

JOHN WRIGHT.

WE HAVE A LARGE STOCK OF

Extra Number One White Hickory Drifting Pick Handles,

WHICH WE OFFER CHEAP.

CALL AND EXAMINE FOR YOURSELVES.

8v20-q1sm3w

SOLID INDEMNITY.

THE HARTFORD

FIRE INSURANCE COMPANY,

—OF—

HARTFORD, CONNECTICUT.

Cash Capital, - - - - - - - One Million Dollars.

Assets, - - - Two and One-half Million Dollars.

INCORPORATED, 1810.

SIXTY YEARS OF HONORABLE SUCCESS.

Total Losses Paid, - - - Over Ten Million Dollars.

All business transactions conducted on Principles of Commercial Honor.

DEVOTED SOLELY TO FIRE INSURANCE.

LOSSES PAID IN CALIFORNIA:

ONE QUARTER OF A MILLION OF DOLLARS.

All Losses Promptly Paid in Gold Coin.

PACIFIC DEPARTMENT:

HEYWOOD & FLINT, Managers,

313 California Street, San Francisco.

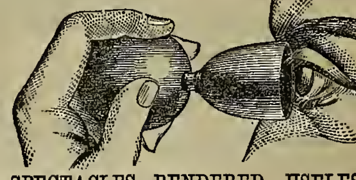
For AGENCIES, apply as above. 10v20-q1am1

The large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of Dewey & Co., publishers of the Scientific Press. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

Greatest Discovery Ever Made.

MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has heen the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would he to those afflicted with this painful disease, he with great difficulty and expense ohtained the secret of preparing the Plaster; and during the many years MR. MAC has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has heen marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will be convinced hy referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street: Michael Gorman, No. 6 Front street; Mrs. W. S Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets· W. M. McLeod, Depository merican Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 A. M., 2 to 4 P. M. and 7 to 9 P. M.
18v20-3m

Restore your Sight!



SPECTACLES RENDERED USELESS.

Failing Sight from age and other causes restored and preserved by

DR. STEVENS & CO'S

EYE-SIGHT RESTORER.

This simple and wonderful mechanical invention is applied by suction directly to the eye, bringing the sight to a natural focus and restoring the Cornea to its original convexity.

References.—Mrs. Rev. James Wood, Mrs. Sutherland, T. C. Boyd, of San Francisco; Mrs. J. B. Hoyt, Suisun City.

M. A. SUYDAM, Sole Agent,
No. 20 Geary street, San Francisco, at Dr. Benton's rooms.

☞ Also Cornea Flatteners for cure of Near-Sightedness. 15v20

ECONOMY AND CLEANLINESS

Are to be found in the use of the

PATENT SPRING BED.

They are the cheapest and best in the market. Manufactory on Twelfth street, bet. C and D, Sacramento
Caveat filed Aug. 9, 1869. [15v20] G. B. DEAN.

EXCELSIOR IMPROVED DOUBLE-ACTING SUCTION AND FORCE PUMP.

HOOKER'S PATENT, August 13, 1865, and January 15, 1867.

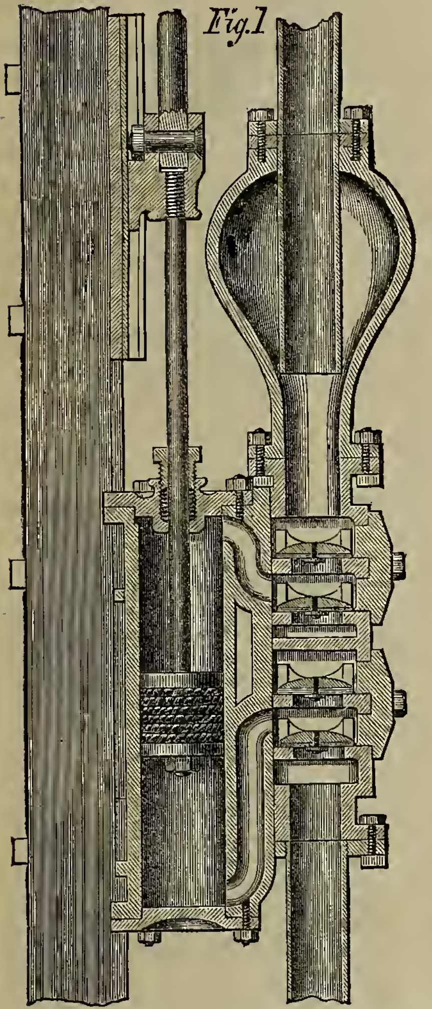
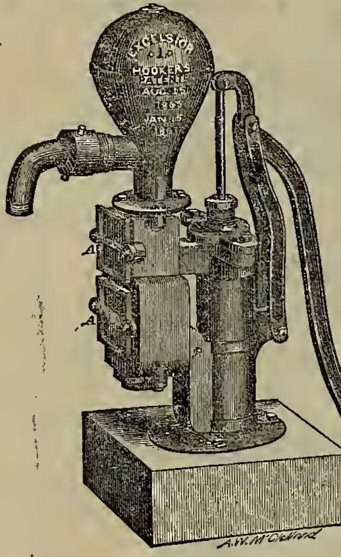
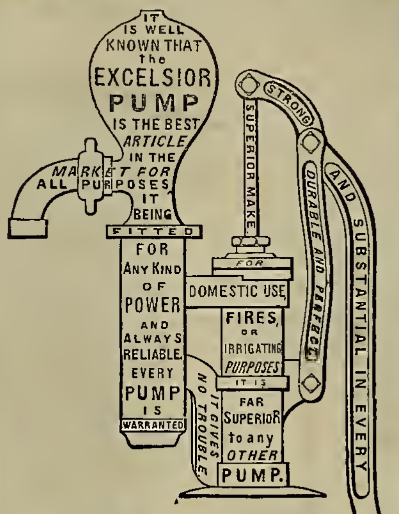
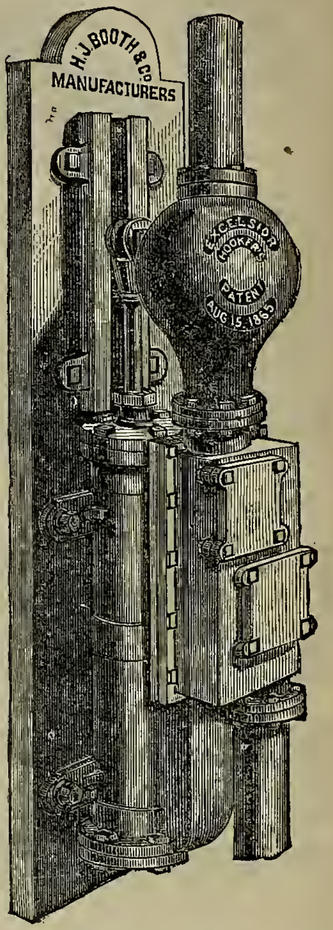


Fig.1




IT IS WELL KNOWN THAT THE EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES
IT BEING FITTED FOR ANY KIND OF POWER
AND ALWAYS RELIABLE.
EVERY PUMP IS WARRANTED
NO TROUBLE IT GIVES
FOR DOMESTIC USE
FIRES, OR IRRIGATING PURPOSES
IT IS FAR SUPERIOR to any OTHER PUMP.
STRONG
SUPERIOR MAKE
DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT.



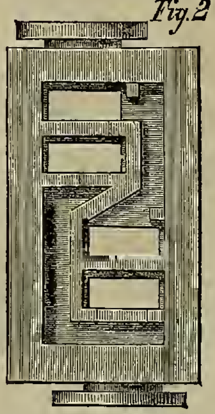
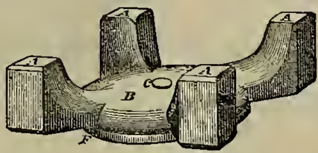


Fig.2

VALVE BOX.



VALVE.

We call the especial attention of all Millwrights, Miners and Farmers to this very superior Force Pump. It is more simply constructed, more durable, and has larger and more direct ports for receiving and discharging water, and warranted to furnish more water than any other pumps of equal caliber. It has Poppet Valves, which can not be wrongly placed in the Pump. The Fair of the Mechanics' Institute, held in the city of San Francisco, awarded the owners of this Pump, FOR ITS SUPERIORITY, A FIRST PREMIUM AND SILVER MEDAL. Suitable for DEEP WELLS, Factories, Mining, Breweries, Sugar Refineries, Tanneries, Railroad Purposes, Drainage, Irrigation, etc. As the above Pumps are already in use in the principal Sugar Refineries, Factories, Rolling Mills and Gardens in this city, reference may be had where they are working. ☞ See circular for particulars.

General Agents.—MESSRS. BRITTAN, HOLBROOK & CO., 111 and 113 California street and 17 and 19 Davis street, are Agents for the sale of the Excelsior Pump, who make liberal discount to the trade. H. J. BOOTH & CO., Union Iron Works, First Street, corner of Mission, San Francisco, who manufacture and have the sale of the Excelsior Pump.

V. CUSHING, Proprietor, San Francisco.

☞ We have BRASS-LINED, BRASS PISTON and BRASS VALVE PUMPS, at greatly reduced prices. Also STEAM PUMPS. ☜

THE EQUALIZING INSTITUTE.

SOMETHING NEW.

The Equalizer,

A TRUE GUIDE

—TO—

HEALTH.

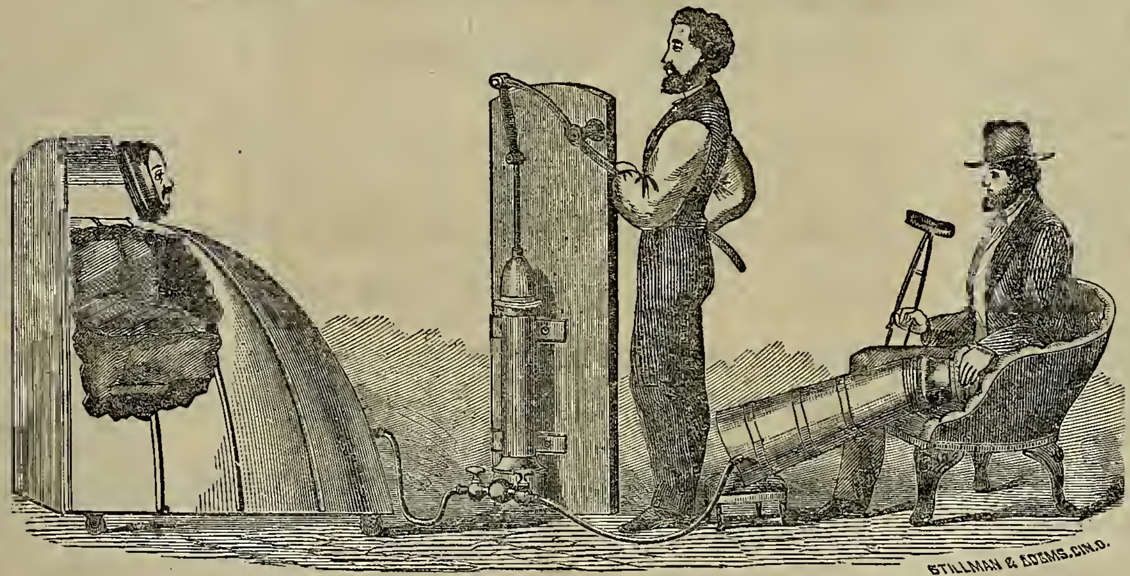
CURES

All Chronic Diseases

—BY—

VACUUM.

This treatment causes a thorough circulation of the blood throughout the system, creates new life, restores the GENERATIVE ORGANS, and reinstates perfect health.


STILLMAN & EDEMS.CIN.O.

The Following Diseases

CAN BE CURED

By this System:

Paralysis, Nervous Debility, Neuralgia, Dyspepsia, Asthma, Curvature of the Spine, and other Spinal Affections; Sciatica, Palsy, St. Vitus' Dance, and Derangement of the Mind; Pro Lapsus Uteri, Obstructed Menstruation, with all their concomitant diseases, Impotence, and all kinds of Weakness of the Generative Organs, can be cured. It breaks up congestion and inflammation in every part of the system.

All those treated with any of the above diseases can be speedily cured by application of the Equalizer.

Ladies will be treated by a competent Female Physician, who graduated in a New York Institute.

OUR BREAST GLASS

Is not simply an elevator of the breast for ornamental purposes, though it is true it will increase the size of the breast to any extent desired; but this is the least of the advantages derived from its use. For the health of both mother and child, every mother should nurse her own babe. The benefit derived from the application of this Glass will enable her to do so with pleasure.

CONSULTATIONS

Can be had with the undersigned at all hours at the office of the Equalizer,

No. 650 Howard Street,

SAN FRANCISCO.

RADICAL CURE OF PARALYSIS.

P. Winsdor, having suffered severely from four sun strokes, in the last two years from four strokes of total Paralysis and loss of speech, had recourse to the Equalizer as a treatment for same, and by means of the Equalizer was perfectly cured in the astonishing short period of four months, and as a proof of the above he can be seen at the Equalizing Institute, Howard street.

SAN FRANCISCO, February 17th, 1870.

P. Winsdor—Dear Sir:—I am 70 years old, have been Paralyzed two years on my right side. After using the Equalizer one month I find myself much improved. My leg, which would drag the ground when walking, now comes up as usual; my right arm, which was drawn round in front, now hangs by my side as formerly; my fingers, which had lost their sense of feeling, have been greatly improved, so that I can feel the smallest article. I was also troubled with the Rheumatism in my left arm and shoulder, which has been entirely removed during the month's operation. In many other respects I am much improved.

Yours, Respectfully,

[Signed] DAVID COLLINS,
208 First street.

[The above letter is in Mr. D. Collins' own handwriting, and can be seen at the Institute.]

SAN FRANCISCO, February 18th, 1870.

P. Winsdor—Dear Sir:—I am 32 years old, and have been Paralyzed in my right leg for three years, during which time I could not walk without a crutch and cane, but after a treatment of four months by the Equalizer, am able to walk quite comfortably without any assistance, and strongly recommend the Equalizer as a cure for the Paralysis. Yours Respectfully,

AARON MARKS,
Auction Store, corner of California and Kearny streets, San Francisco.

SAN FRANCISCO, February 17th, 1870.

Dear Sir:—In January, 1870, I suffered severely from Rheumatism, so much so as to prevent me from practicing in my profession as a Dentist. I tried the Equalizer as a remedy, and in twenty minutes after the first application experienced great relief; four more applications cured me perfectly, and I fully recommend the Equalizer as a certain and rapid cure for the Rheumatism.

Yours Respectfully,
DR. J. W. WINTER, Dentist,
No. 405 Kearny street.

N. B.—Ladies desirous of being treated by the Equalizer will be attended on by a Female Physician, who graduated at a New York Institute, and can obtain first class lodgings at moderate prices at the Institute. Those who wish to be treated at their residence can be accommodated.

Proprietor of the Equalizing Institute,

PHINEAS WINDSOR, E. C.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.
Thomas Poyzer—California.
F. B. Alderson—California.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John O. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. O.
Hudson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

Illustrate your Inventions

In the Scientific Press,

An illustrated journal of Mining, Farming, Mechanic Arts and Industries on the Pacific Coast. It costs no more for a superior engraving by our experienced artists than is usually charged for a less perfect picture. If you wish to introduce a new invention properly before the public, the first steps in so doing are important ones. A full description and correct representation in the Press will go further and prove more quickly effective than any other means.

The fact that an illustration is admitted into our columns, guarantees the invention important consideration in the minds of thousands of the most intelligent readers—at home and abroad—who would not notice it so favorably or so thoroughly, if at all, when presented through an unreliable medium or indifferent source.

The model of an invention sent to us is sufficient for making a good engraving. Sometimes a photographic view is sufficient; but it is always best accompanied with drawings or a copy of the patent. A first-class illustration has proved to be one of the best and cheapest means of obtaining purchasers for a good machine or a valuable patent.

Cuts ordered for illustration are the property of the inventor who pays for them, and can generally be used for circulars, pamphlets, books, or other newspapers. The engravings to be seen in each issue of the Scientific Press are a fair sample of the work of the artists who can always be found in our office.

DEWEY & CO.,
Publishers Scientific Press, American and Foreign Patent Agents, San Francisco.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co :—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p **519** Front street, San Francisco

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

WOODWORTH PLANERS,

With patent expansion feed gears and other improvements, made in the most finished and substanti manner. Also every description of the

LATEST IMPROVED PATENT

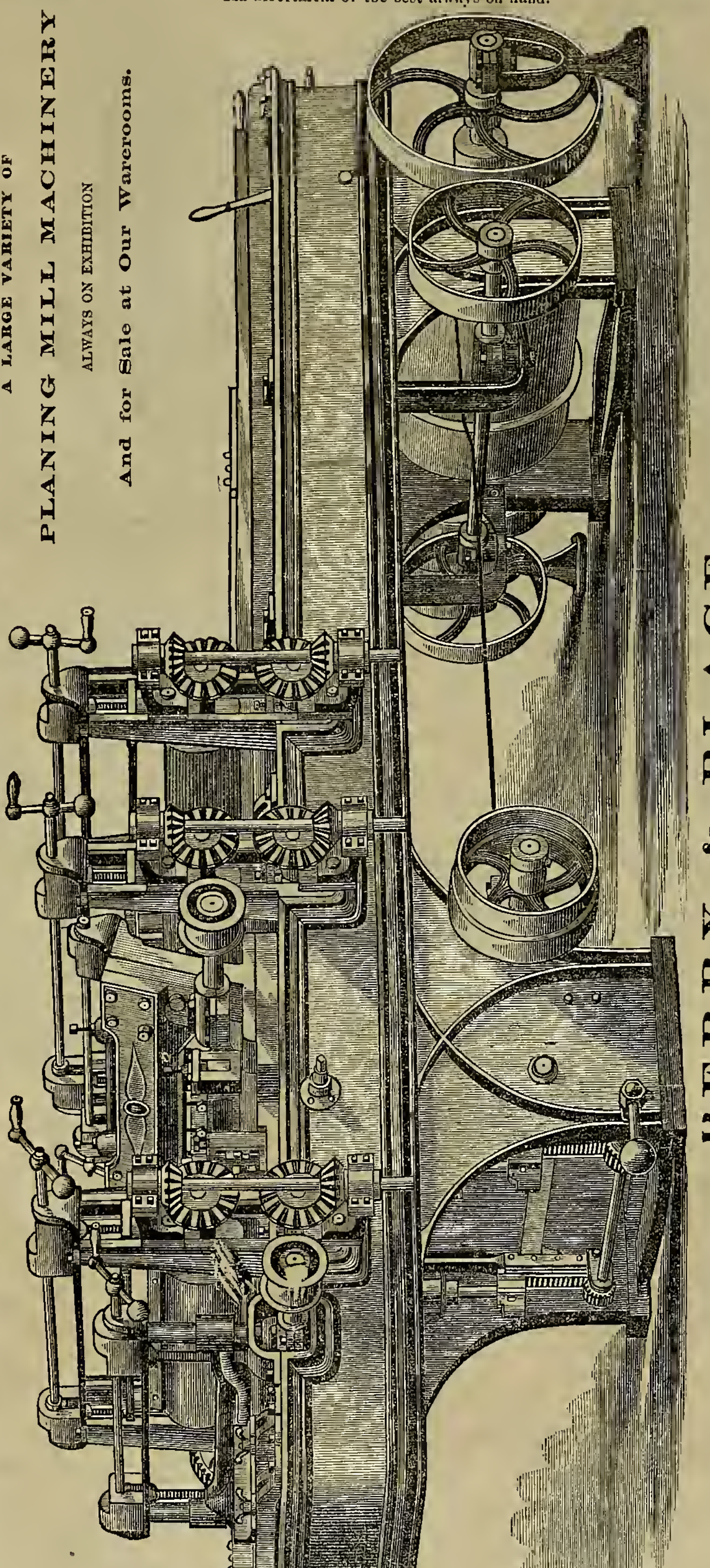
Wood Working Machinery. Wood Working Machinery.

Embracing various styles and sizes of the following Labor-saving Machines:

Morticing (Sash and Door),
Sash and Moulding,
Blind Slat Tenoning,
Boring (Horizontal & Upright),
Shaping,
Re-sawing,
Planing and Matching,
Blind Stile Boring,
Blind Wiring,
Blind Slat Planing.
Rod and Dowell,
Hand and Foot Mitering,
Railway Sawing,
Improved Tenoning,
Variety Moulding (Genr's Pat,)
Machinery.

An assortment of the best always on hand.

A LARGE VARIETY OF
PLANING MILL MACHINERY
ALWAYS ON EXHIBITION
And for Sale at Our Warerooms.



BERRY & PLACE,
IMPORTERS AND DEALERS IN MACHINERY OF ALL KINDS, San Francisco.

Scroll Saws, Dimension Planers, Wood Lathes,

FAY'S PATENT BAND SAWS,

ENGINE LATHES and Machinists Tools generally, with also a large assortment of small machines used in Planing Mills, Machine Shops, etc. Also, Planer Knives, Saw Gauges, Matcher Sets, Sash and Matcher Heads, Saw Tables and Arbors, etc. Being the selling agents for most first-class Eastern Machinery Builders, we sell THE BEST, and at manufacturers' prices. Invoices of the above machinery are now being received by every vessel. ☞ Send for Illustrated Catalogue.

BERRY & PLACE,
112 & 114 CALIFORNIA STREET, SAN FRANCISCO.

☞ **Blake's Steam Pumps, Turbine Water Wheels, Miller's Patent Elevators, Woolen Machinery, Flour Mill Machinery, etc., etc.**

$1. Postage Paid. $1.

A HEAP AND HANDY BOOK

—FOR—

Mechanics, Inventors and Students.

SCIENTIFIC PRESS
NEW EDITION
—OF—

507 MECHANICAL MOVEMENTS.

PUBLISHED BY
DEWEY & CO.

LIST OF CONTENTS.

Æolipile.
Balance, Compensation: Barometer; Blower, Fan; Brake, Friction.
Cams; Capstans; Centrolinead; Clutches; Chasers; Clamps, bench and screw; Cock, four-way; Column, oscillating; Compasses, proportion; Counters of revolutions; Coupling, union; Crank—substitute for the, variable; Cranks, bell and compound; Cyclograph.
Differential Movements; Drag-link; Drill—Fiddle and Persian; Drills, Cramp; Drop; Drum and Rope; Driver, Pile; Dynamometers.
Eccentrics; Ejectors, Bilge; Ellipsograph. Engine, Disk; Engines—Rotary, Steam, Valve Gear for; Epicyclic Trains; Escapements.
Fountain, Hiero's: Fusees.
Gasometers; Gauge, Bisecting; Gauges, Pressure; Gear, Steering; Gearing—Bevel, Brush, Capstan, Conical, Crown, Eccentric, Elliptical, Face, Friction, Internal, Irregular, Multiple, Mutilated, Scroll, Sector, Spur, Step, Stud, Sun and Planet; Gearing—Variable, Worm; Governors; Guides; Gyroscope.
Hammers—Atmospheric, Bell, Compressed Air, Trip, Steam; Helicograph; Hook—Boat-detaching, Releasing; Hooks, Centrifugal Check; Hyperbolas, Instrument for Drawing.
Intermittent ovements.
Jack—Hydrostatic, Lifting; Joint—Ball and Socket, Bayonet, Universal.
Ladder—Folding, Self-Adjusting; Lazy-tongs; Level, Self-recording; Lever—Bell-crank or Elbow, Knee; Lewis; Link. Detachable Chain.
Machine—Bohnenberger's, Drilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; eter—Gas (wet and dry), Water: ill—Barker's, Crushing, Tread, Wind; Miscellaneous ovements; otion— Alternating Traverse, Rocking, Self-reversing, Shuttle: Motions—Feed, Link, Parallel, Pump, Traverse, Variable Traverse.
Pantograph; Parabolas, Instrument for Drawing; Paradox, Mechanical; Pendulum, Conical; Pendulums, Compensation; Pinion—Lantern, Mutilated, Slotted, Two-toothed; Power, Horse; Presses, Hydrostatic; Propeller, Screw; Pulley—Expanding, Friction: Pulleys—Anti-friction Bearing for, Chain; Pump—Air, Balance, Bellows, Chain, Diaphragm, Steam-siphon; Pumps—Double-acting, Force, Lift, Rotary; Punching Machine.
Rack—Mangle, Mutilated; Racks and Pinions; Ram, Montgolfier's Water; Ratchets and Pawls: Regulator—Gas, Watch, Reversing Motion, Self; Revolver; Rollers, Oblique; Rolls—Anti-friction, Drawing, Feed; Rulers, Parallel.
Saw—Endless Band, Gig, Pendulum; Screw, Archimedes, Differential, Double Reversed, Micrometer; Screws—Endless, Right-and-left Hand; Sectors; See-saw; Shears; Stamps; Stand, Mirror; Stop—for Hoisting Apparatus, for Lantern Wheels, for Ratchet Wheels, for Spur Gear; Stops for Winding Watches.
Test, Friction; Throttle, Spinning; Toggle-joint; Tongs, Lifting; Trap, Steam: Treadles.
Water, Machines for Raising: Weir, Self-acting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Paddle, Water: Windlass—Chinese, Friction; Windmills; Wipers.

This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.

A liberal discount made to the trade. Single copies, $1—sent postage free. Address orders,

DEWEY & CO.,
Patent Agents, San Francisco.

The Scientific Press,

Devoted to Scientific and Mechanical Progress, Mining, Farming and Mechanic Arts, contains more valuable Reading Matter than any other weekly journal west of the Rocky Mountains. It is the best printed and only finely-illustrated paper on the Coast. Its articles are able, timely and reliable, and written in a more interesting and easily comprehensive style than scientific papers in general. Now in its twentieth volume, it is printed on superior paper, containing sixteen pages, equal in size to the first-class journals of the Atlantic States and Europe. All our best citizens are interested in the new discoveries in the development and progress of the three great industrial pursuits named above, which are closely allied on this coast, and are jointly represented in the Press, rendering it a popular and influential journal with all industrial readers. Subscriptions reduced to $4 a year, Jan. 1, 1870.

To Inventors on the Pacific Coast.

Our U. S. and Foreign Patent Agency presents many and important advantages as a Home Agency over all others by reasons of long establishment, great experience, thorough system, and intimate acquaintance with the subjects of inventions in our own community. All worthy inventions patented through our Agency will have the benefit of an illustration or a description in the Scientific Press. We transact every branch of Patent business, and obtain Patents in *all civilized countries.* The large majority of U. S. and Foreign Patents granted to inventors on the Pacific Coast have been obtained through our Agency. We can give the best and most *reliable* advice as to the patentability of new inventions. Advice and Circulars free. Our prices are as low as any first-class agencies in the Eastern States, while our advantages for Pacific Coast inventors are far superior.

Engraving on Wood, of every kind, for illustrating machinery, buildings, trade circulars, labels, plain or in colors, designed and cut in the best style of the art by experts in our own office. Also, engraving on metals.

DEWEY & CO.

LAND! LAND! LAND!

YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

40,000 Acres in Fresno County;
7,000 Acres in Sonoma County;
3,680 Acres in Tulare County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above.
YOUNG & PAXSON,
424 Montgomery street.
16v20-3m

Professional Cards.

JOHN GORMAN,

NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.

No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS, M. E.,

CONSULTING ENGINEER

Examiner of Mines, etc.,

423 Washington street.......... ....San Francisc (Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,

HAS REMOVED FROM MONTGOMERY to **331** Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JAMES M. TAYLOR,

Attorney and Counsellor at Law,

Court Block, 636 Clay Street

SAN FRANCISCO.

J. VAN O. HORNER,

DENTIST,

Cor. J and Third Streets, Sacramento.

☞ All work warranted. 7v20-3m

JOHN ROACH, Optician,

Has removed from 522 Montgomery street to

540 Washington street,

East of Montgomery.

Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.

GRAY & HAVEN,

ATTORNEYS AND COUNSELORS AT LAW,

In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,

27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,

Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

DR. D. T. MORGAN'S

Eye Infirmary,

REMOVED TO

526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

References.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

---

Dr. J. H. PAINE, Dentist,

Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,

DENTIST.

Office, 313 Bush Street, near Montgomery.

Is a regular graduate, with twenty years experience in practice. 14v20-3m

---

DR. MABON,

ORTHOPÆDIST,

(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skilfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the

MOST EFFICACIOUS INSTRUMENT

Yet invented for the cure of

RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment

Office, No. 128 Kearny Street, near Sutter,

SAN FRANCISCO. 11v20-3m

Business Cards.

A. H. JORDAN,

Architect, Designer and Draughtsman,

No. 430 Montgomery Street,

SAN FRANCISCO. 16v19-qy

T. D. YOUNG,

MPORTER OF MACHINISTS' TOOLS,

113 and 114 Beale St., San Francisco.

Screw Cutting and Hand Lathes; Planers; Shaping Drilling, and Paten Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

Farmers and Mechanics

BANK OF SAVINGS,

No. 223 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.

H. DUTTON, President.

GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.

N. GRAY & CO.,

UNDERTAKERS,

641 Sacramento St., cor. Webb, San Francisco.

☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

THE GIANT

POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 25v19

C. B. FETY,

SEAL ENGRAVER

AND LETTER CUTTER.

Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 Clay Street, bet. Kearny and Montgomery, San Francisco. 11v20-3m

---

J. HOOVER,

PUBLISHER,

And Wholesale Dealer in

Fine Chromos and Lithographs.

The Largest Assortment in Philadelphia.

WHOLESALE DEPOT:

No. 804 Market Street, Philadelphia, Penn.

9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.

BARTLING & KIMBALL,

BOOKBINDERS,

Paper Rulers and Blank Book Manufacturers.

505 Clay street. (southwest cor. Sansome),

15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,

Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry,

S. E. Corner of Mission and Fremont sts.,

6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,

Manufacturers of Boxes,

Market Street, bet. Beale and Main.

For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,

SEAL ENGRAVER,

AND LETTER CUTTER.

Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,

PIONEER

Meerschaum Pipe Manufacturer,

No. 341 KEARNY STREET,

Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. Meerschaums Mounted with Silver. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

H. G. STILLEY,

PLANE MAKER.

Planes of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 Belden Place (near Bush street), below Kearny, San Francisco. 11v20-3m

---

D. BOYLE. JOHN BENN. M. BURKE.

AMERICAN MILLS,

Nos. 30 and 32 California Street.

Job work of all kinds in the Drug and Spice Line promptly attended to.

Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

---

SAN FRANCISCO

CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,

26 611 and 613 Front street.

F. SCHOENER,

METAL SPINNER

All kinds of Metal spun to order. Give me a call at No. 10 Stevenson Street, fourth story Pioneer Mills.
14v20-3m

NOTICE.

HYDRAULIC HOSE MANUFACTORY.

Hose made to stand any pressure—from 100 to 300 foot fall Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

California File Manuf'g Co.

437 Brannan Street, bet. Third and Fourth.

W. Wusthoff, L. Kramer, M. Harris, J Bodke.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

---

M. M. COOK. H. N. COOK.

M. M. COOK & SON,

MANUFACTURERS OF

LEATHER HOSE,

Belting, and Horse Collars,

801 Battery street, Corner Broadway,

SAN FRANCISCO.

☞ Belt Leather for sale. 26v19-3m

THEODORE KALLENBERG,

Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

---

A. J. HAIGHT,

Gold Pen Manufacturer,

315 Montgomery Street,

Room No. 16, up stairs, San Francisco.

Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

---

SAN FRANCISCO

PIONEER SCREEN WORKS,

JOHN W. QUICK,

No. 203 Fremont Street, near Howard.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

OSCAR LEWIS. J. H. CULVER.

LEWIS & CULVER,

Pattern and Model Makers

20 Fremont street, over Phœnix Iron Works.

Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

Metallurgy and Ores.

S. W. HOWLAND. J. W. THURMAN.

S. W. HOWLAND & CO.,

Crushers and Samplers

— OF —

GOLD, SILVER AND COPPER ORE,

Nos. 413 and 415 MISSION STREET,

Bet. First and Fremont, San Francisco.

☞ All work done at the shortest notice. All orders promptly attended to.

References—Cross & Co., Professor Thomas Price, Shippers and Purchasers of Ores; Kellogg, Hewston & Co , Assayers. 7v20qy

---

A. T. GREEN,

COMMISSION MERCHANT,

No. 3 Front Street. San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

---

MORRIS & WHITE,

Practical Assayers and Metallurgists,

No. 30 and 38 Fremont Street,

SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.

☞ Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,

(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET,

One door west of Montgomery.

H. H. LAWRENCE..............................Manager.
J. A. MARS...................................Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.

G. W. STRONG & CO.,

Metallurgical Works,

No. 10 Stevenson Street, near First.

Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

W. T. ATWOOD,

PURCHASER OF

COPPER ORES, BARS, MATT, Etc., Etc.,

505 Montgomery street, San Francisco.

The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

---

H. S. CROCKER & CO.,

Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM

PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

MITCHELL & BELL
Carpet Dealers
606 Clay St

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞ Can compete in prices with any other dealer. 11v20-3m

---

Carmen Island Salt Works

MANUFACTURE AND OFFER FOR SALE

TABLE, DAIRY. COARSE-FINE,

CARMEN ISLAND ROCK,

AND LIVERPOOL COARSE AND FINE

SALT.

Dealers and Packers supplied in quantities to suit, at the lowest market prices.

MILL, 249 STEWART STREET.

HOLLADAY & BRENHAM, Agents,

11v20-3m 325 Front Street, San Francisco.

Notice to Miners,

Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,

3v18 ly Stove Store, No. 125 Clay Street, below Davis.

SCIENTIFIC PRESS

BOOK AND JOB PRINTING OFFICE,

No. 414 Clay Street,

Below Sansome, - - - San Francisco.

SPAULDING & BARTO,

PROPRIETORS.

EVERY VARIETY OF

PRINTING,

FOR

Business Men, Corporations,

AND ALL

Branches of Industry,

EXECUTED IN THE

BEST MANNER,

AT REASONABLE PRICES.

Music Printing

Executed correctly and with dispatch.

Home, Sweet Home.

"Live and Let Live,"

Is a good old adage, and we shall adopt it as onr own. We do not pretend to do work at "less than cost," as some peopla advertisa to do; hut we do claim to do all kinds of printing as cheap as it can ho done on this Coast—and wa helieve as cheap as it is DONE in Chicago. Customers, in the country or city, are invited to call in person at our office, or send their orders hy mail or express, and thoy will be fairly dealt with.

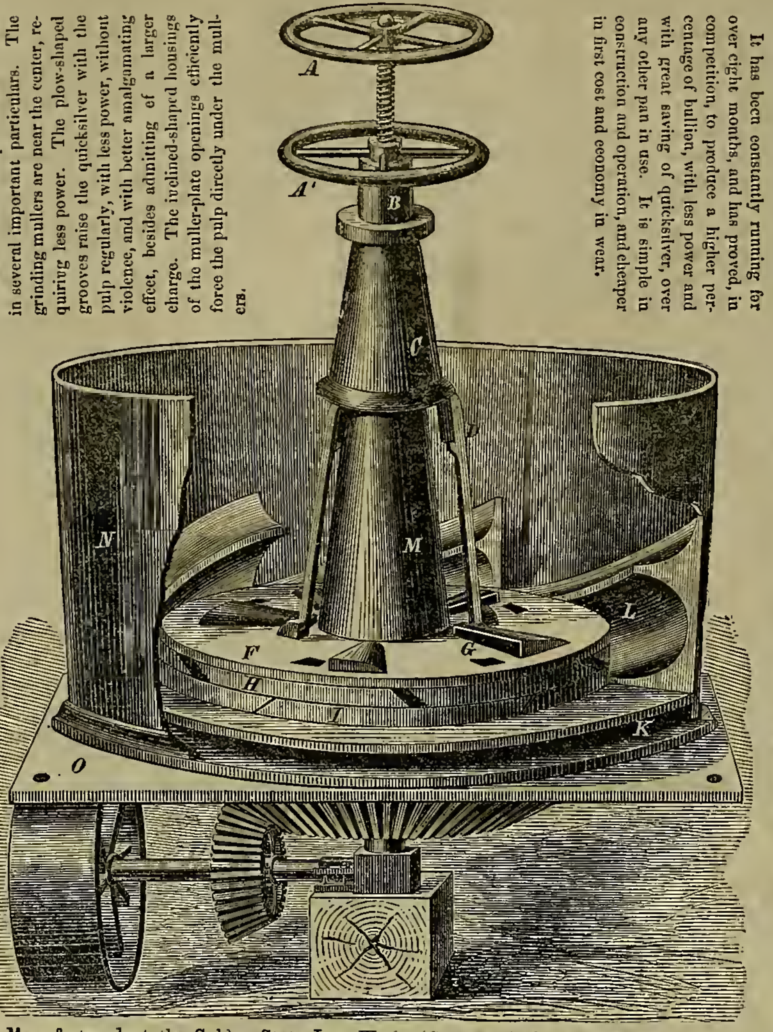
SPAULDING & BARTO.

Scientific Press Office,
414 Clay Street.

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.

It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.



Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.,

Where it can he examined and further particulars he learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mill, Gold Hill, State of Nevada, where the Pans have long been in constant operation. 15v20-1mr,1amtf

---

San Pascual Plantation,

NEAR LOS ANGELES.

For the Cultivation of Raisins, Semi-Tropical Fruits, etc.

FOUR THOUSAND SHARES AT $50 EACH.

Ten Dollars to he paid at date of subscription, and $5 per year afterwards till paid.

Maps, etc., furnished at the office, 344 Montgomery street. 18v20-1w

---

EDEN DALE COMPANY,

For the Caltivation of

Semi-Tropical Fruits, Silk Cultnre, Etc.,

ON A TRACT OF

Six Thousand Acres

ADJOINING THE CUCAMONGO RANCH,

ON THE "MUTUAL" PLAN.

☞ Prospectus, Maps, etc., furnished at the office, 344 Montgomery street.

Shares payahle in ANNUAL installments, 18v20-1w

Valuable Ranch For Sale

NEAR HEALDSBURG.—In the fine valley of Russian River three and one-half miles south of Healdsburg, on the west side of the river, is now offered for sale a splendid farm of 260 acres of land (minus eight by twelve rods occupied by a good school house), 100 of which is of the richest of Russian River bottom, eighty acres of which is now in small grain, not surpassed by any in the State, five acres in bearing orchard of the choicest selections, fifteen acres plowed for corn, and the remaining 160 acres is rich, yet rolling timbered land, five acres vineyard of choice selection. The Dwelling has ten rooms, not yet finished, and supplied by a good spring of excellent water, and cost above $12,000. The barns and outhouses are in excellent condition. The title is "Fitch Grant," which is undisputed. The entire farm is inclosed, about half with a picket and half with a rail fence, both in good condition. The farming utensils which are offered with or in the sale of the farm, are as follows: Five plows, two harrows, two cultivators, one Buckeye reaper; also twenty head of hogs. There are 200 redwood trees within about five miles of the premises, and wood enough to supply all the demands of the place. It is well known by all parties who have resided for any length of time on this coast, that the climate of Russian River Valley is lovely, healthy and not surpassed by that of any other place in the United States.

The reason for selling is, that the owner is getting too old to cultivate a farm, and wishes to close up his business and live more retired. The place is a rare bargain at tha price asked for it.

For further particulars, apply to McLean & Hardy, Real Estate Agents, No. 338 Montgomery street, southeast corner of California street, San Francisco. 11v20

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2.500 secured for $6.

HOWARD & HOWE,

General Agents for the Pacific Coast.

No. 338 Montgomery street, corner California, Room 7.

☞ Agents Wanted. ☜ 14v20-3m

Pacific Bank.

PETER H. BURNETT........................President.
FORD H. ROGERS............................Cashier.

REMOVED

To its new Banking House, northwest corner of Sansomo and Pine streets.

O. P. SUTTON, Secretary.

San Francisco, March 30, 1870. 15v20-3m

NOTICE.

Merchants' Exchange Bank,

OF SAN FRANCISCO.

The hooks for suhscription to the Capital stock of the ahove Bank will he opened on THURSDAY, April 28, 1870, at Room No. 9, Hayward's Building, on California street, and suhscriptions will then he received daily, from 9 o'clock A. M. to 3 o'clock P. M., until further notice.

18v20-1w GEO. H. WHEELER, Secretary.

Valuable Stock Ranch For Sale

IN ALAMEDA COUNTY.

The attention of miners, "new-comers," or others, who wish to huy desirable real estate, is called to

675 ACRES

— OF —

Excellent Pasture, Grain, Garden

— AND —

ORCHARD LAND

FOR SALE AT A BARGAIN.

TERMS EASY.

This Ranch comprises hill and valley, is supplied with an abundance of good living water, is well fenced, huildings good, and is stocked with implements and animals. It is ona of the hest DAIRY RANCHES in the State, and is near the Railroad. Inquire of

JAS. F. CROSETT,
8v20-tf 304 Montgomery street, San Francisco.

Railroads and Steamers.

SHORT ROUTE.

CALIFORNIA PACIFIC RAILROAD & STEAMER NEW WORLD VIA VALLEJO

The following time will take effect
Sunday..............................April 24, 1870.

GOING NORTH—Daily (Sundays Excepted).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysvilla.
7:00 A. M. 4:00 P. M.	11:45 A. M. 7:15 P. M.	11:20 A. M. 8:20 P. M.	1:00 P. M. 9:30 P. M.
ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M.

GOING SOUTH—Daily (Sundays Excepted).

Trains Leava Marysville.	Trains Leava Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M. 1:15 P. M.	6:45 A. M. 2:45 P. M.	6:15 A. M. 3:15 P. M.	10:30 A. M. 7:30 P. M.
ON SUNDAYS.			
10:15 A. M.	3:00 P. M.	2:30 P. M.	6:45 P. M.

TICKETS for salo at 313 Montgomery street, or on board steamer New World. R. S. MATTISON, Superintendent.

L. C. FOWLER, General Freight and Passenger Agent.

N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf.

Vallejo, April 24, 1870 13v20-1y

Pacific Mail Steamship Company.—For New York, via Panama. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

May 18..........................CONSTITUTION,
Connecting with Arizona.

All steamers touch at Acapulco; the steamer of tha 2d is expected to touch at San Jose de Guatemala; steamer of the 18th tonches at Manzanilla.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

June 1—Steamer AMERICA, Captain Freeman.

Apply at tha Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.

13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation COMPANY,

Steamer CAPITAL..................CAPT. E. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE................ —— ——
" CORNELIA.................CAPT. W. BROMLEY
" JULIA.......................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays axcepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Offica of the Company, northeast cornar of Front and Jackson streets.

B. M. HARTSHORNE,
13v12 President

THE FIREMAN'S

FUND

INSURANCE COMPANY.

OFFICE,

S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL..............................$500,000 00
SURPLUS..............................267,115 63
TOTAL ASSETS......................$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
13v20-3m CHAS. R. BOND, Secretary.

OCCIDENTAL

Insurance Company

OF SAN FRANCISCO.

Cash Capital, - - - - - - - $300,000

GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, Presidant.
B. Rothschild, Secretary. 20v17

Scientific Press.—Dewey & Co. are tha puhlishers of this sterling paper It is devoted to the dissemination of mining, farming and scientific knowledge, hesides containing miscellany of interest.—*Monterey Republican.*

Reading for the Hour.

Where Fat and Flesh Come From.

They come from the earth and the atmosphere, collected by vegetation. Grass contains flesh; so does grain. The animal system puts it on from these. Vegetation then is the medium through which the animal world exists; it can exist in no other way. When grass or grain is eaten, the flesh constituents are retained in the system; so also the fatty substance—that is, the starch and sugar, from which fat is made. Some grains have more flesh than others; so of the qualities that make fat. In a hundred parts of wheat, according to Piesse, are ten pounds of flesh; in a hundred parts of oatmeal, nearly double that amount. Hence oats are better for horses, on account of their flesh-forming principle, rather than fat, as muscle is what a horse wants. For fattening purposes, however, corn and other grains are better.

When flesh itself is eaten, the system but appropriates what is already formed, but would as readily take it from vegetables as from flour. The flesh-making-principle—or the flesh itself, in its constituents—goes to form cheese in the dairy; the starch, etc., butter. Hence it is that some people assert that cream has little influence in cheese, farther than to enrich it; for cheese and butter are entirely distinct. The same kind of food is equally good for the production of either. This is a point of considerable interest, and is not yet fully explained—indeed, is yet in its infancy. And a plant in its different stages of growth has a different effect. The fat of the plant is held in reserve for the seed; nothing is wasted in leaves, wood, etc.; the precious seed must have it. Hence when this takes place, the stalk is comparatively worthless to what it is prior to the change. And the fat cannot be appropriated so well in the seed as when it is diffused through the stalk. Tender herbage, therefore, is the best; and when secured before the direction of the oil takes place, so much the better will be the hay.
—*Colman's Rural World.*

Water On the Stove.

It is quite a general practice to keep a dish of water on a stove to prevent the atmosphere from "getting too dry," as it is called, a condition which, it is thought, is liable to produce the headache. The idea is an erroneous one and the practice is bad. The bad air which is felt in an illy-ventilated room warmed by a stove, arises from the escaping of carbonic acid gas into the room. If the stove is very hot the gas will pass through the iron walls of the stove. When there is a bad draft it will find its way out through the joints. The chief cause of trouble arises from bad ventilation. *Hall's Journal of Health*, good authority on such matters, says:

"By filling the air with steam, it is rendered just as much less nutritious to the lungs and blood as if filled to that extent with the fumes of a dead carcass. This damp atmosphere exerts something of a steaming process on the skin, and thus renders the person extremely liable to take cold as soon as he goes into the open air. We want the air of a stove-room ventilated, changed for pure air without, not filled with the vapor of water. The only way yet known to improve the air of any room warmed by artificial heat is to open a door or window, from time to time, as while the family are at table eating regular meals."

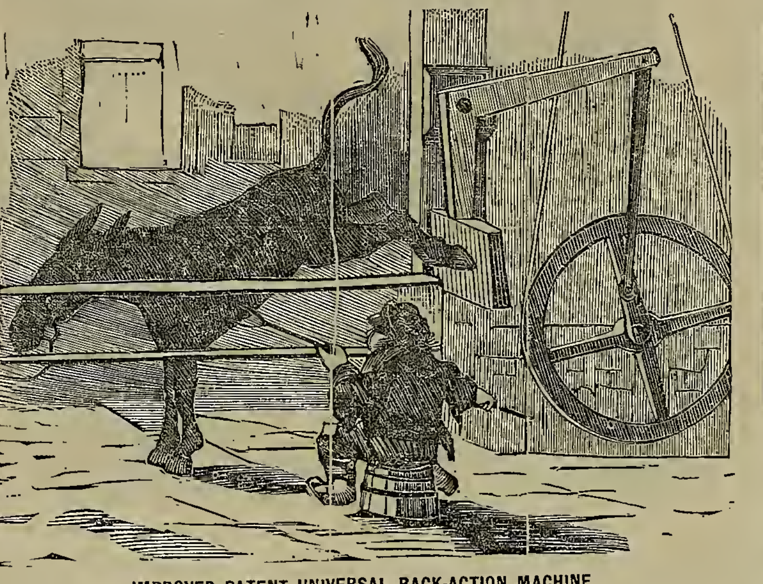
Shrinking of Timber.—Oak and some other kinds of timber will shrink every time it is dressed. Wagon spokes may be blocked out and laid out in a dry, warm shop for two years, and then if fitted and driven immediately into the hub they will shrink in a few days so as to be loose. They should be fitted and left to dry and shrink before being driven. Much of the agricultural machinery made of oak and ash soon works loose, notwithstanding the timber was seasoned, because the tenons were not permitted to season after being fitted for the mortice. The tenons should be made a little full, and left to dry a few days.—*Manufacturer and Builder.*

The revenue of Newfoundland for 1869 amounts to $668,000. This is the largest ever received, the fisheries being unusually productive, and the importations above the average. Some idea of the resources of the country may be formed from the fact that in 1867 the value of the exports (fish and oil) was $5,471,051, besides $256,000 worth of ores. The quantity of dry codfish exported in 1868 was 1,066,215 quintals, (a quintal is 112 pounds' weight) 389,672 seal-skins, and 5,142 tons of seal oil.

The Last Patent.

We have before remarked on the ingenuity of the great American race in the useful adaptation of things. Our remarks have received an apt illustration in a patent lately applied for by an intelligent Yankee, which is so much to the point that we cannot refrain from giving it for the benefit of our readers. We are only sorry that we cannot give the name of the inventor, but this any curious person can obtain by applying to the *Rural New-Yorker*, which is our veracious authority for the illustration.

Inventors will please notice that it is the back action which is here patented, and that the particular arrangement of the machinery is a matter of secondary importance. The nativity of the individual with the pitchfork is not essential, but the patentee thinks he can always furnish persons of the proper temperament for this work, and we doubt not his capability in this respect. As a matter of precaution it is well to have the head knocked out of the cask, which is used as a stool.


IMPROVED PATENT UNIVERSAL BACK-ACTION MACHINE.

The wide adaptability of the patent will be readily understood by the reader, and we predict for it a general introduction. Besides its material usefulness, it will tend to ameliorate greatly the moral condition of mule drivers, by enabling them to vent their spleen in a manner which, while relieving their minds, will at the same time produce some useful result. It should be in every household—if not there already.

Persons desirous of obtaining further information or instruction with regard to the best manner of proceeding with the animal, or of purchasing State or county rights, may apply to themselves, or as above.

How to Make Molasses Candy.—Take a quart of syrup, two pounds of good brown sugar (or one of brown and one of white). Boil over a slow fire in a brass or porcelain kettle. Try it by putting some in a cup of cold water; when it is brittle, it has boiled enough. Then take it out into a buttered pan. Put it on ice, or in a cool place. When the edge is cold the center will be warm; then bring it in. Have a buttered board to work on. While you are working it is the time to flavor it; work it till it is all of the same degree of heat. Pull it on a hook until it is white. Now handle it lightly, or it will be dark and hard. Pull it out in a long string before you take it from the hook. Put it on the table, and when cold, break it into such sized sticks as you please. You will have to work fast, or it will be dark and hard. Candy made this way is equal to sugar candy.

The phosphate of lime beds, near Charleston, S. C., are from eighteen inches to two feet thick, and the phosphate is worth six dollars a ton in Charleston. It is now proposed to build a canal two miles and a quarter long from the beds to Ashley river, so that the transportation of the material to the city may be rendered easier.

A Recent Invasion into France.

There is found in tropical regions, in Asia, Africa, America and Europe, a formidable insect called the white ant—the *termites* of naturalists. The most wonderful species is that found in the interior of Africa. These insects build up their habitations in the shape of a cluster of rounded cones or spires, with the highest in the center, often twenty feet high and with galleries below the surface to the same depth. The walls are of clay, and nearly as hard as stone. They live on vegetable food, but they delight especially in woody fibers; yet, when pressed with hunger, they devour almost anything in their way. They feed on the core of things, leaving always a thin shell. From their large numbers, their voracity and their way of working, they form a most formidable enemy to man and his works.

Some years since, says a writer in *Putnam's Magazine*, a few of these terrible insects were discovered at La Rochelle, on the eastern coast of France, undoubtedly imported from a tropical port. These have not only survived the cold winters, but have increased in numbers. The efforts to exterminate them have been unsuccessful, and their ravages are already most serious. They seized the public buildings, like other invaders, and made their headquarters at the Hotel of the Prefect. The conquest has been complete, and from the attics to the cellars they are masters of the position. The ceiling of a bedroom was repaired; the day after the workmen left, covered galleries, made by the enemy, were discovered dropping from the ceiling like stalactites. Similar galleries were found in the cellars; others running along the walls beneath the plaster were traced from the foundation to the roof. Occasionally horizontal galleries, like suspension bridges, are thrown out to reach some desired object. Trees in the garden, apparently sound, proved to be entirely gutted to the branches. The stakes of fences were devoured in the same way. A large beam was so entirely eaten away that nothing remains but a thin outer shell. The legs of tables, the sides of boxes, were ruined in like manner. One day a document from the public archives was wanted. The box containing it was opened; all looked as usual; piles of neatly folded papers appeared undisturbed in regular order within; but the moment a hand was laid on the outer sheet the whole pile crumbled to dust. And such proved the case with other boxes where the public archives had been stored. No wonder the good people are seriously alarmed. Corrosive sublimate is said to be the only protection for any wooden substance, and one which is not always successful.

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Eminent Merchants and Bankers.—"The Merchants' and Bankers' Almanac for 1870" is now ready for distribution, containing the names of six thousand bankers in the United States, Canada, and Foreign Countries. Monthly Prices of Cotton, Wool, Corn, Sugar, Molasses, Tobacco, Coffee, Wheat, Oats, Rye, and Flour, for forty-three years (1825—1869,) and crops in 1868. Names of New Marine, Fire, and Life Insurance Companies, in each State. Daily price of Gold, in New York, from January, 1864, to December, 1869. Progress of Railroads in the United States and in each State, from 1835 to 1869, number of miles, cost, etc. The Cotton Crop of the United States, 1860 to 1869,—annual product of each State, export, consumption, etc. The monthly prices of eighty staple articles, at New York, year 1869. Alphabetical list of 2,000 Cashiers, in the United States. Lowest and highest prices of leadin Government, State, Bank and Railroad Shares, Bonds, etc.—years 1868–9. The Clearing House, New York, annual exchanges, 1854—1869. Table of income and expenditure of the U. S. Government. Imports, Revenue, Public Debt, etc., of Great Britain, 15 years. Price, two dollars. This volume is enriched by the addition of engravings of new banking houses, which will serve the purpose of models for those who propose to build. An illustrated edition of this Almanac has been printed, containing in additon to all the matters in the plain edition, thirty wood-cuts to illustrate the banks of N. Y., and portraits (engraved on steel) of eminent Merchants and Bankers. These engravings cost several thousand dollars, being executed in the best style by the American Bank-note Co., and include the heads of John Jacob Astor, Wm. B. Astor, Peter Cooper, E. Corning, Robert Fulton, Albert Gallatin, Henry Grinnell, Philip Hone, Walter R. Jones, James Gore King, C. W. Lawrence, David Leavitt, Robert L. Stevens, Thomas Tileston, and C. Vanderbilt of New York; William Appleton, Jonas Chickering, Peter C. Brooks, N. Bowditch, Abbot Lawrence, George Peabody, Robert G. Shaw, T. H. Perkins, and T. Douse, of Massachusetts; Stephen Girard, N. Biddle, Thomas P. Cope, John Grigg, Robert Morris, of Pennsylvania; also the heads of N. Longworth, Jacob Baker, W. F. Harnden, Samuel Slater, De Medici, and Dadabhoy. The illustrated edition is interleaved with writing paper, and contains thirty engravings of the banks of New York. Price, five dollars.

Published at the office of the Banker's Magazine, New York. P. O. Box 4574.

☞ Maravilla Cocoa. *For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills Brick Lane, London. 5v20-1y

Important Invention.—The best drink, not containing alcoholic stimulants, yet answering all the requirements, is that made by Kenyon, Gass & Co., and known as Champagne Mead. It is recommended by the medical fraternity of this city, and should be the exclusive drink of all temperance men. It contains no injurious acids. *

A Valuable Book for Inventors and Artisans.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Press office, postpaid, for $1.—*New Age.*

To Miners, Millmen and Metallurgists. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

Layres' Elements of Composition.—This is a valuable book of 166 pages, containing plain and simple instructions in the art of composition. It should be read by all intelligent persons who desire to write or speak English correctly or eloquently. Printed and sold by Dewey & Co., Scientific Press Office.

There is no light equal to the Portable Gas Light, for Families or Business places, in town or country; at one-fourth the cost of coal gas, and cheaper than coal oil. The Lamps and County Rights are for sale at P. J. PHILLIPS & CO., 650 Market street. No trimming wicks or breaking chimneys. Everybody should see and have them. 19v20

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Philo B. Fox is requested to report list of subscribers taken for the Scientific Press to date. His agency (for Napa, Sonoma and Mendocino counties) is hereby revoked. His receipts, given previous to this notice, will be acknowledged at this office.
DEWEY & CO., Publishers.
San Francisco, April 28, 1870.

C. Muller, optician, 205 Montgomery, stands first in his profession, and all those who suffer from defective eye-sight should apply to him. *

Mason's Bread of Life, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis and Sore Throat. Price, 25 cents per box. These lozenges are free from all dangerous properties. Compounded and put up by Dr. J. H. Mason, 750 Howard st. 16v20-3m

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Webster & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Thomas O'Neil, Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Microscopes for Scientific Investigation and Educational Purposes. Price list sent free. T. H. McAllister, Optician, 49 Nassau street, New York. 15v20-3m

Drs. Martinache & Smith, Oculists and Aurists, 313 Bush street, between Montgomery and Kearny. Hours for consultation, 12 to 3. 16v20-3m

F. Gruber, Naturalist, No. 626 California street, between Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

New Mining Notices.

Cayuga Chief Mining Company.—Location of Works: White Pine Mining District, County of White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-ninth day of April, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the thirty-first day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-first day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room No. 5 No. 302 Montgomery street, San Francisco, Cal. my7

Land Purchasers' Association.—Notice.

At a meeting of the Board of Trustees of the Land Purchasers' Association, held May 3d, 1870, the following resolution was adopted by unanimous vote:

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers thereto; being for the monthly installment falling due and payable May 1st, 1870. Said assessment is payable on or before the thirtieth day of May, A. D. 1870, to James F. Crosett, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of May, A. D. 1870, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before, will be sold at the office of the Secretary, on the twenty-eighth day of June, A. D. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.

Office, 304 Montgomery street, San Francisco. m7-4w

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of May, 1870, an assessment of three (3) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the seventh day of June, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-eighth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. my7

Pinto Mining Company.—Location of Works: "Silverado," Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of May, 1870, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, No. 426 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the second (2d) day of June, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twentieth (20th) day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

Office, 425 Montgomery street. 1: v20

Silver Vault Tunnel and Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third (3d) day of May, A. D. 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 23 Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the ninth day of June, A. D. 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the twenty-ninth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOSEPH L. KING, Secretary.

Office, Room No. 23 Hayward's Building, No. 419 California street, San Francisco, California. my7

Mining Notices--Continued.

Alban Gold and Silver Mining Company.—

Location of Works: Virginia, Storey County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-first day of March, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J Ball	79	5	25
C C Green	49	20	$1 00
C C Green	82	20	1 00
C C Green	141	7½	38
B W Lucas	145	5	25
B W Lucas	147	5	25
B W Lucas	148	5	25
B W Lucas	149	5	25
B W Lucas	150	5	25
B W Lucas	151	5	25
B W Lucas	152	5	25
B W Lucas	153	5	25
B W Lucas	177	40	2 00
J K Prior	35	10	50
J K Prior	36	10	50
J K Prior	37	5	25
J K Prior	38	5	25
J K Prior	39	3	15
J K Prior	140	23	1 15
W R Patton	40	10	60
Jos J Moore	101	2	10
Martinett & Schleg	103	2½	13
N Hastings	124	10	50
G E Krebs	126	5	25
J F Cassell	128	5	25
D T Berry	162	10	50
Calvin Taylor	185	5	25

And in accordance with law, and an order of the Board of Trustees, made on the twenty-first day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 432 Montgomery street, San Francisco, Cal., on Saturday, the fourteenth day of May, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. B. SMITH, Secretary.

Office, 432 Montgomery street, San Francisco. ap30

Continental Silver Mining Company.—Location of Works: Treasure City and Vicinity, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-sixth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B F Bivins	7	500	$150 00
B F Bivins	8	600	150 00
B F Bivins	9	20	6 00
B F Bivins	73	2	60
B F Bivins	74	2	50
B F Bivins	75	2	50
B F Bivins	77	2	60
B F Bivins	78	5	1 50
B F Bivins	80	5	1 50
B F Bivins	81	5	1 50
B F Bivins	82	5	1 50
B F Bivins	83	5	1 50
B F Bivins	84	5	1 50
B F Bivins	85	5	1 60
B F Bivins	86	10	3 00
B F Bivins	87	10	3 00
B F Bivins	89	10	3 00
B F Bivins	90	10	3 00
B F Bivins	91	400	120 00
B F Bivins	158	4	1 20
B F Bivins	159	4	1 20
B F Bivins	160	4	1 20
B F Bivins	161	4	1 20
B F Bivins	162	4	1 20
B F Bivins	163	4	1 20
B F Bivins	164	4	1 20
B F Bivins	165	2	60
B F Bivins	166	2	50
R F Bivins	157	2	60
B F Bivins	168	2	60
B F Bivins	169	2	50
B F Bivins	170	2	60
B F Bivins	171	5	1 50
B F Bivins	172	5	1 50
B F Bivins	173	5	1 50
B F Bivins	174	5	1 50
B F Bivins	175	5	1 50
B F Bivius	176	5	1 50
B F Bivins	177	5	1 50
B F Bivina	178	5	1 50
B F Bivins	179	5	1 50
B F Bivins	180	5	1 50
B F Bivins	181	10	3 00
B F Bivins	182	10	3 00
B F Bivins	183	10	3 00
B F Bivina	184	10	3 00
B F Bivins	185	10	3 00
B F Bivins	185	10	3 00
B F Bivins	187	10	3 00
B F Bivins	188	10	3 00
B F Bivins	190	10	3 00
B F Bivins	191	10	3 00
B F Bivina	193	10	3 00
B F Bivins	194	33	9 90
B F Bivins	196	33	9 90
B F Bivins	198	2	50
B F Bivina	199	2	60
B F Bivina	200	2	50
B F Bivins	201	2	60
B F Bivins	202	34	10 20
B F Bivins	204	2	60
B F Bivins	205	2	60
B F Bivins	206	2	60
B F Bivins	207	2	50
B F Bivins	208	2	60
B F Bivina	209	2	50
B F Bivins	210	4	1 20
B F Bivius	211	4	1 20
B F Bivins	212	4	1 20
B F Bivins	213	4	1 20
B F Bivins	214	4	1 20
B F Bivins	215	5	1 50
B F Bivins	215	5	1 50
B F Bivins	217	5	1 50
B F Bivins	218	5	1 50
B F Bivins	219	5	1 50
B F Bivins	220	5	1 50
B F Bivins	221	5	1 50
B F Bivins	222	5	1 50
B F Bivins	223	5	1 50
B F Bivins	224	5	1 50
B F Bivins	225	10	3 00
B F Bivins	226	10	3 00
B F Bivins	227	10	3 00
B F Bivins	228	10	3 00
B F Bivins	229	10	3 00
B F Bivins	230	10	3 00
B F Bivins	231	10	3 00
B F Bivins	232	10	3 00
B F Bivins	241	141	42 30
A F White	2	600	150 00
A F White	5	20	6 00
A F White	142	100	30 00
A F White	195	286	85 80
A F White	233	330	99 00
A F White	234	34	10 20
A F White	235	34	10 20
A F White	238	34	10 20
A F White	240	34	10 20
C T Fay	131	23	6 90
C T Fay	147	25	7 50
C T Fay	148	50	15 00
C T Fay	237	60	19 80
J A Eaton	116	20	6 00
Mrs J A Eaton	69	100	30 00
Clark Symous	100	5	1 50
J D Dahms	101	12	3 60
H S Bunker	129	1	30
H T Wheeler	130	1	30
Perry Johnson	133	3	90
Orrin Simmons	149	200	60 00
W T Hovey, Trustee	153	1995	598 50

And in accordance with law and an order of the Board of Trustees, made on the twenty-sixth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Secretary, No. 302 Montgomery street, San Francisco, Cal., on Wednesday, the twenty-fifth day of May, 1870, at the hour of three o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

H. H. BLAKE, Secretary.

Office, No. 302 Montgomery street, San Francisco. a30

Latawana Mining Company.—Near Hamilton City, White Pine, Nevada.

Notice.—There are delinquent on the following described stock, on account of assessment levied on the nineteenth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
D M Hosmer	1	100	$15 00
D M Hosmer	2	100	15 00
D M Hosmer	3	50	7 50
D M Hosmer	4	50	7 60
D M Hosmer	5	50	7 50
D M Hosmer	8	20	3 00
D M Hosmer	14	10	1 50
D M Hosmer	15	10	1 60
Richard Savage	16	100	15 00
Richard Savage	17	100	15 00
Richard Savage	19	50	7 50
Richard Savage	21	20	3 00
Richard Savage	22	20	3 00
Richard Savage	23	20	3 00
Richard Savage	24	20	3 00
Richard Savage	25	20	3 00
Richard Savage	26	10	1 50
Richard Savage	27	10	1 50
Richard Savage	28	10	1 50
Richard Savage	29	10	1 50
Richard Savage	30	10	1 50
Richard Savage	38	20	3 00
Richard Savage	39	20	3 00
Richard Savage	40	20	3 00
Richard Savage	41	20	3 00
Richard Savage	42	20	3 00
Richard Savage	45	5	75
Richard Savage	46	5	75
Richard Savage	47	5	75
Richard Savage	90	1000	150 00
Richard Savage	91	500	75 00
Richard Savage	92	100	15 00
Richard Savage	93	100	15 00
Richard Savage	94	100	15 00
Richard Savage	95	100	15 00
L A Brown, Trustee	70	100	15 00
L A Brown, Trustee	71	100	15 00
L A Brown, Trustee	72	100	15 00
L A Brown, Trustee	73	100	15 00
L A Brown, Trustee	74	100	15 00
L A Brown, Trustee	75	100	15 00
L A Brown, Trustee	76	100	15 00
L A Brown, Trustee	77	100	15 00
O T Ames	78	100	15 00
O T Ames	79	100	15 00
O T Ames	80	100	15 00
O T Ames	81	100	15 00
O T Ames	82	100	15 00
O T Ames	83	100	15 00
O T Ames	84	100	15 00
O T Ames	85	100	15 00
O T Ames	86	100	15 00
O T Ames	87	188	28 20
P Conklin	59	2	30
P Conklin	50	3	45
P Conklin	51	5	75
P Conklin	53	5	75
P Conklin	64	5	75
P Conklin	65	5	75
S E Holcombe	112	753	115 20
S E Holcombe...balance	127	10	50
Richard H Savage	115	10	1 50
S Hilton	119	20	3 00
Wm M Grant	120	354	53 10
Francis S Bowen	123	10	1 50
Wm Carrison..unissued.	124	4248	637 20
R Caulfield......balance	128	40	2 00
D Walker, M D...balance	129	20	1 00
Jno Samud.....balance	130	10	50
Jno Samud.....balance	131	10	50
Richard Savage....unissued		2249	337 35

And in accordance with law and an order of the Board of Trustees, made on the nineteenth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at No. 525 California street, between Montgomery and Kearny, San Francisco, Cal., on Tuesday, the tenth day of May, 1870, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

CHAS. WELLINGTON, Secretary.

Office, 614 Merchant street, Room 25, or 525 California street, San Francisco. apr23

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of April, 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the twenty-third day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, 408 California street, San Francisco. ap15

Miser's Dream Silver Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of April, 1870, an assessment of forty (40) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room No. 36, New Merchants' Exchange, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the seventeenth day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fourteenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

W. F. R. SCHINDLER, Secretary.

Office, Room No. 36, New Merchants' Exchange, California street, San Francisco, California.

Green Monster Copper, Gold and Silver Mining Company, Inyo Mining District, Inyo County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
W H Baxter	12	12	$12 00
Sarah C Baxter	2 and 3	20	20 00
W K Flint	17	28	28 00
Henry Gerke	10	160	160 00
E L Goold	7	5	6 00
Mosse & Son	25	5	5 00
Hugh McCormick	33	12½	12 50

And in accordance with law and an order of the Board of Trustees, made on the tenth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the auction rooms of John Middleton & Son, No. 310 Montgomery street, San Francisco, California, on Monday, the second day of May, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

I. N. THORNE, Secretary.

Office, No. 16 Montgomery Block, San Francisco. ar16

Postponement.—The sale of the above stock is hereby postponed until the sixteenth day of May, 1870, at the same hour and place. By order of the Board of Trustees.

ap30 I. N. THORNE, Secretary.

Office of the Placer Gold Mining and Canal Company.—Location of Works: Township No. Six (6), County of Placer, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the ninth day of April, 1870, an assessment (No. 1) of two dollars ($2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 802 Howard street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Friday, the twentieth day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the tenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. S. HALEY, Secretary.

Office of Company, 802 Howard street, San Francisco, Cal. Office hours: 6 to 8 P. M. apr16

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
L A Booth	12	40	$160 00
L A Booth	13	40	160 00
L A Booth	14	40	160 00
L A Booth	18	20	80 00
L A Booth	20	100	400 00
L A Booth	22	120	480 00
Joseph Sedgley	24	40	160 00
E B Mott, Jr	27	40	160 00
J M Shotwell	29	40	160 00
Joseph T Sanborn	33	20	80 00
Newton Booth	35	80	320 00
John O Earl	36	120	480 00
N D Burlingham	40	100	400 00

And in accordance with law and an order of the Board of Trustees, made on the second day of March, 1870 so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of John Middleton & Son, No. 310 Montgomery street, San Francisco, on Thursday, the twenty-eighth day of April, 1870, at the hour of twelve o'clock M of said day, to pay said delinquent assessment thereon together with costs of advertising and expenses of sal

D. A. JENNINGS, Secretary.

Office, 419 California street, San Francisco, California.

Postponement.—Notice is hereby given, that the above sale has been postponed until Saturday, the fourteenth day of May, 1870, at the hour of 12 o'clock, noon, at same place. By order of the Board of Trustees.

D. A. JENNINGS, Secretary.

San Francisco, April 25, 1870. ap30

REMOVAL.

GEO. MILNE CLARKE & CO.,

PLUMBERS AND GASFITTERS, respectfully announce the removal of their business to No. 715 Market street, south side, near Bancroft's. 19v20-1m

ARCHITECTS AND BUILDERS

Are invited to examine an invoice of

Marbleized Slate Mantels.

As these mantles are so perfect an imitation of the most costly Italian Marble, and can be furnished at so much less cost, they are being placed in the finest houses in New York and other Eastern cities.

J. D. HUNT.

No. 716 Montgomery street, San Francisco.

May 5th, 1870. 19v20.

WONDERFUL

Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 19v20-2m

CANVASSERS WANTED for a New Book: THE CHEMICAL FORCES—HEAT, LIGHT, ELECTRICITY; Their Application to Important Modern Inventions and Scientific Discovery, by Thomas Ruggles Pynchon, Professor of Chemistry and the Natural Sciences, Beautifully Illustrated by 259 Engravings and by many entertaining experiments. The work is elegantly printed. All experienced agents should send for descriptive circular and terms. F. DEWING & CO., 512 California street, San Francisco. 19v20-5w

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, May 5, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 ℔s,; Bar, 1@1⅛c ℔ ℔; Sheet, polished, 3c ℔ ℔; common, 1½@1¾c ℔ ℔; Plate, 1½c ℔ ℔; Pipe, 1½c ℔ ℔; Galvanized, 2½c ℔ ℔.		
Scotch and Eng. Pig Iron, ℔ ton	$30 00	@$32 00
White Pig, ℔ ton	28 00	@ — —
Refined Bar, bad assortment, ℔ ℔	— 03	@ — —
Refined Bar, good assortment, ℔ ℔	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
Copper.—Duty: Sheathing, 3½c ℔ ℔; Pig and Bar, 2½c ℔ ℔.		
Sheathing, ℔ ℔	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
Tin Plates.—Duty: 25 ℔ cent. ad valorem.		
Plates, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℔ ℔	— —	@ — 42
Steel.—English Cast Steel, ℔ ℔	— —	@ — 15
Quicksilver.—℔ ℔	— —	@ — 62½
Lead.—Pig, ℔ ℔	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℔ ℔	— 10½	@ — 11
Borax	35 00	@ 38 00

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED.......APRIL 30, 1868.
CAPITAL.......$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

JOHN N. RISDON.......President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD.......Secretary.

24v17-qy

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 Sacramento City

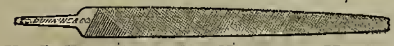
GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,
SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,
SAN FRANCISCO.

J. C. THWING & CO.,
Successors to T. C. Durking & Co,

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867. 2v17

R. SAVAGE. R. E. DORAN.

SAVAGE & CO.,
Empire Iron Foundry,
No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights, at Eastern Prices, 9v203-m

---

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO,

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

MACHINERY
— AT —
GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

---

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and **15** Fremont street, near Market, San Francisco. 10v14qr

---

CALIFORNIA TOOL WORKS,
Blacksmith and Machine Shop,
143 Beale St., bet. Mission and Howard,
SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.

21v17-qy **J. WEICHHART, Proprietor.**

San Francisco Wire Works,

No. 665 Mission Street, near Third.
SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,
Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

---

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. CONNER.

MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,
Between Howard and Folsom, San Francisco.

— ALL KINDS OF —
High and Low Pressure Boilers Built.
Sheet Iron Work, Etc., Etc.
☞ Repairing promptly attended to.

17v20-6m WM. W. CANTY, Manager.

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v15qr

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL

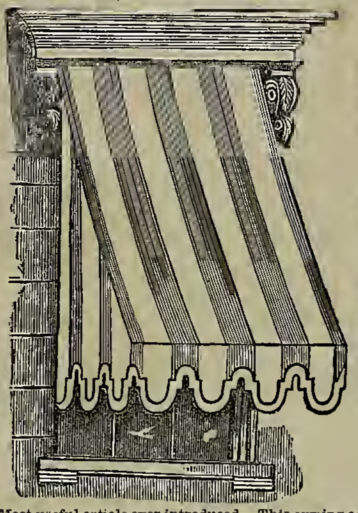
CITY IRON WORKS COMPANY,

CLERC & CO.,
IRON FOUNDERS,
Steam Engine Builders and Makers of all kinds of Machinery.

15v16q No. 28 Fremont street, San Francisco

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.



Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

---

DR. D. E. DUDLEY, OCULIST.

Dr. Dudley, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: No. 12 Montgomery street, opp Lick House. Hours from 10 to 3. ☞ Se habla Español. On parle Français.

SOMETHING NEW
— FOR —
MINERS AND FAMILIES.

EAKINS'
EGG SUBSTITUTE.

One Can equal to three dozen Eggs,

And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.

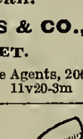
Price, 35 Cents per Can.

MANUFACTURED BY ADAMS & CO.,
423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

---

DR. F. SCHULTZ,



NO. 114 KEARNY STREET,
SAN FRANCISCO.

Office Hours—From 8 to 11 A. M. and from 2 to 6 P. M,

PARTICULAR ATTENTION GIVEN TO

SORE EYES, NEURALGIA,

RUNNING SORES and RHEUMATISM.

16v20-3m

USE
DR. S. GIRARD SMITH'S
ARAMIRACULAS
— FOR —
RHEUMATISM, GOUT AND NEURALGIA

CURES GUARANTEED.

Has cured Thousands. Has never been known
One bottle will relieve you.

OFFICE, No. 121 POST STREET.

Agents Wanted in every City and Town.—Terms Liberal.

Dr. S. Girard Smith, 621 *Kearny street*,—Dear Sir It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Ayer's
Hair Vigor,

For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a

HAIR DRESSING,

nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.

Prepared by Dr. J. C. Ayer & Co.,
Practical and Analytical Chemists,
LOWELL, MASS.
PRICE $1.00.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham San Francisco; R. H. McDonald & Co., Sacramento, Wholesale Agents. 26v18-1y

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, April 23, 1870.

IRON.

Pig, Scotch, No 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No 2	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common...........................	87 50	@	92 50
Refined	95 00	@	— —
Rods..............................	100 00	@	155 00
Horse-shoe........................	115 00	@	— —
Hoop	125 00	@	180 00
Scroll............................	110 00	@	145 00
Nail-rods, per lb.................	— 8¼	@	— 9¼
Spring	— 9¼	@	— —
Tire..............................	— 9¾	@	— —

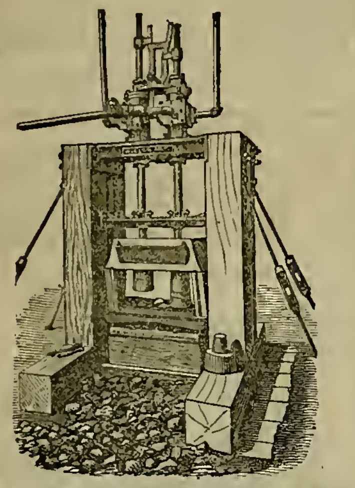
STEEL.

Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast..................	— 23	@	— —
Sheet, second quality.............	— 20	@	— —
Sheet, third quality..............	— 18	@	— —
Saw-plates, circular..............	— 27	@	— —
Double-shear, warranted...........	— 23	@	— —
Single-shear	— 19	@	— —
Montague & Co. (cast bars)........	— 18	@	— —
Machinery, round	— 16	@	— —
German, best......................	— 16	@	— —
German, goat......................	— 13½	@	— —
German, eagle.....................	— 12	@	— —
Blister, warranted................	— 16	@	— —
Blister, common...................	— 15	@	— —
Jessop & Sons', common............	— 17	@	— —
Double-refined....................	— 26½	@	— —
Stone ax shapes...................	— 26½	@	— —

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S PATENT AMALGAMATOR.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,
1v1 San Francisco.

TO MILLMEN.

FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30 inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W. NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

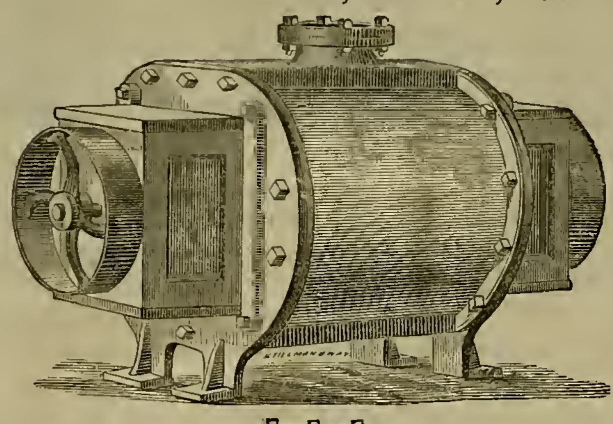
---

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

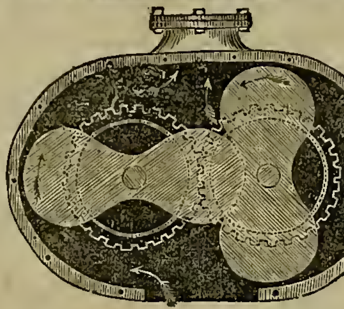
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** LESS POWER **Than any Blower** Now in use.

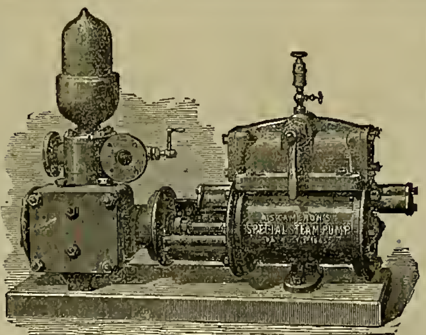
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
MARINE
ENGINES.
SURFACE
CONDENSERS.

DAVID STODDART,
BEALE STREET.

Rails, Newel Posts,

AND BALUSTERS,

Constantly on hand for sale, and shipped, together with all kinds of

STAIR WORK,

To any part of the coast. Practical workmen sent, when desired, to put up the same.

Work Warranted to Fit

by simply sending a correct ground plan of stairs, together with hight of story.

Wood-Turning and Scroll Sawing of all kinds promptly executed.

Spanish Cedar, Walnut and California Laurel always on hand for sale.

Langland & Cameron,
STAIR BUILDERS,
309 Market street,
And 485 and 487 Brannan street,
SAN FRANCISCO.
16v16-1y

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE,

Situated in YANKEE BLADE DISTRICT, Reess River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

I C E. I C E.

On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.

AMERICAN RUSSIAN COMMERCIAL CO.
D. E. Martin, Superintendent,
16v20-qy 714 and 716 Battery street.

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

All work done at the lowest prices. 1v20-3m

SAN ANTONIO

PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of

STONE WARE,

Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also

Chemical Ware, of Sorts Made to Order.

We manufacture to order

Terra Cotta Equal to the Best French.

Samples on hand.

FIRE BRICK.

A No. 1 article made to order, warranted superior to any imported.

Flower Pots and Ornamental Vases

Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.
8v20-tf

MARTIN'S

Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

HIBBERD, SANBORN & CO.,

STAIR

BUILDERS.

South Point Mills, Berry Street, Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newals and Balusters.

PARIS

Scouring and Blanket Cleaning

ESTABLISHMENT.

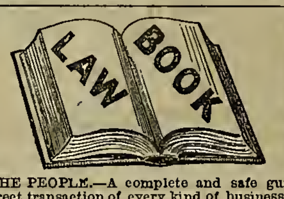
Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling.* Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

---

Agents Wanted for Chamberlin's New



FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

---

FRANCO-ITALIAN MANUFACTORY.

NEW CALIFORNIA

Chocolate and Coffee Steam Mills.

DESCALZO, LASTRETO & CO.,

526 WASHINGTON STREET.

MANUFACTURERS OF

Hygienic Chocolate of Every Variety,

Ne Plus Ultra Ground Coffee,

And sole manufacturers in California of the world renowned Coffee,

"CAFE DES GOURMETS,"

CORCELET PROCESS. 9v20-q

THE CALIFORNIA

Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:

JAMES T. DEAN..........................President
JAMES MILBURN..........................Secretary.
RODGERS, MEYER & CO....................Treasurers.

Company's office, 121 Post Street, San Francisco.
12v20-3m

The Loud-Cole Patent Case.

The Loud-Cole patent case has at last come to a definite conclusion. It has been appealed as often as it was possible, and the last time it was to the final tribunal, the District Court, where it was decided unequivocally in favor of Mr. Loud, to whom is awarded priority of invention, a decision which concides with all but one made previously. We have just received Judge Fisher's decision, which reviews the points made by the Commissioner of Patents in substance as follows:

The wheel made by Loud in September 1868 was certainly in as practical a form as that made by Cole in December. Neither of them seems to have been tried as yet upon a steamer of any size, but if the model made by Cole in December is a practical form of the invention, that made by Loud is no less so. As to the second ground of rejecting Loud, it is only necessary to observe that his experiment in September was *not* a purposeless one. The X wheel was made by him for the purpose of obtaining a propelling side wheel which should operate by the fish-tail or scull motion, instead of a paddle wheel, and not with the object of adapting the scull wheel to a narrow wheel-house, as the Commissioner seems to regard it. So far from abandoning his X wheel, Lond had it in his trunk on his way back to California. The fact that Loud did not remember that his X wheel would require no wider wheel house than the V wheel is no point against him. We cannot think Loud so unintelligent as to discuss which of the forms was the better and yet be ignorant whether he had conceived anything at all. Priority is awarded to A. C. Loud.

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
ILLUSTRATED CIRCULARS FREE.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

MAGAZINES.	P.An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All tho Year Round	
London Ill. News	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED **WEED** Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO $500

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY. and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. v16-1y16p

WIESTER & CO.,

PATENT BROKERS,

No. 314 Bush Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. Wo treat all patents alike, recommending only where true merit is found in the invention.

Odermatt & Ettlin's Fountain Pen.

PAT'D. AP. 6. 1869.

We call the attention of manufacturers to this new invention for supplying writing and drawing pens with a constant flow of ink. The pen-stalk contains sufficient ink to last for two or three days' constant use, and is provided with stop-cocks, which make it perfectly safe for carrying in the pocket. The flow of ink is under perfect control of the operator. A slight pressure on the thumb and fore-finger on the elastic sides of the holder is all that is required to regulate the flow of ink to suit the writer. It never blots unless forced to do so. The cost to manufacture is small, and the demand for a good Fountain Pen is very extensive among all classes of literary and business men. A sample of this invention can be seen and tried at our office, 314 Bush street, San Francisco. The entire Patent, or the Right for any State, can be bought on reasonable terms. Full particulars furnished on application.

NEW LIGHT ON A NEW PRINCIPLE'

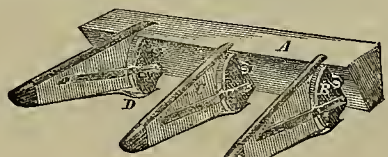
Gas for everybody in the city and in the country. Equal to coal gas at one-half the cost. The gas is generated and burned in a new style Vapor Lamp. No wick, no chimney, no explosion; and no man who is out of business and has a few dollars should fail to purchase a County or State Right and commence making money. Parties owning territory get the Lamps at Manufacturers' prices. Call and examine the light, or write for particulars.

A NEW PAPER FILE AND MUSIC FOLIO.

Two excellent inventions included in one patent. Either can be manufactured at a small cost, and neither has an equal in its line. No more expense for binding music. Each sheet has a complete and durable binding as soon as it is placed in the folio. The California Legislature has endorsed tho Paper File by purchasing three hundred and fifty, to take the place of the old style binders. It certainly is the most complete article of the kind ever invented. Whoever buys the right to manufacture and sell this invention will secure a good basis for a profitable business. Only the Territory west of the Rocky Mountains for sale. Parties in tho city should call and examine the article. Full particulars furnished on application.

WIESTER & CO.,
314 Bush Street, San Francisco.

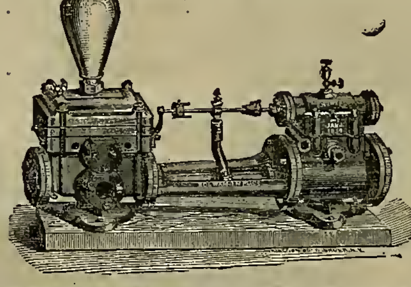
BONNEY'S IMPROVED GRAIN LIFTER.



The advertisement of this important improvement will appear next week. For particulars apply to

WIESTER & CO.,
314 Bush street, San Francisco.

KNOWLES' PATENT STEAM PUMP.



This Pump has received the HIGHEST PREMIUM at every Fair where it has been exhibited. It is of superior make and finish; has all ground joints; no packing required. It is positive in its action. It is impossible to stop it on centers. It will always start without using a starting bar. We have two hundred different styles and sizes adapted for Factories, Steamships, Sugar Refineries, Breweries, Distilleries, Gas Works, Oil Works, Soap Works, Paper Mills, Tanneries, Bleacheries, Laundries, Railroad Purposes, Quarries, Petroleum Mines, Drainage, etc. Large Pumps for Water Works. Fire and Wrecking Pumps. ☞Pumps guaranteed for every situation.

E. T. STEEN & V. CUSHING,
SOLE AGENTS FOR THE PACIFIC COAST,
No. 9 FIRST STREET, SAN FRANCISCO.

NEW AND SECOND-HAND ENGINES, BOILERS, and MACHINERY OF ALL KINDS, constantly on hand.

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.
☞ The highest price paid for Scrap Iron 9v143m9p

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, etc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.
THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

BARTON & RUTTER,
Importers and Dealers in
Guns, Pistols, Fishing Tackle
Pocket Cutlery, Etc.
SPORTING APPARATUS OF EVERY DESCRIPTION.
609 Clay Street, near Montgomery.
—SOLE AGENTS FOR—
Alexander's Celebrated Pocket Cutlery
For the State of California.
JNO. C. BARTON. R. A. RUTTER.
16v20-3m16p

PLATINUM
Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes.
H. M. RAYNOR,
57 Bond street, New York.
Platinum Scrap and Ore purchased. 15v20-1y16p

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."
☞Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf
W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,
—IMPORTERS OF—
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
—ALSO AGENTS FOR—
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY
54 K Street, Sacramento.
7v20-ng

WILCOX'S
PATENT STEAM
WATER LIFTER.
Requiring no Engine.

Send for circular containing full explanations, price list, testimonials and references.
M. & A. WILCOX.
15v20-3m-nhxh 74 K street, Sacramento.

N. W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws;
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect,
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,
Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLED RAWHIDE, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.
☞ Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers. ns

The Pacific Insurance Company.
No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.
J. HUNT, President.
A. J. RALSTON, Secretary.
☞Insurance effected on the most reasonable terms.☜
Office, 422 California Street.
9v20-qy16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

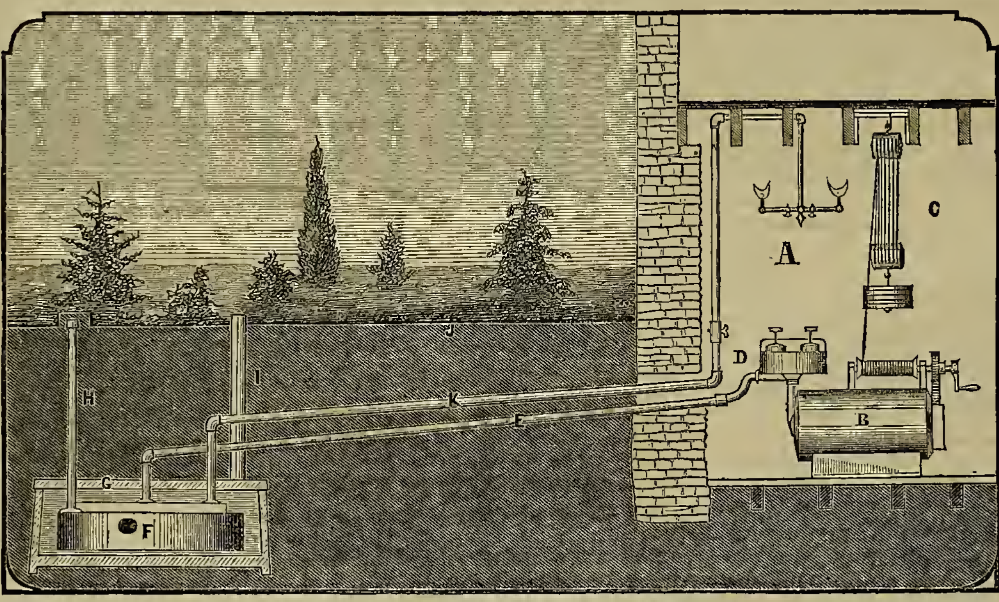
San Francisco, Saturday, May 14, 1870.

VOLUME XX.
Number 20.

Gas Works for Country Residences.

The American shows traits of his national character in the matter of lighting his house as well in other ways. Go where we may in other parts of the world we find no such extensive use of gas, enabling the householder to have a brilliant light in each room with the least amount of trouble to himself. The more conservative character of European nations lead them to retain the older methods of illumination to a great extent, but in the United States no city resident will willingly be without his gas-light, and the inhabitant of the country desires as well some similar contrivance.

When the chemists showed that petroleum was composed of a variety of hydro-carbons which, in a high degree, offer in a concentrated and convenient form the elements necessary to the production of illuminating gases, and that these gases are purer than any coal gas, numberless designs were devised for utilizing these products for illumination in common life. If we distil our crude petroleum into a condenser, we can easily get a number of different products which volatilize at different degrees of heat, and which we can, therefore, obtain separately. One of the first products distilled over goes under the common name of gasolene, and this, on account of its easy evaporation, is used for the production of illuminating gas, among other purposes.



PNEUMATIC GAS MACHINE FOR COUNTRY RESIDENCES.

Of the apparatus hitherto invented, none seems to have proved altogether successful. We give, however, this week, an illustration of a machine which, it is claimed, obviates all difficulties, and produces a cheap and excellent light. While not prepared to pronounce this a complete success, still we have been shown such certificates in its favor by those who have used it, that we present it to our readers for their consideration.

The illustration shows one of the pneumatic gas machines with its attachments. A represents the interior of the basement of a house. Here is placed an air-pump, B, which forces the air through the pipe, E, into the machine and over the surface of the gasolene, whereby it becomes saturated with the inflammable hydro-carbons, and is returned through the pipe, K, to the house, where it is used like common gas. The air-pump, B, is driven by means of weights and pulleys, as shown at C, and a governor, D, regulates the amount of air forced into the gasolene tank.

The gas works consist of a tank or a "carbureter," F, made of galvanized iron and divided up into compartments, connecting with one another, so that the air is forced to pass over a large surface of the gasolene, which is put into this machine. The carbureter is inclosed in a tank, G, which is filled with water. The whole is placed some four feet below the surface of the ground, J, at any distance from the house. H is a pipe for replenishing the gasolene, and I, a similar pipe, for the water tank.

It is necessary to apply a certain amount of heat to evaporate the gasolene and thus charge the air, and the manner of doing this forms one of the principal points of the invention. The temperature of the earth is sufficient for this, and as this temperature is first communicated to the surrounding water, an even degree of heat is secured during the whole year, it is claimed. And then as the gasolene is outside of the house and under the ground, there is no danger of accident by fire, so that all insurance companies insure buildings where these works are used without extra charge. The apparatus is constructed wholly of galvanized iron and will last a long time with but little or no repair, while any one can, in a couple of minutes, put the works in condition to afford a supply of gas for the night. The gasolene requires to be put in but once a year.

The apparatus has been in successful operation for the past six months in the Pacific Iron Works in this city, and has been introduced into the State Deaf and Dumb Asylum at Berkley, and into various private residences throughout the State. The testimonials from the users are strong, and it would seem that persons in the country might now enjoy the luxury of gas and at a small expense.

The Pacific Pneumatic Gas Company, of this city, are owners of the patent, and are willing to put their machine into any house, and at the end of a month, if parties are not satisfied, to remove it without charge. Persons desiring further details, explanations or testimonials, can obtain the same by applying to the Company, by letter or otherwise, at their office, No. 206 Sansome street, San Francisco.

General Mining Revival.

Reports from various parts of the globe seem to indicate that mining is receiving a fresh stimulus this year and getting a firmer and more stable basis. In England there is certainly much greater confidence now than there has been previously, and there is plenty of English capital ready for investment. The mines in Wales are yielding very large profits; witness the celebrated Van mine, which was sold a year ago for $150,000, but which has since made enormous returns, and is now valued at ten times its late price. In Italy the business is gradually recovering from its long continued depression, and as liberal concessions are made by the Government, capital is being invested there in quite large amounts. In Australia, according to all accounts, prospects are better than ever, and the only fear which we have seen expressed was, that there might perhaps be a scarcity of laborers. In France there is increased activity, in coal and iron especially, and Belgium and Prussia are yielding large returns.

Reports which come to us through various sources from the distant mines of Russia, denote that in these regions, too, there is an improvement. The Russian Government has long intended to sell its mines and smelting-works, which have in many cases been unprofitable simply on account of official peculations, and is now really on the point of so doing, it is said. A couple of years ago, when in that country and also when in England, we heard of several companies who were ready to invest in these works, but were waiting for favorable terms; and it is to be hoped that soon good management will succeed the corrupt official charge which has so long burdened the mineral resources of the Empire. From other lands, also, we hear favorable indications.

In our Western States and Territories mining is receiving a renewed impulse, and we may expect a quite general revival this year. Not only are new discoveries being made, but old ones are being taken up and re-worked. From Arizona and New Mexico come very flattering accounts, some evidently greatly exaggerated, but still enough is stated to prove that there is a strong foundation of truth. English capital is commencing to flow into Colorado and the Territory will this year produce a largely increased yield. The Mormons have concluded to no longer oppose the development of the mineral resources of Utah. Nevada reports many excellent discoveries in various parts of the State, and mining operations are meeting with signal success. From Montana we hear of the brightest prospects, and the cry there is ever for more laborers. Its papers are continually calling for more men. All over the country, they say, the scarcity of working-men is felt to be the only drawback for the production of more gold than ever before, as well as for the successful working of farms. Idaho utters a similar cry.

In California we see much better prospects. The San Diego excitement, although it has died away to a great extent, has called attention to that part of the State, and will result in the developmen of valuable property. There are other instances too numerous to mention. Thus in Nevada county many hydraulic claims have been located, and in Placer county, at Ophir, mines which have been dead for years are now being worked extensively and profitably.

Better than all is the prospect that there will be more *legitimate* mining than ever before. The wild speculations and open mismanagement of former days, which have proved so fatal to the interest, are, we may hope, on the decrease. We see a growing disposition to regard mining investments as permanent. Economy is being recognized as an essential feature, and the necessity of having better educated superintendents is gradually dawning on the public mind. Taking everything into consideration, we feel justified in expecting everywhere a much brighter future.

* * *

THE Healdsburg *Flag* calls upon the people of Sonoma county to five thousand dollars per mile for a road from the Napa county line to Petaluma.

Communications.

Mining in Humboldt County, Nevada.

[Written for the Scientific Press.]

Editors Press:—Galena is situated some eight miles from Battle Mountain, and although laid out but a short time ago, by Robert McBeth, has now a population of over 250, and is growing steadily. It takes its name from the ore found in and around it. The veins as far as known have a north and south strike with a westerly dip. Numerous locations have been made, but only comparatively little work has been done really towards developing the ledges.

The Butte Mine.

The Butte mine, situated one mile below the town, was located by G. W. Fox and R. McBeth—the discoverers of Battle Mountain district—in the summer of 1867. They have 22 miners at work, running tunnels and stoping, under the supervision of J. T. Maclean, who owns an interest in the mine. I am told that men now working for wages here refused at one time to take one half the claim (500 feet) in payment for district assessments on the whole, amounting to a few days work only; and now they are said to be getting out about 40 tons per month, which yield from $200 to $300 per ton in the mill. The shaft is down 75 feet. The vein is from two to four feet wide and dips at an angle of about 45 degrees. The ore averages $150 per ton, and they have a large quantity of first and second-class ore for shipment. Ten tons have lately been sent to San Francisco for reduction. The mine is situated on a high ridge and worked by shafts and tunnels, and is considered by practical miners to be the best in the district. The company paid a dividend in March which amounted to $2,500, and the mine has paid all expenses since it was discovered.

The Shiloh and White Mines.

The Shiloh mine is located to the north of the town and has been leased to Mr. H. L. Spargur for a short time. Mr. S. has sunk a shaft fifty feet and is running drifts from the bottom of this. The lead is four feet wide and has yielded large amounts of good first-class ore. This, shipped to San Francisco, yielded $100 per ton in silver and 50 to 80 per cent. of lead.

North of the Shiloh is the White mine, which is supposed to be an extension, and at a depth of 40 feet produces similar ore. This is also leased to a company which is now engaged in extracting and shipping ore. A lot of 29 tons, recently sent to San Francisco, contained from $150 to $200 per ton in silver and a high percentage of lead. The second-class ore is piled up on the dump, and will doubtless be the first worked by Bruce & Co. when they get their smelting works in operation.

Avalanche and other Mines.

Passing over to Copper Cañon, we see to the left of the road the Avalanche mine, located near a creek. There is a shaft six feet square, which has been sunk twenty-six feet on the ledge, but the water drove out the workmen and operations are suspended for the present.

The New Jersey and Cheekee(?) mine is owned by Fenton and Smith. The ledge is twenty-two inches wide and the shaft is eighty feet deep. There is water in the shaft, but a tunnel is to be run in a few weeks. Two tons of ore sent to San Francisco a short time ago brought the owners $316.

The Buena Vista mine is the oldest location in the district. The ledge crops out on the mountain side a distance of several hundred feet, and this ore assays from $40 to $400 per ton in silver. A tunnel has been run in 150 feet in the hill-side, and a shaft now being sunk on the foot-wall, from the tunnel level, has disclosed a fine body of ore averaging about $100 to the ton. A large amount of money has been expended on this mine.

Bruce & Co's Smelting Works.

Two miles from the town, near the road leading to the Butte mine, are the smelting works of Martin Bruce & Co. They are building a blast furnace, 24 by 30 inches, interior dimensions, and 12 feet up to the feeding hole. The building stone comes from the Hot Springs on the C. P. R. R., where, it is said, the hot water, bubbling up, flows over the sand and dirt and forms a hard stone. It is expected that the furnace will be at work by the middle of May, running through ten tons daily. Charcoal will be used as fuel.

The Copper Mines

Of Copper Cañon are creating considerable excitement, and the Battle Mountain Copper Mining Co., of Liverpool, appears to be doing exceedingly well. This company purchased the mine eight months ago, but have been at work only about six months, and are now shipping to England some 80 to 100 tons monthly. They are about to take out an U. S. Patent. For the transaction of the general financial business here, the company sent out their secretary, Mr. A. Bond, a very pleasant and agreeable gentleman, and they have, as General Superintendent of the mine, Capt. Wm. Nancarrow. They are running two shafts, 60 to 70 feet deep, and three large tunnels, one being already 180 feet long, and employ 22 men. The ledge or deposit is from eight to ten feet wide and abounds in rich ore, holding much red oxide of copper. This mine is certainly one of the best, if not the best, I have ever seen! I understand that the company intends erecting large reduction works near this district at an early day, and I doubt not but that this would be a good move, and pay largely.

Remarks.

There are other mines here worthy of mention but which I have not had time to visit. I have great confidence, however, from what I have seen and heard, of the future of these two districts (Battle Mountain and Galena). The smelting works will no doubt aid greatly in developing the base metal ores, by enabling miners to get returns from mines which otherwise would not yield them so speedy profits. There are, moreover, without doubt, many good veins still awaiting the enterprising prospector. I am well pleased with both the country and the people, and all the more as the people here seem determined to conduct mining as a legitimate business and not to consider it as a basis for Montgomery street speculation: W. H. M.

Battle Mountain Station, April 27, 1870.

* * *

Sketches of El Dorado County.

[Written for the Scientific Press.]

Hydraulic Mining.

Editors Press:—Spanish Hill is one of the offshoots or spurs of Hangtown Hill, pushing towards the north, until intersected by Hangtown creek, and within the city limits. William Blacklock & Co., about two years ago, purchased a claim near the middle of this hill, which had been worked more or less since 1852. The cut through the rim rock was not of sufficient depth for practical working, and this company excavated a cut through the solid rock from five to forty-five feet in depth and 500 feet in length, for sluicing the gravel and catching the gold. The pay streak of gravel is from one to fifteen feet in depth, covering an area 400x2,000 feet, or more than eighteen acres. Almost a mountain of dirt has to be removed to get to pay gravel, which prospects from one to fifty cents per pan. Already some five acres of surface have been removed, and some two acres of gravel uncovered and washed at a depth of from 100 to 125 feet. They are unable to procure water for more than four hours out of twenty-four, using some 200 inches, having an 11-inch pipe 1,150 feet long and 250 feet pressure. The Craig nozzle is in use here, saving, as Mr. Blacklock informed me, the labor of two men, without the danger attending the old canvas connecting hose. The water is driven against the bank through a 4-inch nozzle, and breaks down the dirt and gravel at a fearful rate, rolling large boulders into the cut, then to the sluices and down into ravine below. Sixty tons per hour are easily removed and dumped at the end of the sluices. Considerable gold adheres to the clay and is carried off and lost until it has been exposed to the weather for a time and slacked, when it will be washed again. The sluices are about thirty inches wide by eighteen inches deep, with 5-inch blocks nearly covering the bottoms and 3-inch scantling fastened to the sides. The wear from the gravel and boulders requires both bottom and sides to be frequently replaced by new ones. Quicksilver is placed along the bottom between the blocks, and most of the gold is there caught. The fall of the sluices is about two inches in twelve feet. This company have applied what is called an undercurrent sluice—*i. e.*, fine riffles or screens are placed over an opening cut in the bottom of the main sluice, and the fine gold, black sand and dirt with some water drop through into a sluice prepared for that purpose, in which there is a large quantity of quicksilver, which amalgamates with the gold, and the water is again returned to the main sluice below. The informed me that their claim yielded over $10 per hour, or more than $100 per day (of ten hours) while using water. When using water, five men are employed.

C. W. Brewster, banker, who purchased most of the dust, informs me that more than $250,000 have been taken from the Blacklock, Golden Gate and Hook and Ladder companies since 1854. Those three claims cover the middle and north end of this spur. South and near the main ridge is the Macumber Bros. & Co's claim, in size about half that of Blacklock & Co. Otherwise, what is said of Blacklock & Co. will apply to this claim. At the head of Spanish Ravine, and adjoining Macumber's, is Maynard & Bro's claim, from which large amounts of gold were taken in 1852,'3 and '4. It is worked by tunnel. If water could be had it would be an excellent hydraulic claim. The Buckeye claim, situated on the south side of Hangtown Hill, is owned by G. W. Swan, now of your city. This claim has been worked more or less for four years, more to keep possession until water can be obtained, than for profit. I have seen several nuggets taken from this claim varying in size from two to five ounces. Two weeks ago a man was set at work on this claim, and in a short time took out a chunk two inches long by one-half inch broad, weighing over three ounces. Swan says he intends to keep this claim as long as he lives, or until he can get water to work it.

Claims on Weber Creek.

Sailor Jack's claim, owned by Donaldson & Co., is situated between the South and Middle fork of Weber creek, some six miles east of Placerville. This claim is worked by a tunnel under a cement or lava, which covers the hill. There is a fine bed of gravel which extends up the ridge for several miles. The gravel wheeled out last summer, and washed in December, yielded, I am told, over $10,000. Water for washing can only be had after the rains commence. Nearly opposite and south of the South fork of Weber creek, some two miles below Newtown, are a number of excellent claims, a few only of which I visited. T. O'Brien's, gravel from four to forty feet, eleven-inch iron pipe with 140 feet pressure, pays from $6,000 to $10,000 per annum. J. Dentz & Co. have spent $2,000 and have just opened a fine prospect similar to O'Brien's. C. P Steadman, hydraulic 11-inch pipe, just opened; gravel from 40 to 100 feet, the principal pay being near the bottom. Andrews & Co. have been at work three years and have ground to work for ten; the claim pays well. Last winter's run after "robbing" sluices weekly to pay expenses, cleaned up over twenty pounds in the Spring. Water is more plentiful on this side of Weber creek, being taken from the Euerka ditch, which takes its water from the Cosumnes river.

Hydraulic mining is prosecuted much the same everywhere. What is said of Blacklock & Co., will, with slight variation, apply to all. I am told by a practical mineralogist that if the under-current process was resorted to, to save black sand, which contains a large amount of fine gold, and mills prepared for working it, that both mill-owners and miners could make large sums of money. It is evident that large amounts of gold pass out of the sluices while being washed. Hangtown creek within this city has been worked 12 times in 20 years, and every time the gold which is collected with quicksilver has shown to be finer than that of the previous washings, until now it is as fine as flour. Black sand, with some fine gold, can be obtained in large quantites from the creek. The late discoveries of gold-bearing quartz have created a want among miners for a custom mill, conveniently situated, for delivering quartz, and would pay capitalists well on an investment of $3,000 or $4,000 being sure of steady employment.

E. N. S.

Placerville, April 25th, 1870.

Law for the Preservation of Fish.

An Act to provide for the restoration and preservation of fish in the waters of this State.

The people of the State of California, represented in Senate and Assembly, do enact as follows:

Section 1. The Governor of this State is hereby authorized and empowered to appoint three persons, to be styled Fish Commissioners, whose duty it shall be to establish fish breederies upon such of the waters of this State as in their judgment shall be most available for the purpose of stocking and supplying the streams, lakes and bays of the State, with both foreign and native fish, and for such purposes may purchase and import from other States and countries the spawn or ova of valuable fish suitable for food, and may introduce the same when obtained into such rivers, streams, lakes or bays as they may deem suited to the habits and successful culture of such fish. They may also employ persons who are skillful and expert in the business of fish breeding, and may superintend and direct the construction of fish ways and fish ladders, that may be built in the streams and waters of this State. The Commissioners may in their discretion distribute the ova or spawn to be procured by them to such persons as have proper lakes, ponds or streams for the propagation and breeding of fish, and who will, without expense to the State, take charge of such breeding and propagation.

Section 2. Such Commissioners shall hold their office for the term of four years, unless others shall be appointed to fill the vacancies occasioned by the death, resignation or inability to attend to the duties required.

Section 3. It shall be the duty of the Commissioners to require as far as practicable all persons, firms and corporations who have erected mill dams, water weirs or other obstructions on rivers or streams, within the waters of this State, within six months after the passage of this Act to construct and keep in repair, fish ways or fish ladders at such mill dams, water weirs or obstructions, so that at all seasons of the year fish may ascend above such dam, weir or obstruction to deposit their spawn. Any person, firm or corporation owning such mill, dam or obstruction, who shall fail or refuse to construct or keep in repair such fish way or fish ladder after having been notified and required by the Commissioners to do so, shall be deemed guilty of misdemeanor, and, upon conviction thereof, shall be punished by a fine not exceeding five hundred dollars, for every such neglect or refusal. The fines and penalties that may be received for convictions under this section shall be paid, one-half to the District Attorney, who shall prosecute the suit, and one-half to the common school fund of the county.

Section 4. It shall not be lawful for any person or persons between the first days of January and June of each year to catch or kill any river, lake, brook or salmon trout in any of the streams, rivers, lakes or other waters within this State, with any string gill-net, or any spear, wire fence, basket traps, explosive material or other implements or substance, or in any way or manner except by hook and line, and it shall not be lawful at any time for any person or persons to catch or kill such fish in any of the waters of this State by the use of traps, gill-nets or set-nets, or any poisonous, deleterious or stupefying drug, explosive material or other substance, provided, however, that nothing in this Act shall be construed to prohibit the taking of fish in private houses, constructed expressly for the raising of fish by the owners thereof, and provided further that any person wanting spawn for the propagation of fish, may take fish from their spawning beds or elsewhere during the spawn season. Any person violating the provisions of this section shall be deemed guilty of misdemeanor, and, upon conviction thereof, shall be punished by a fine of not less than twenty-five dollars, nor more than five hundred dollars, one-half to be paid to the District Attorney who shall prosecute the suit, and one-half to be paid into the common school fund of the county.

Section 5. Every person who shall in any manner take or carry away any trout or other fish from any stream, pond or reservoir belonging to any person, or corporation, which stream, pond or reservoir has been stocked with fish for hatching the egg or spawn, or by placing therein, without the consent of the owner of the land, covered by, and adjoining such stream, pond or reservoir, or without the consent of the agent of the corporation, if such land belong to a corporation, shall be punished by a fine of not less than two, nor more than ten dollars for every fish so taken or carried away, and shall also be liable to the owner of such stream, pond or reservoir in a civil suit for the full value of all fish so taken or carried away.

Section 6. All persons engaged in the business of fishing in the bays or harbors of this State, with seines or traps, and who shall by said seines or traps, or any other means whatever, capture the young of any species of fish valuable for food, but which at the time of capture are unfit for use as food, shall return the same to the water; every person who shall violate the provisions of this section shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by a fine of not less than one hundred dollars, nor more than five hundred dollars, or imprisonment in the County Jail not exceeding six months, or by both such fine and imprisonment in the discretion of the Court. One-third of all the penalties received under this section shall be paid to the informer, one-third to the District Attorney of the county prosecuting the suit, and one-third to the school fund of the county.

Section 7. The Commissioners authorized to be appointed by this Act shall receive no compensation for their services. Their necessary expenses incidental to procuring and distributing the ova or spawn of fish in the employment of fish breeders, and in carrying out the provisions of this Act, shall be paid from the appropriations herein made, upon accounts or vouchers, to be approved by the State Board of Examiners. The Commissioners shall report biannually to the Governor an account of their transactions under this Act, and make an exhibit of their expenditure of money under its provisions.

Section 8. The sum of five thousand dollars is hereby appropriated out of any money in the General Fund not otherwise appropriated, and the Controller is hereby authorized to draw his warrant on the Treasury in payment of accounts of the Board of Fish Commissioners as herein authorized.

Section 9. Nothing in this Act shall be construed to prohibit or prevent Indians from taking trout in any of the streams or lakes of the State, at any time by the same means hereinbefore usually used and employed by them.

Section 10. An Act for the preservation of trout, approved April seventeenth, eighteen hundred and sixty-one, and the Act amendatory thereof and supplementary thereto, approved March twenty-seventh, eighteen hundred and sixty-two, and an Act to amend an Act entitled an Act amendatory of and supplementary to an Act for the preservation of trout, approved March twenty-seventh, eighteen hundred and sixty-two, approved March second, eighteen hundred and sixty-six, are hereby repealed.

Section 11. This Act shall take effect immediately.

Approved April 2d, 1870

* * *

Taro, the Japanese student, who recently died very suddenly, at Rutgers College, Brunswick, N. J., would have graduated with the highest honors of his class if he had lived four months longer.

Silk Manufactures.—In Patterson, N. J., there are sixteen silk factories, employing 3,500 hands and running not less than 70,000 spindles.

Mechanical Progress.

Device for Preventing Boiler Explosions.—*La Propagation Industrielle* illustrates an arrangement for this purpose, based upon the theory of Messrs. Dufour and Kaynen, that irregular ebullition is a fruitful cause of explosion in steam generators; this irregularity proceeding from excessive production of steam at one part of the boiler and little or none at another. Primarily, this results from the immobility of the water in the boiler; and the object of the apparatus is to secure its agitation. The water in the boiler is caused by the steam pressure to rise in a pipe, the lower portion of which is curved and reaches below the water level. A plunger is thus forced up, and by this means a valve connected with the steam pipe is opened. The steam thus admitted at the top forces down the water into the boiler again. This operation is repeated, and the circulation thus kept continuous.

Compounding Single Cylinder Beam Engines.—This practice, says *Engineering*, is every day gaining ground in our manufacturing districts. The manner in which the compounding is carried out, varies. In the majority of instances, the high-pressure cylinder is placed between the main center and the crank shaft; but in many instances, a horizontal high-pressure cylinder is placed by the side of the existing low pressure one, the piston of the high-pressure cylinder being coupled by a connecting rod to an independent crank on the crank shaft of the original engine. Mr. Ramsbottom, of Leeds, also has compounded a number of engines by substituting for the existing single cylinder a group of three cylinders, placed side by side; the two outer ones, which are of smaller diameter than the other, being the high-pressure, and the central one the low-pressure cylinder. In this arrangement, which is a very neat one, the three piston rods are attached to one crosshead, which is coupled to the parallel motion in the usual way.

"Cast Malleable" Iron.—This is a peculiar material made by McHaffie & Co., of Glasgow, for the cylinders of hydraulic presses. *Engineering* says of it: "The method of producing this material—which, by-the-bye, must not be confounded with ordinary malleable cast iron—is kept a secret by the manufacturers; and all that is known concerning it is, that there is charged into the cupolas with the metal a certain mixture inclosed in cast-iron pots, and that the castings after pouring are subjected to a slow annealing process. Whatever the mode of manufacturing may be, however, it is certain that the material has proved itself a very suitable one for the construction of hydraulic press cylinders, and Messrs. McHaffie have already constructed a number of such. They are prepared to make cylinders capable of withstanding a pressure of 6 tons per square inch, and of sizes up to 12 tons in weight."

Wooden Water Pipes.—In Ithaca, New York, they have a new method of manufacturing these. The lumber is, by peculiar hollow augers, of different sizes, cut or bored out in concentric tubes or pipes, only leaving at last a small core, a little less than the bore of the smallest pipe. In this way a piece of timber, originally ten inches in diameter, will *turn out* several pipes of, say 10, 8, 6, 4, and 3 inches in outer diameter, and about 1½ inches in thickness, or of greater thickness if required, by decreasing the sizes of the inner tubes proportionately. The hollow auger cuts away only from one-half to three-quarters of an inch. This piping is then properly strengthened by iron bands, and subjected to a bath of asphaltum or other cement to make it impervious to gas or water, and to prevent decay.

Punching of Metals.—General Morin recently read a paper before the French Academy detailing experiments which demonstrate that the same elements of resistance enter into the operation of punching as in that of shearing. In short, a punch and die may be considered as a shears with circular blades. The coefficient of pressure in punching, per any given area of section, will be exactly that for shearing the same area of section, without reference to the thickness of the material.

Dressing Millstones with "Bort."—The *Engineer* illustrates and describes the two machines for this purpose, which are respectively the representatives of the two classes which comprise all;—viz: the "rotatory" and "rectilinear." The first is that of Golay, a Frenchman, the other that of Young, a Scotchman. The latter and later is given for several reasons the preference. The following explanation of the term "bort" is copied from the journal named: "Popularly the term 'diamond,' or 'black diamond,' is applied to the stones used for dressing millstones; but the term is inaccurate, and bort—which is the substance really used—is not diamond. The diamond properly so called is a crystalline substance with an easy cleavage; and even when reduced to fine dust, the particles retain their crystalline structure; hence the grittiness, in which lies the great abrading power of the dust. Bort, on the contrary, is amorphous, or destitute of crystalline structure or cleavage, and its dust, having no grittiness or abrading power, is quite useless to lapidaries. Bort, probably like the diamond, consists mainly of carbon, but in an allotropic or different state. It is very remarkable that the amorphous bort should be harder than the crystalline diamond, but so it is, and a good specimen of bort will with a single steady rectilinear stroke cut in stone a groove one-eighth of an inch in depth—work which would be simple destruction to any translucent or crystalline diamond."

New Magnesian Cement.—The basis of the new artificial stone, of the Union Stone Company, Boston, which was described by Mr. Chauncey Smith, at a late meeting of the Society of Arts of the Massachusetts Institute of Technology, is a cement discovered by M. Sorel, of Paris. "It is simply calcined magnesia, dissolved in chloride of magnesia or other suitable solvents. The magnesite so abundant in several of the States furnishes ample material. M. Sorel, by mixing his cement with sand, makes tiles; mixed with flint, it forms whetstones and oil-stones; with kaolin, mouldings, ornaments and statues; with sawdust and similar materials, flooring, wainscoting and other elastic stone-like substances; with carbonate of lime, mantels and mosaics imitating and actually covered by marble. The cement is used in a liquid form, and the stone sets in a few hours; the magnesite must be calcined with great care, and the materials thoroughly mixed. The paste is run into molds, and compressed by repeated percussion, rather than by steady pressure."

Boiler Incrustations—Another Preventive.—The engine at the Darmstadt Gas works has worked day and night since 1854 almost without interruption, and the formation of calcareous deposits has been entirely prevented by the use of crude pyroligneous acid, combined with tar; it is either introduced into the boiler or mixed with the feed water. Since this mixture has been in use they have never had a stoppage through incrustation, and have never had to use a hammer to remove scale. Each year, during the summer, when less gas is required, the boiler is opened, and perhaps a couple of handfuls of loose sediment taken from the bottom. The quantity employed is very small—just enough to redden litmus paper; consequently the iron is not attacked, as indeed is apparent from the fact that the boiler has been but twice under repair.—*Scientific Review.*

New Life Belt.—A late French invention is a long bag of rubber-coated canvas, with oval wooden discs to close the ends. The interior contains two spiral springs of coppered iron wire, soldered together side by side. When closed the belt is compressed into a length of seven inches. In one of the discs is an air valve opening inwards, so that the act of extending the apparatus causes it to be filled with air. For greater safety a cork is inserted in the valve hole; which is withdrawn on closing the belt after use, the valve being opened by the insertion of the finger.

New Rivet.—A recently patented rivet has a conical point, and is headed by means of a punch with a corresponding conical cavity, around which is an annular counter-sink. This punch when placed upon the point of the rivet and struck a few blows, displaces the metal evenly upon all sides, forming a symmetrical bead.

Scientific Progress.

Possible Relation of Similar Natural and Artificial Substances.—The following paragraph is from the address of Prof. Stokes to the British Association:—"It was stated several years ago by M. Pasteur, and I believe the statement still remains true, that no substance, the solution of which possesses the property of rotating the plane of polarization of polarized light had been formed artificially from substances not possessing that property. Now several of the natural substances which are deemed to have been produced artificially are active, in the sense of rotating the plane of polarization, and therefore in these cases the inactive artificial substances cannot be absolutely identical with the natural ones. But the inactivity of the artificial substance is readily explained on the supposition that the artificial substance bears to the natural the same relation as racemic acid bears to tartaric; that it is, so to speak, a mixture of the natural substance with its image in a mirror. And when we remember by what a peculiar and troublesome process M. Pasteur succeeded in separating racemic acid into the right-handed and left-handed tartaric acids, it will be at once understood how easily the fact, if it be a fact, of the existence in the natural substance of the mixture of two substances, one right-handed and the other left-handed, but otherwise identical, may have escaped detection. This is a curious point, to the clearing up of which it is desirable that chemists should direct their attention."

Preparation of Metallic Zirconium.—M. Franz communicates to the Berlin Chemical Society the manner in which he proceeds. He fuses the finely pulverized zircon mineral with bi-sulphate of potash, washes with water to which sulphuric acid has been added, and obtains a pure basic sulphate of zirconia. By fusing this with hydrate of soda, treating with sulphuric acid and adding ammonia, pure zirconia is precipitated. To obtain metallic zirconium the partially dried hydrated oxide is dissolved in concentrated hydrofluoric acid and the clear solution poured into a concentrated solution of neutral fluoride of potassium. All of the zirconium will be precipitated as a double fluoride of zirconium and potassium. This, well-dried, is mixed with twice its weight of finely divided aluminum and exposed for four hours in a gas carbon crucible to a heat sufficient to melt copper. After cooling and breaking the crucible there will be found a regulus of aluminum penetrated throughout by parallel leaves and scales of metallic zirconium.

College of Mining and Practical Science.—Capt. Benjamin Richardson, an old Californian, has deeded New York property valued at $240,000 to Lake Forest University, Illinois, for the establishment of a College of Mining and Practical Sciences in connection with that institution. One of the conditions is that the Trustees shall within six years erect in Chicago a college building worth $100,000. Another is that they shall purchase for the institution the geological and mineralogical cabinet of Prof. J. H. McChesney. The purchase of the cabinet has already been made. It is valued at $40,000. Of this amount, Prof. McChesney donates $10,000; leaving the sum to be paid, $30,000. The collection embraces about one hundred thousand specimens.

Jargonium.—Some time since we noted the discovery, by H. C. Sorby, F. R. S., of a new earth, allied with Zirconia, for which he proposed the name Jargonia. Mr. S. now finds that he was in error; and the peculiar spectrum upon which he based his conclusion was in reality due to the presence of a very minute quantity of oxide of uranium in combination with the Zirconia. In the course of his experiments upon the subject, he discovered, that 1-50,000th grain of uranous oxide, when present along with Zirconia in blow-pipe beads, gave a spectrum equally well marked with that given by 1-50th grain of the uranous oxide alone. The mistake was therefore due to the fact that the method of investigation employed was an unexpectedly delicate test for uranium.

The Electric Light for Photo-micrography.

Brevet Lieut. Col. Woodward, U. S. A., reports from the Microscopical Section of the Army Medical Museum some experiments undertaken in order that he might be independent of sunlight for taking photo-micrographs of pathological specimens; this work being frequently interrupted, even on tolerably favorable days, by passing clouds. We quote:

"I commenced a series of experiments with artificial lights which were fortunately crowned with success, both the Magnesium and the Electric lights proving adequate sources of illumination for the production of Photo-micrographs even with the highest powers. For the production of the Electric light I used a Duboscq's lamp, set in motion by a battery of fifty small Grove's elements. I was delighted to find, as I had anticipated, that the very exaggeration of light and shadow which has prevented the Electric light from being generally adopted as a source of illumination in the preparation of photographs of the size of the object, or smaller, proved of immense advantage in the reproduction of the feeble microscopical images of highly magnified objects, and that the pictures were hence clearer and better defined than any photographs of similar objects I had hitherto seen produced by sunlight. I found also that the Electric light was so much more manageable than sunlight as a source of microscopic illumination that I could readily arrange it to produce negatives with much shorter exposures than are indispensable with the sun. The Magnesium light shared these qualities to a high degree, but I found that its best work was done when the object was not to be magnified more than a thousand diameters, and that there were certain limitations to its use on test objects. These lights are mentioned as possible sources of illumination for the production of Photo-micrographs by Dr. Lionel Beale. I am not aware, however, that any one has made successful negatives with high powers with either of these lights prior to the experiments here recorded."

The Ohio Mounds.—"The great system of mounds near Newark, Ohio, with its circles and squares, its parallel roads and tumuli, will be found on calculation to exceed in cubic contents the great Pyramid of Cheops. Garden plots are discernible and carbonized maize grains are found within the mounds, showing that they engaged in agricultural pursuits. Their implements were made of a siliceous material or horn-stone, obtained by excavation, the pits thus made still remaining. Near them are piles of chippings, marking the spots where these tools were fabricated. Some few of these implements were made of porphyry brought from a distance. For cutting instruments, as knives, and chisels, and often for personal ornaments, the native copper of Lake Superior was considerably used. * * These wonderful people, so superior to the Indian in civilization, are generally conceded to have been the ancestors of the ancient Peruvians, and of those strange people now scattered here and there through Northern Mexico and Arizona."—*Dr. Foster in Transactions Chicago Academy.*

Size of Atoms.—Sir Wm. Thomson thus concludes an article in a late number of *Nature:* "The four lines of argument which I have indicated establish, with a very high degree of probability, the conclusion that in any ordinary liquid, transparent solid, or seemingly opaque solid, the mean distance between the centers of contiguous molecules is less than the hundred-millionth, and greater than the two thousand-millionth of a centimetre. To form some conception of the degree of coarse-grainedness indicated by this conclusion, imagine a rain drop, or a globe of glass as big as a pea, to be magnified to the size of the earth, each constituent molecule to be magnified in the same proportion. The magnified structure would be coarser-grained than a heap of small shot, but probably less coarse-grained than a heap of cricket-balls."

Tungsten Blue.—This is a combination of the blue oxide of tungsten with the double cyanides of iron and tin. It is the invention of M. Tessié du Motay, and is prepared by dissolving successively in water ten parts tungstate of soda, eight of protochloride of tin, five of ferrocyanide of potassium, and one of perchloride of iron,—and agitating the mixture. The precipitate is washed, and on being exposed to the sunlight for several days, becomes intensely blue. It will not fade, and resists acids.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Items.—*Miner*, April 30th: Globe tunnel is pushed 10 feet per week....More men are being sent out to the Leviathan, and Prof. Rickard is expected soon to put the smelting works in order....Sacking ore at the Morning Star is to commence Monday, to continue until the whole is shipped....From the first run of the Pioneer mill on Good Hope rock, Mr. McCarty sent to Philadelphia a brick this week....Three tons of ore from M. C. Tunnel No. 3, was sent to Reno to be worked by the stetefeldt....It is expected that the new Imperial Co. will sink upon some of the other lodes belonging to the property, besides continuing the main tunnel.

Mountain.—*Chronicle*, 30th: The survey shows that the Co. has 133 feet further to run to reach the ledge.

Mt. Bullion.—Supt. Coulter has received a cable dispatch from London, directing him to push ahead with the tunnel and erect the air furnaces.

Ready.—Three tons of ore from the Pennsylvania have been brought to town for shipment to Reno.

AMADOR COUNTY.

Amador Mine.—*Ledger*, May 7th: We are informed by Mr. Faull, Supt. of the mine, that the shafts are free from fire and bad air, and they are now hoisting out the water. It is feared that it will be a long time before they can successfully work.

Oneida.—Matters at this mine were never more prosperous. They keep 60 stamps running constantly.

Butte Canal.—Work is being pushed vigorously. They have about 200 men employed.

CALAVERAS COUNTY.

Railroad Flat.—Cor. of *Chronicle*, May 7th: Work in the Petticoat mine has been suspended for the present, but arrangements are being made to sink the shaft 300 feet deeper. The mill is in the hands of Mr. Burr, who is crushing custom rock. The quartz now being stamped is from the Poe mine. There are hundreds of tons ready for milling in this vicinity. The Wet Gulch is turning out good rock from its shaft, and the vein is getting better. The Lewis Bros. are pushing their new hoisting works. The Bald Eagle mine has out an immense quantity of rock for crushing. Reynolds & Co., of Independence, are sluicing with energy. Sundermyer's claim is paying well as usual.

Sacks of it.—Cudell, Sanderson & Gray, of Railroad Flat, are taking out such rich rock that they sack it to prevent loss. The quartz falls to pieces easily, and is perfectly "lousy" with free gold.

Corral Flat.—The Co. which has been working through the old Union shaft, have abandoned the enterprise. They are now engaged in sinking a hole on the flat, with the expectation of striking the bed-rock at a depth of 125 feet.

EL DORADO COUNTY.

Uniontown—Placerville *Democrat*, May 7th: We are informed that the deposit struck by Stuckslager & Co. continues to yield a rich harvest. We have received pieces of the rock, which shows gold plainly.

Rich.—We hear of rich "clean-ups" from Pi Pi, in the southeastern portion of the county. In a few days we shall be in receipt of authentic news from there.

Still Paying.—The claims on the "Porphyry" ledge are getting good prospects, some of them rich.

Pilot Hill.—The Boulder Claim Co., after several months' run, cleaned up about $2,500.

INYO COUNTY.

Cerro Gordo.—Los Angeles telegram, 5th: Seventy-five tons of argentiferous galena, in bars, passed through here last month from Cerro Gordo; more is coming. Some 20,000 pigs are out, waiting transportation.

The Calaveras *Chronicle* has a letter from Cerro Gordo, which we quote: Outside capital must come here and erect furnaces, for which purpose there are facilities in the valley; then the country will be saved, and these mines be valuable. The present market price for argentiferous galena is; for coarse ore, $15 per ton at the shaft; for ore which is mixed somewhat with vein matter and dirt, $5 per ton. Now this ore assays from forty to two hundred dollars per ton, in silver. About two miles east of here is a silver range, from which they are taking considerable ore, which assays from $150 to $600 per ton. The market price paid by the furnace men for this varies according to assay, from $60 to $150 per ton.

KERN COUNTY:

Kernville.—Havilah Cor. Visalia *Delta*, 4th: Four White Pine boys cleaned up $2,100 from thirty tons of rock from the Jeff. Davis ledge crushed at Ellsworth's mill. About three weeks since, Chapman, Murphy and Williams cleaned up $1,410 from 38 tons taken from the Venus, and crushed at the Marsh & Kennedy mill; at the same mill, Peacock and two French boys cleaned up $1,430, from 59 tons from some ledge near the McKeadney mine. A company of German boys have commenced crushing 75 tons from small ledges near Howe's mill. All that is wanted here is labor, The gold is here. Some of the old mining pioneers in this county are returning.

LOS ANGELES COUNTY.

Soledad.—*News*, April 30th: Yesterday we were shown by Andreas Pico, a gold brick weighing 46⅛ ounces, the product of the Esgendida mine, valued at upwards of $900. Thirty-two tons lately crushed yielded $2,000.

NEVADA COUNTY.

Golden Gate Mine.—Grass Valley *Union*, May 3d: The incline is down 120 feet. The mill has 15 stamps, and crushes 24 tons every 24 hours. Hoisting and pumping done by steam. The rock crushed so far has paid the average of $30 per ton, and 200 tons have been crushed. The ledge is four inches to four feet.

North Star.—This is showing well. Rock is coming from both drifts, and 20 stamps are running all the time.

The Idaho.—Down 600 feet on the incline, but the lowest extraction of ore is 500 feet. Drifts from the 600-foot level are commenced. The number of men employed is 110. The mill has 15 stamps employed night and day.

The Wisconsin.—This has paid $7,000 per month for the last three or four months. The mine is worked under a lease.

Town Talk.—This employs 11 men, and gives a yield of $3,000 per month. Eight stamps, run by water, are constantly at work on cement.

Greenhorn.—The rock crushed in April amounted to 300 tons and gave a yield of $6,000. The company are preparing to put on steam hoisting and pumping machinery.

Empire.—The miners are down 900 feet on the incline, and are preparing to sink for the 10th level, which will put the workings down to 975 feet. There are 36 men in this mine taking rock from abandoned places, and who pay "tribute" to the company. In three or four weeks the Empire will again be working full-handed.

Badger.—This is now having steam machinery put upon it. The works will be in running order in about a month.

Union Hill.—The shaft is down 340 feet on the incline and drifts have been commenced.

New Ditch.—Same of 4th: Geo. McLean, Supt. of the Pacific Mining Co's claims, informs us that the gravel mines are actively worked on the ridge, and with satisfactory results. The American Mining Co. have recently concluded a survey for a ditch from the Middle Yuba.

Fair Play Ledge.—Same of 8th: The tunnel is now in 222 feet, and at any moment the ledge may be struck. It will give 80 feet of backs for 800 feet of ledge.

Graniteville.—At Eureka South the Mutual Co. on the "Jim" ledge are crushing rock which will give good returns. Other mines will soon start up.

Union Hill Mine.—The gold we saw yesterday from a three weeks' run amounts to a good sum over expenses.

Chalk Bluff.—*Transcript* 4th: The miners have a prospect for an exceedingly prosperous season. The South Yuba Canal Co. have brought in water for the first time in four or five years.

Washington Township.—Cor. of same, 5th: The Salathiel mine has closed. The Co. has been employing 25 men and has disbursed $2,500 per month. Dill, Slinger & Co. have a couple of ledges three-fourths of a mile from here, which are paying. Rock from them crushed at the Salathiel mill paid $15 per ton—some $25. The "Green Ledge" yielded $8 from the top croppings.

The Diamond Creek claims of Kirtley & Co. and Van Wycke are getting off more ground than usual.

Little York.—Same of 10th: The Water and Mining Co. have four sets of claims at work. They have four of Craig's monitors and are taking out $12,000 every thirty days. In all their works they employ fifty men and are running 2,000 inches of water.

The *Gazette* says the report a few days ago to the effect that Ed. Williams, at You Bet, had sold his mining claims for $55,000, to an English company, is incorrect. No sale whatever has been effected.

PLACER COUNTY.

St. Patrick.—*Herald*, May, 7th: C. F. Eaton has his shaft down 106 feet. In the last six he has taken out five tons of ore that will mill $500 per ton. When he bought the mine the shaft was down 88 feet, and the ore, from that down to 106 feet, is richer than that which McLaughlin, the former owner, took out, and it paid $300 per ton.

Ophir.—Cor. of same: The Green mine is progressing with flattering prospects. The Good Friday mine is yielding good milling rock and occasionally showing free gold. The Grass Valley Co. on the Hunter ledge are getting better prospects than ever. The St. Patrick is turning out rich ore. Crater Hill is beginning to loom up. On the Shipley ledge, Doty's ravine, John McFadden has 1,200 feet, and has milled 400 tons of quartz which averaged $16. Mr. Battis has 1,000 feet and has had several crushings that have paid him $18 per ton, and now has, at the shaft, several tons that will pay over $30. Gordon & Co. are prospecting on the Sevoy ledge and getting out a crushing that is rich in free gold and sulphurets.

PLUMAS COUNTY.

Sawpit Flat.—Quincy *National*, April 30th: The warm weather has melted the snow enough for the miners to commence washing their drift dirt. The companies have a large amount of it above ground.

SHASTA COUNTY.

Paying.—*Courier*, May 7th: Peckham's quartz mill, on Mad Ox creek, is now in good running trim, and the quartz, so far as tested, pays splendidly.

SIERRA COUNTY.

Rich Quartz.—*Messenger*, 7th: Jim Johnson has struck a ledge a mile below the camp of Rock creek, said to be one of the richest ever struck in this county, the owner having taken out 40 ounces in a short time. The ledge has not yet been prospected to any depth.

A Rich Strike.—Marysville *Appeal*, 7th: S. F. Clauser, the principal owner of the Alice Gravel mine, seventeen miles from Downieville, was here yesterday with 73 pounds bullion, valued at $30,000, the result of eleven days' run with six men. A lot of 42 pounds was sent below two weeks ago, the result of eight days' run. The mine has only been in operation two months.

SISKIYOU COUNTY.

Mining.—Yreka *Union*, 6th: The prospect is favorable for a good season. At Oro Fino the claims worked now will yield well, and water will probably last three or four weeks longer than last year. On the Mugginsville side of the mountain a large number of claims are being worked with excellent prospects.

Arizona.

Big Bug.—Prescott *Miner*, April 23d: The latest run yielded a gold brick weighing ten pounds. This amount was taken out in seven and one-half days. We were hourly expecting to hear of a much larger clean-up. Messrs. Gray and Hitchcock, the owners, started for San Francisco Saturday. We believe it is their purpose to have a forty-stamp mill put up. The future looks bright.

Walker.—The Eureka 10-stamp mill is testing matters and with good success. A clean-up will soon be made. At present matters look hopeful.

Sterling.—The test made did not give entire satisfaction. Work will probably be suspended for a short time.

Wickenburg.—The deep shaft in the Vulture ground is down 230 feet; the ledge at that depth being *twenty-seven feet thick*, and very rich. The rumor that water had been struck at the bottom was not true. The mill is running.

The owners of the White Picacho mine were jubilant. Their tunnel had reached the vein, which was found to be three feet thick. The ore is said to be very rich.

The Burro Mines.—It seems to be understood that the new mines are in Arizona. A Los Angeles telegram, of May 11th, says that parties just from Tucson confirm the reports of their richness. The ledges are from 50 to 200 feet wide. Work is brisk on the Harpending and Roberta leads. Gov. Safford had arrived. A party of prospectors report placer diggings with 50 cents to the pan.

Colorado.

Coaley and Gilpin County Lodes.—Central City *Register*, May 4th: These lodes are now the property of Mr. Breed of Cincinnati. Twenty-four men are employed. An engine with complete hoisting works is to be put up. The ore is treated at the California reduction works, and averages $160 per ton, as it comes from the mine, after throwing out the wall rock. The present yield is four tons per day. At a moderate estimate the vein of mineral must average six inches throughout.

Items.—The bottom of the deep Seaton shaft shows a two foot vein of soft mineral. ....Jas. Wright has a 10-inch vein on No. 2, East Seaton lode, which averages 100 ounces silver and 1¼ ounces gold, per ton. ....On No. 7, Larson & Bowden have at 15 feet depth a three-inch vein that assays from 200 to 400 ounces silver per ton.... An assay of ore from a pocket in the Consolidated Gregory gave 25 ounces gold and 2 ounces silver per ton, making a value of $571 Wm. Nichols has leased this mine for six months. In the 200-foot level there is a 3-foot crevice that assays from 15 to 25 ounces....The Smith & Parmelee Co. have shut down their pump. Stevens mill is crushing two cords of Bates ore a day, at a yield of three ounces per cord.

Items.—*Herald*, 4th: Robert Teats brought up four silver bricks this evening, weighing in the aggregate 2,382 ounces, worth $2,511.13. Brooks' lode at Wideawake yielded ore worth $216 per cord.

Items.—Georgetown *Miner*, April 28th: In Idaho district Fitzpatrick is averaging half an ounces a day to the hand....Work on the Whale mine and mill goes on.... Fairmount Co. have shut down their mill, and are putting in three more arastras and a concentrator....Syracuse mill is now in operation; two arastras running, and two more on Hitchcock's plan to be put in.... Stewart's new mill progresses....Collom's smelting works will start next week on 20 tons dressed Griffith ore. Huepeden & Co. are running on 2d class Terrible ore.... The east half of Junction lode has been sold to New Jersey capitalists....Workmen on the Henry Ward Beechor lode are running a cut to strike the lode lower down, where the outcrop is 30 feet wide. ....Work on the Par tunnel progresses.... A 10-inch vein struck on the Cascade lode, at a depth of 95 feet....Work is prosecuted on both ends of the Terrible lode, and the ore-house is full....Stowell & Collins, on Republican mountain, have a new pay-vein 15 inches wide, and the ore averages by assay $400 per ton.

Idaho.

The Mines.—*Avalanche*, May 7th: The Golden Chariot is now in fine shape. The lower stopes are yielding ore exceedingly rich. The Ida Elmore shute is full of rich ore. The Baxter is yielding very rich ore. A two-pound specimen presented to us is studded with ruby silver. Mr. Peck struck a rich chimney in the Potosi yesterday. High water prevents placer mining in the creek, but it is being prosecuted in Blue, Jacobs, Slaughter House and other gulches.

Northern Idaho.—Mr. Fenn brings flattering accounts of the prospects. Pierce City, Florence, Warrens Diggings, Moose creek and Salmon river will yield largely this year.

Loon Creek.—We have received a letter from Oro Grande. Parties have just commenced washing Week before last Lunday & Co. took out 25 ounces in one day's run. A nugget valued at $25 was found. The creek is rapidly rising and will cause a suspension of work for two months.

Flint.—Leviathan ore worked in Black's mill yielded $150 per ton.

Montana.

Summit.—Virginia *Times*, May 4th: Mining is brisk. Water is abundant. A. C. Hall has workmen cleaning the snow from the ditch, and will commence washing next week. The flumes of Schenck & Rositer, and Hall & Southmayde, between Pine Grove and Summit, are running day and night. The tunnel in the Midas is in 200 feet The Oro Cash tunnel is in 105 feet. $30,000 was taken out of this lead by Mr. Christnot, with an arastra, before a mill was erected. Covely Bros. are erecting a whim to pump the water out of the shaft 118 feet deep.

Items.—Helena *Gazette*, 2d: The water was let into the Big Ditch last week. Taylor & Thompson started their mining Saturday. Mr. Getchell starts up to-day.

Philipsburg.—Cor. of same: Although the mill has stopped, the camp is as well thought of by property holders as ever. It is not improbable that another mill will be erected upon an improved plan. Work in the mines goes on with the same energy, and will continue through the season. It is thought, too, that the stoppage of the mill will be only temporary.

Butte and Rocker.—Deer Lodge *Independent*, April 30: The miners have got fairly at work. The ditches are not all full, but will be by the end of next week.

Pike's Peak and Pioneer.—Water was turned into the ditch Tuesday. The prospects were never so bright as at present.

Silver Bar.—The water strike continues.

Nevada.

COPE DISTRICT.

Mountain City.—Cor. of Elko *Independent*, May 7th: California hill has turned out the richest of our camp. Within the past week five distinct ledges have been struck, and with one or two exceptions they are the richest yet. The Co's 10-stamp mill started up day before yesterday. The owners have contracted to crush 200 tons of Argenta ore. The mill and mine give employment to a large number of laborers. Times are brightening. The Canty mill is not running owing to some misunderstanding among the owners. Work is being prosecuted by the Argenta and Mountain City. The Fuller Co. are working two sets of hands on the Mammoth and Great Eastern mines, and have out over 600 tons of ore, which assays from $38 to $647.08 to the ton. The Pride of the Wide West, worked by Mr. Handy, looks better than ever. They are taking out large quantities of ore. The Sultana is being worked with energy, as well as the Great Republic, Capital, Virginia and Oregon. The placers employ a large force of Chinamen as well as whites. They pay from $4 to $10 per day to the hand. Russell gulch is being worked throughout its entire length.

Mining Sale.—Thirty-five hundred dollars were paid, on Thursday, by Pago, of San Francisco, to one of the locators of the Mountain City mine, for an interest. The company will put up reduction works.

HUMBOLDT.

Unionville.—Telegram of May 9th: In the case of the Silver Mining Co. vs. Manitowoc and Arizona mine, owned by Fall & Temple, the verdict was given in favor of defendant yesterday. It is estimated that over a half a million dollars are in sight in one drift. Work will be resumed by Jno. C. Fall.

WASHOE.

Yellow Jacket.—Gold Hill *News*, May 7th: The horse at the 900-foot level turns out less extensive than was feared. The drift north at the track floor has passed entirely through it, and is now in good ore again.

Hale & Norcross.—Daily yield 175 tons. The mine is looking extra well, especially at the lowest level. At this point the north drift is in nearly 100 feet from the shaft, in fine pay ore all the way.

Chollar-Potosi.—Daily yield 145 tons. The ore-producing sections are all yielding well, especially the old Blue Wing.

Ophir.—The ledge is not yet reached in the lower drifts. The south shaft in the surface workings yields 30 tons of fair ore per day.

Kentuck.—Yielding 50 tons per day of fair ore, principally from the upper levels.

Overman.—Yields 150 tons daily.

Occidental.—Grading for the foundation of the new mill is commenced.

Bullion.—Active operations resumed day before yesterday, with Geo. Moch, Supt. They have commenced drifting north at the 500-foot level.

Belcher.—The face of the drift at the 730 foot level, going south, looks more promising.

Crown Point.—Daily yield, 65 tons of low grade ore from the upper levels. The incline from the 1,000-foot station is 70 feet deep. The rock is hard, but favorable for blasting.

Hope.—The lower level is looking better and the general yield of the mine averages over $25 per ton. Both mills are running steadily.

Virginia Consolidated.—The west drift at the 500-foot level is in 327 feet from the shaft. Rock favorable and good progress made.

Sacramento & Meredith.—The mill will be reducing ore inside of two weeks.

Sierra Nevada.—The surface deposits still give their regular yield, and the mill is running.

Segregated Belcher.—Daily yield 30 tons. Mine looking well, and ore yielding better.

Telegram, 10th: The body of ore lately developed on the lower level of the Hale & Norcross mine is very extensive and rich.

WHITE PINE.

Review.—*News:* The old mines are nearly all full manned again, and work is commencing on many new claims. A general clearing of grounds is in process. Treasure Hill is getting to be lively. The Bullion shipment for the week ending May 2d was $45,681.74—of which $22,367.23 went to San Francisco, and $21,314.51 to New York.

Items.—The first 14 days of the second run of the Stanford mill turned out $30,325. Earl works in Aurora Consolidated are yielding a large quantity of $60-ore. Black Cloud, near the Eberhardt, is developing finely. The ledge is over 20 feet wide, and well defined. Montauk is attracting a good deal of attention. Montrose is to be developed by the San Francisco owners. Silver Vault tunnel in 155 feet. Fireside dump has 70 tons of ore ready for shipment. The Hemlock, Constitution, Watson, Dell and Wabash mines have been consolidated, the company to be known as the Hemlock and Wabash Consolidation. The company will be incorporated in San Francisco, and will commence work on a large scale immediately. Bob and Tom Hannegan have opened the Elko into one of the most valuable base metal mines in the State. Yesterday they struck it rich in the Austin, 1,600 feet north, two foot vein, $200 ore. We were shown some rock from Clifton district which assays $600 in gold and $400 in silver to the ton.

Alsop Smelting Works.—A leak was discovered on the 5th and the work stopped. The run was 34 days; and but for the crack, was good for as many more. The tunnel was still sound. The yield was 157 tons of bullion.

Silver Park.—Cor of same: Ferguson's 12-stamp mill started up on April 29th. The mines now open number about 50. The Bradshaw and Conway is the main attraction. The face shows a body of rich ore 16 feet wide. They have out 30 tons of first-class ore. The Nevada Queen has an incline down 60 feet, and 120 tons are on dump. Forty of this will go $150 to the ton. The Magnolia has 70 tons good ore out. The Liberty has out 60 tons which will work $150 without assorting. The Miners' Delight has 30 tons which will work $400 per ton.

Ely.—The Pioche Co. have upon the surface a large amount of extraordinarily rich ore. They have the site for the mill graded, and all of the machinery will be on the ground by the 8th of May. The Burke has a 50-foot shaft down, and the Co. are raising ore enough to supply the 5-stamp mill also belonging to Ely & Raymond. Excelsior shaft down 30 feet. American Flag has out from 60 to 100 tons of ore, like that of the Pioche. It is owned by Jackson & Co.

Yellow Pine.—A Los Angeles telegram says smelting works similar to those at Cerro Gordo will be put up at the Comet mine. The Tulare *Times* of 7th of May says: A large delegation of our citizens are about starting for Yellow Pine. Teams carrying their freight have already gone.

A Hamilton telegram of 10th says: The bullion shipments for the past week foot up $54,690, being $9,108 in excess of the previous week's shipments. Of this amount $33,275 went to San Francisco, and $21,513 to New York.

New Mexico.

Mining.—*Press and Telegraph*, April 30th: There is general activity in this immediate vicinity on Spanish bar, Grouse and Humbug gulches, and also in the bed of the Moreno, and but few miners idle about the city.

The Chester mill will soon be put permanently at work quartz crushing.

Latest Stock Quotations.

AT THE S. F. STOCK AND EXCHANGE BOARD

Thursday, May 12, 1870.

	Bid.	Asked.		Bid.	Asked.
WASHOE.					
Alpha Con.	$ 14½	$ 15	Gold Hill Q M C.	$ 14	$ 15
American	—	—	Hale & Norcross	144	145
Belcher	22	22¼	Imperial	41½	48
Bullion	—	—	Justice	—	—
Crown Point	15	15¼	Julia	—	—
Cole, Va.	—	—	Kentuck	—	70
Confidence	—	15	Lady Bryan	—	3½
Chollar-Potosi	26½	27	Occidental	7	7¼
Con. Virginia	13	13½	Ophir	—	15½
Caney	5½	5¾	Overman	—	85
Empire	—	20	Savage	32½	33
Exchequer	9½	10	Sierra Nevada	—	7¼
Flowery	—	—	Seg. Belcher	—	7½
Gould & Curry	142	145	Yellow Jacket	43½	44
WHITE PINE.					
Aurora Con.	$ 3	$ 3½	Noonday	3⅛	3¼
Brodt	—	—	Orig. Hidden Tr.	—	20
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	1½	Silver Wave	3	3¼
Mammoth	2⅛	2¼	Virginia	—	3
CALIFORNIA.					
Amador	$195	$200	Eureka	$290	$ —
IDAHO.					
Golden Char't.	$ 14½	$ 15	Silver Cord	$—	$—
Rising Star	—	—			

◆

Microscopical Society.—This new society held another preliminary meeting this week. On the 23d inst. the regular monthly meeting will be held, and the organization completed. This will be followed by regular monthly receptions, when invitations will be extended to those interested in this branch of science.

San Francisco Mining Stock Market.

The mining share market has been characterized by a a lessened activity during the period under review, and that under well maintained prices, with the exception of a single leading stock. The speculators apparently command the situation, while outside dealers are inclined to keep aloof, awaiting their time for better opportunities to make judicious investments. The dullness of business generally also has its influence to prevent the latter class of dealers from entering the market at present.

The White Pine *News* of the 9th inst. remarks as follows: "The mines being worked continue to look well, although no material changes have taken place within the past week, except in a few instances in base metal. Under improved condition in appearance, both the Hidden Treasure (original) and Noonday have reduced their working force. Aurora South has increased. The Aurora Consolidated continues its light force, while the Eberhardt has reduced, thus creating the impression that possession of these two mines will soon be given to the new purchasers. The Tom Paine mine has been sold in Chicago, on terms similar to those negotiated for the Pogonip and Othello, (the original owners retaining a large portion of the stock, and the purchase-money has been forwarded through the National Bank of Commerce. The Hemlock, Constitution, Watson, Dell, and Wabash mines, taking in the oldest titles and about one-half the area of Pogonip Flat, have been consolidated under the name 'Hemlock and Wabash Consolidation,' and will be incorporated in San Francisco at an early day. A party of San Francisco capitalists has already thrown out a 'feeler' for the purchase of the entire claim of the Consolidation, together with the Consolidated Combination mine on Chloride Flat, thus securing a belt from the Noonday on Bromide, across the entire width of Chloride and Pogonip Flats. Our bullion shipments for the week foot up $54,790, being $9,108 26 in excess of the previous week's shipment. Of this amount, $33,275 62 went to San Francisco, and $21,514 38 to New York."

Hale & Norcross—has been in moderate request. The amount of ore extracted during the week ending May 7th, amounted to 1,053 tons, 351 tons coming from the upper mine, and 702 tons from the lower mine. During the same time, they delivered 1,337 tons to the mills, leaving 6,522½ tons on hand in the dumps. On the 7th inst. the winze from the sixth station was down 91 feet, and it is reported that it still carries excellent ore. The extensive opening on the seventh station shows a body of ore "surpassing in extent and quality any ever before found in the mine."

Gould & Curry—sold largely at a rapid decline. For the week closing with May 9th, 580½ tons of ore were extracted, showing an average assay value, from car samples, of $43 34 per ton. The new Superintendent reports as follows: In cross-cut No. 3, running west, on the seventh station, they had made five feet up to May 3d, when they stopped, having encountered hard porphyry and quartz. In cross-cut No. 1, work was recommenced on the 4th, carried through eleven feet of quartz, and is said to be improving. On the second station, the raise to 100 level progressed thirty-five feet, through vein matter. On the 7th inst. they commenced sinking on the El Dorado chamber, and made fifteen feet through quartz with ore in sight. In the Potosi drift, on the El Dorado level, they advanced forty-eight feet through vein matter; and the southeast drift, on the middle adit, has been carried thirty-four feet through the same material. During the month of April the bullion yield amounted to $48,722 against $50,213 in March.

Chollar-Potosi—was in less favor than during the previous week. During the week ending May 6th; 1,069 tons of ore were extracted, showing an average assay value of $55 62 per ton; previous week, 1,022 tons were extracted. The various faces in the Blue Wing stope are all in good ore, and producing largely. The Belvidere section has been extended south from the main stope 140 feet, showing no depreciation in quality of ore taken from the extreme south portion. In April the bullion yield aggregated $130,361; in March it was $113,189; and in February, $91,545.

Overman—has been in good demand. During the week ending May 7th, extracted 831 tons, showing an approximate value of $11,134, equal to $14 60 per ton.——**Sierra Nevada** sold to a considerable extent. For the week ending May 7th 427 tons of ore were taken from the gravel deposits.

Imperial—has been largely dealt in at an advance. A letter of the 10th states that the winze looks favorable, the ore being two feet wide at the bottom. No change in the southwest drift, or on the 1,200 level. An assessment of $5 per share was levied on the 7th inst.——**Segregated Belcher** is dull of sale. About 40 tons of ore are taken out daily, showing a car assay value of $45 per ton. More will be taken out so soon as milling arrangements are perfected.——**Ophir** levied an assessment of $5 per share on the 6th inst. Nothing of importance from the mine.

Crown Point—continues to be well maintained, under considerable sales. During the week ending May 6th, 275¾ tons of ore were mined, showing an assay value of $4,368 37, or $15 84 per ton. The bullion yield for the month of April amounted to $19,680, being the product of 1,572¼ tons of ore.——**Kentuck** is in rather limited request. For the week closing May 6th, 282 tons of ore were extracted, valued at $4,839 40, equal to $17 35 per ton.——**Savage** sold quite largely. The bullion product for April amounted to $6,300; in March it produced $23,030; and in February $7,035.——**Aurora Consolidated**, (W. P.) levied an assessment of $4 per share May 7th.——**Noonday**, (W. P.) levied an assessment of 30 cents per share, on the 10th inst.—*Commercial Herald.*

◆

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment	Day Delinquent.	Day of Sale.
Alban, Storey co., March 21, 5c	April 25	May 14*
Aurora Cons., W. P., May 7, $4	June 14	July 7
Bromide Tunnel, W. P. April 20, 40c	May 55	June 13
Continental, W. P., March 26, 30c	April 30	May 25*
Cherokee Flat B. G., April 14, $5	May 16	June 2
Cayuga Chief, W. P., April 29, 15c	May 31	June 21*
Empire M. & M., S. co., April 22, $10	May 27	June 18
Green Monster, Inyo co., March 10, $1	April 16	May 16*
Hidden Treas. Cons., March 28, 25c	May 3	May 24
Imperial, G. H., May 7, $5	June 10	July 2
Lady Bryan, Virginia, March 17, $2	April 18	May 19
Meadow Valley, Ely Dist., Mar 26, 75c	April 28	May 20
Mountain City, Elko co., April 8, 50c	May 23	July 11*
Miser's Dream, W. P., April 14, 40c	May 17	June 14*
Noonday, W. P., May 10, 30c	June 15	July 7
N. Bloomfield Gravel, March 28, $2.50	April 30	May 17
Nevada L. & M., Elko co., May 3, 3c	June 7	June 28*
Oriental, Sierra co., April 22, 20c	May 26	June 16
Ophir, Storey co., May 6, $5	June 9	June 30
Placer G. & C., Placer co., April 9, $2	May 20	June 10*
Pocahontas, El Dorado, March 2, $4	April 2	May 14*
Pinto, W. P., May 2, 10c	June 2	June 20*
Rising Star, Idaho, April 6, 50c	May 14	June 4
Sterling, Arizona, March 9, $5	April 18	May 17
Sierra, Douglas co., March 29, $2	April 29	May 20
Silver Wave, W, P., April 21, $3	May 23	June 13
Savage, Storey co., May 3, $7.50	June 6	June 25
Silver Vault, W. P., May 3, 5c	June 9	June 29*
Siempre Viva, Mexico, April 25, 25c	June 2	June 20
Tallulah, Sierra dist., May 10, $2	June 25	July 18
Yellow Jacket, March 16, $7	April 18	May 19

MEETINGS TO BE HELD.

Bromide Flat	Annual Meeting June 7
Coney	Creditors' Meeting May 16
Hearst	Annual Meeting June 6
Oneida	Annual Meeting June 6
Pacific Consolidated	Annual Meeting May 17
Pacific Cons	Annual Meeting May 17
Rising Star	Annual Meeting May 16
Silver Eagle	Annual Meeting June 2
White Pine Mutual M. & M.	Meeting May 16
Wheeler	Annual Meeting June 6

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable April 11, 1870
Eureka, div., $7.50	Payable May 7, 1870
Golden Rule, div., 50c	Payable March 26, 1870
Hale & Norcross, div., $6	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
North Star, div.	Payable May 6
San Marcial, div., 50c	Payable Jan. 10, 1870
Union, div., $10	Payable May 10, 1870

——*Advertised in this journal.

◆

The Root Blower.

We have received a communication from Messrs. Keep & Bargion, manufacturers of the Root blower, who think that injustice was done their machine in the extract on the Sutro tunnel from the N. Y. *Engineering Journal*, which we published in the Press of April 30th. They object more particularly to the paragraph which reads: "As for ventilation, it is well known that the use of the Root blower has become indispensable in the deep mines; and it has been asserted that the artificial ventilation so produced has dried the timbers underground, so as to make them very combustible."

We are unable to see any injustice in these remarks; if anything, there is quite a compliment to this blower. The manufacturers deny that timbers have been found to be rendered more combustible by "artificial" than by tunnel ventilation, in regard to which point, no positive assertion, but rather a suggestion, is made in the article in question. Whether it be true or not, we cannot see how it injures the blower, nor how it will make the slightest difference to the interests of the manufacturers. The mines must be ventilated, and if this can be effected better or more economically by the use of the blower, this machine will be employed. It would appear that but one small Root blower was used in these mines before the fire; but this fact has no material bearing on the question, as the article was an argument *for* the Sutro tunnel and not *against* blowers; and, moreover, all which is stated would be as true if any other blower were used. And we may here remark that since the fire some thirty or forty Root blowers have been introduced into this very locality.

The Root blower is certainly a most excellent and efficient machine, which is coming very extensively into use. If our readers will turn to page 188 of the present volume, they will find an illustration of the largest one of the kind yet made, which is used for propelling the cars in the New York pneumatic tunnel. At the Amador mine, after the late fire, one was used for exhausting the gases produced by the conflagration, and the superintendent was so well satisfied with its work that he immediately ordered another, and by means of these has been able to clear out the mine so that operations can now be carried on. It is widely known, both at the East and West, and needs no particular recommendation; but we are cordially ready to testify in its favor at any time.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Trees and Temperature.

Our readers will recollect the paragraph in one of Mr. Greeley's late articles in reference to the effect of some evergreens which he had planted on his farm—he found they had increased the average temperature, in their immediate vicinity, several degrees. There is no doubt about the fact.

We have now the record before us of a farmer in Canada who, from the exposed situation of his grounds, was unable to raise fruit with any reasonable degree of success. Having a love for trees, but without expecting any direct benefit from them, he spent much of his leisure for two or three years in setting out shade trees around his house and along the lanes and roads passing through his farm. He was much surprised, after his shade trees had reached a somewhat extended growth, to observe that his fruit trees commenced to improve in bearing, which improvement continued until now they are yielding abundantly. Verily the planting of trees "tempereth the winds" and the climate to the tender herb and vines within reach of their protection.

We have no doubt but that many such examples might be found, if the attention of farmers was more generally called to such facts as the above.

The coast range of California, where it is often found exceedingly difficult to raise fruit, on account of the bleak ocean winds, and many localities in our sister State of Nevada might be immensely improved in the matter of temperature and shelter from winds by the cultivation of forest trees, to say nothing about their advantage in the production of moisture. Although much has been done in that direction the past season, the number of trees set out is far below that which should be reported. A double profit may be derived from forest trees—triple in fact. They will pay for their fruit alone, and again for their climatic advantages, and after that for their timber. Every farmer who has any leisure on his hands (and what farmer in California has not) should make all due preparations, this summer, to plant trees the coming winter and spring. It is a business which is in no danger of being overdone. It would not be overdone if one-fifth of all the arable land in the State was thus covered with a judicious selection of forest trees.

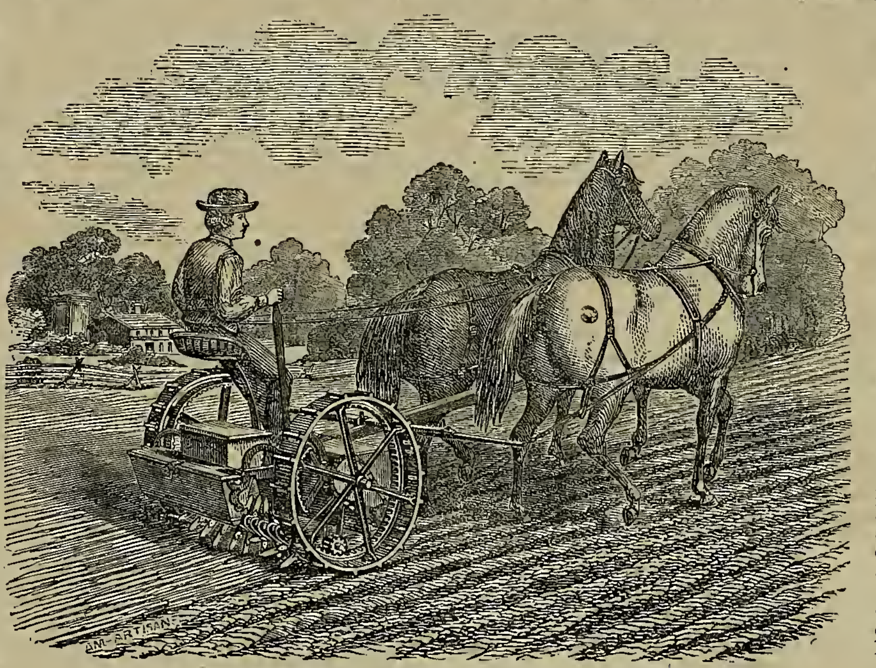
Orange Culture.—Oranges, at present prices, when grown convenient to a market, are susceptible of producing more money to the acre than perhaps any other agricultural product, requiring equal care, which can be raised. Orange trees at ten years of age ought to be able to produce 5,000 oranges each; and as 60 trees can easily be grown on a single acre, it follows that a tract of land in orange trees at mature growth is capable of producing, at half a cent only for each orange, $1,500 to the acre. What crop will do better than that? and how can the crop fail of realizing the price named? Pine apples and bananas, which might be readily produced in the southern portions of the State, will yield quicker returns. They might probably be made to yield equally good returns in three years.

Practical Knowledge in farming is of paramount importance; but the right application of scientific facts and principles has done, and is doing, more to advance agriculture, than all the traditional and empyrical knowledge that could be accumulated to the end of time. Practical and scientific knowledge should go hand in hand on the farm.

Revolving Sulky—Harrow and Seeder.

We present our agricultural readers with an illustration of a device which comes to us with good recommendations. It was invented in Maryland, and has taken a first-class premium and gold medal at the late Agricultural State Fair in that State. It is stated that it has stood thorough working tests with great success, and that it does not easily get out of repair, while it is so simple that it can readily be managed by a boy.

This apparatus answers the purposes both of a harrow and of a seeding machine. It requires no other preparation of the land than that of plowing, and is able to work over from ten to fifteen acres daily. It will work on hilly or level, stony or clean land, being so constructed that there can be no side motion on hill-sides, while wooden pins in the sockets protect the teeth from being injured by rocks or roots. In the front box are carried the fertilizer and grain, and in the rear the grass seed, all of which can be sown collectively or separately, or the revolving harrow can be worked alone, these distinct parts being thrown in or out of gear by means of a foot lever. There is a tool box under the driver's seat. By means of thumb-screws the quantity of fertilizers or seed can be easily regulated; and the harrow can be raised or lowered by means of the lever at the right hand of the driver.



TAVEAU'S REVOLVING SULKY-HARROW AND SEEDER.

The harrow is revolved at a high speed by the gearing in the traction wheels operating on its shaft, and reduces to fine particles the rough clods. A spring-toothed comb, which plays between the harrow teeth, scatters all trash, leaving a smooth even surface. The working of the machine is highly spoken of in several papers.

The inventor of this machine has also patented a sulky gang plow, which may be used to precede his harrow and seeder. He has likewise a steam plow combined with a harrow and seeder, by means of which the ground can be plowed, harrowed and sown at one operation. His steamer unites cable traction with field traction, somewhat after the English plan. The engine is also arranged to perform the functions of a steam road roller or road traction engine, and is furnished with appropriate pullies for driving farm or any other machinery.

The sulky-harrow and seeder was patented in May, 1869, and the steam plow in March, 1870, by Augustus L. Taveau, Chaptico, St. Mary's county, Md., to whom or to R. Sinclair & Co., 62 Light street, Baltimore, Md., application for further information, or for the purchase of State rights, may be made.

The Crops in Alameda and Santa Clara.

My own observations on the hay and grain crops, this season, have reference only to the counties of Alameda and Santa Clara, as I have not been outside of those limits.

Wherever the subsoil is filled with water, as it is on the adobe flats around the bay, and where irrigation and overflow have had effect, the grain looks finely. The adobe flats always produce abundant harvests when the drouth is severest elsewhere; while a command of water for irrigation is an assurance often too little regarded, but most highly prized by the considerate farmer.

There is a range of good grain land among the hills at about 500 feet elevation, where the fog clouds refresh the thirsty plants and cool the condensing soil. In the driest seasons the hovering fogs insure the crops; but in wet seasons there is an injurious surplus of moisture. Below the fog line and above the moist soils of the bay lands light crops may be expected.

This season, throughout a large extent of country, on such lands as depend for moisture upon the fall of rain, unless immediate showers refresh the famishing fields, the coming crops will be either very light or a total failure.

Of course, the time of sowing and manner of cultivating has had its effect. Some of these I will remark: The earliest sown grain generally looks the best, although the cold and frosts have kept it back; but volunteer grain is very short indeed, in some cases not even fit for hay. This may look like a contradiction; but facts are never contradictions when understood. Lands that were plowed deep show the best prospects. And here is another contradiction to the former experience of grain-growers in California. But this can be accounted for very simply. The rains this year have not saturated the subsoil by copious, long-continued soaking storms, as has been the case on this coast, in past years; but it has come down in showers of shorter duration, and has been followed by drying winds that have evaporated the moisture from the surface. Thus the subsoil becomes the reservoir of water for the growing crops which are supplied after the rains cease, by capillary action and the deep-searching pump roots of plants. The subsoil has not received its customary supply, and the growing annuals are left to depend upon the surface supply alone.

Lands that were deeply plowed early in the season, have absorbed and retained more surface water than those that were plowed shallow, or not at all. This will account for the present exception in deep plowing for grain.

But when from any cause the ground is filled with water, and the growing crops are to depend largely or entirely upon the water so collected, unless the supply is unlimited, shallow plowing is the best. And for this reason the portion of soil loosened up by cultivation soon dries out, and is of no use except as a mulching, to protect the moisture in the undisturbed soil beneath from the sun and drying atmosphere.

A shallow protection is, in such case, better for the roots than when the soil dries deeper. If the roots are all below this soil mulching (for on drying it really becomes a mulching), they are not dried up in the disturbed soil, as must happen when rooted in, instead of below, such loosened soil. Besides a greater supply of moisture and a spread of roots in the undersoil nearer the surface—a matter of no small importance—is most surely the result in this, a common case in California.

Where the growing crops are occasionally refreshed, and the surface soils moistened by cooling showers, as in the Eastern States, and where kept wet by irrigation, this shallow plowing would be ruinous. The roots are there encouraged to feed near the surface, while here they search deep for subsistence beneath a parched surface.

An occasional summer fallowing—plowing deeply—will recuperate the soil, and if thoroughly cross-plowed through early summer, the foul weeds may be killed out, that shallow plowing and constant cropping produces.

Last year a plentiful supply of soaking rain gave promise of abundant harvests; but a few foggy mornings, followed by a burning sun, caused the cryptogamic "rust" to attack the wheat fields, and many farms throughout the coast country about the bay suffered the loss of the entire crop. It weakens one's faith in old proverbs when he that sows cannot reap. I was in Sierra Valley last summer when a fury of hail dashed many a field of headed grain to the earth. The next day, at noon, some of the hail still remained unmelted. But failures and calamities, if meekly borne, are never curses—if vigorously surmounted, amount to triumphant good.

If farmers cannot prevent the rust nor the destruction of storms like this, they can, at least, obviate many difficulties now encountered—can follow a more diversified, and, consequently, a surer method of farming, can more intelligently conduct their business, and more economically use their time and husband their resources.

Some of the parties that ruthlessly burned their straw stacks last year will wish them within reach of their stock before the harvest of 1871, if the present drouth continues. Hundreds of herds of stock are starving in this State; thousands of animals will be killed, that a few may live upon the scanty ranges; and yet the majority of grain growers, all over the State, *burn their straw every year*. This is a practice that will be made a crime against the State if there is honesty in the next Legislature to pass such a bill.

A sheltered straw stack, six years old, is better relished by stock than new straw, and is just as nutritious.

When from twenty-five to seventy-five tons of vegetables can be cheaply grown on an acre of land under ordinarily favorable conditions, and when these vegetables, which the farmer may produce, fed with the straw now burned, will keep many head of cattle from starving; will fatten them for the market when beef, from natural pastures is poor, and when no sensible farmer dare deny this statement, is it not time, in the course of events, to do something?

In order that the people may have beef it is not necessary that herders should monopolize half of creation to pasture mustang stock on, any more than it is necessary for a man to sow a thousand acres of grain to make a living by farming. The sooner this country is divided up into farms that can be utilized for homes, and which can be thoroughly, economically and intelligently managed by the prudent husbandman, the owner thereof, the better will it be for all concerned. Every man that can raise anything, can profitably keep stock. Taking into account the expense of money and labor attending stock growing of all sorts, there is more profit in it to the farmer, all over the United States, than in any and all other products. I have read the statement that the hay crop of New England was of more value than the cotton of the South. How much is the straw crop of California worth? Surely nothing unless it is economized—much if converted into animal food and usefulness.

S. H. Herring.

Fort Sumter is being rebuilt.

A Comforting Use of Flowers.

A lady communicates to the *American Agriculturist* the details of an incident, showing how the beautiful though silent language of flowers may be made to speak volumes of tenderness to the bereaved and sorrowing heart. We re-write as follows: A loving mother had lost a little child, and a universal desire was manifested, among her friends, to relieve the mourning family by any possible means of words or deeds. Generally, in such cases, words lose their force, and loving and thoughtful hands are at loss how to best manifest their kindly offices. On this occasion a sympathizing and thoughtful lady had the ground around the grave and the grave itself covered and lined with properly arranged evergreen boughs. Tastily interwoven therewith were innumerable numbers of exquisite flowers, secured to their places singly or in tiny boquets with hidden fastenings. The usually unsightly mound of fresh-turned earth was converted into a beautiful bed of evergreens and flowers. The entire effect of the arrangement was beautiful, appropriate and unique; but who can tell its subduing influence upon the weeping and surprised mourner, as with family and friends she approached the spot, and saw her darling little one laid away, as if to sleep, in that beautiful bed of blooming fragrance. No yawning grave was there; no unsightly sexton approached, with vulgar and cruel spade, to bury in the cold damp ground the form which was sleeping so quietly, so prettily, in its tiny casket. The single symbolic handful of earth dropped softly, by the beloved pastor, fulfilled its purpose far better than the spadeful usually lst fall, heavily and unseemingly, by the unfeeling and unsympathizing assistant, who usually officiates on such occasions. A more appropriate, touching or comforting use of flowers could scarcely be devised.

Flowering of a California Pitcher Plant.

A specimen of this beautiful plant, the *Darlingtonia Californica*, which this State has recently contributed as something new to the world, has recently bloomed in New York. This, the *American Agriculturist* thinks, is the first instance in which this plant has presented a bloom, under cultivation. It flourishes and blooms freely in many parts of this State, especially in Nevada county, around Moore's Flat. It was first discovered, however, near Shasta Peak. It grows in wet, marshy localities; but although it likes wet at the roots, it nevertheless appears to require good drainage. The conditions of its artificial cultivation are not yet perfectly known; hence, although a great number of specimens, both from the roots and seed are growing both in the Atlantic States and Europe, the above is thought to be the first instance in which it has bloomed abroad. So little is known abroad of its habits, and so difficult is its cultivation, that as yet it remains one of those rare floral gems which can be found only in such collections as are under the charge of gardeners of the highest skill in their profession.

We propose, at an early day, to give a pictorial representation of this interesting plant, which, by the way, contributes an undoubtedly new genus, represented, we believe, as yet, by this single species only. Possibly it may have no companion; but from its peculiar character, continue forever apart from all other species in the floral world, as do the cameleopard and the flamingo, in the animal kingdom—forming a genus by itself.

Mignonette.—For the benefit of our lady readers, who take an interest in floriculture, we reproduce from the Agricultural Reports the following extract relative to the above fragrant flower plant:

The mignonette in its native country, Barbary, is a shrub, and not an annual, as with us. It should always be sown in light, sandy soil, as when sown in a stiff soil it loses its fragrance. To obtain the tree mignonette, a vigorous plant from the common kind, sown in April, should be chosen, put into a pot by itself, and all summer the blossom buds to be taken as fast as they appear. In the autumn the lower side shoots must be taken off so as to form the plant into a miniature tree. It may afterward be transplanted into a large pot, with soil formed of sand and turf broken into small pieces. The plant should be kept in a warm room all winter, regularly watered every day, and in the spring the stem will begin to appear woody. The second summer the same treatment should be observed, and the following spring it will have bark on its trunk and be a complete shrub.

Transportation of Eggs.—Now that the means of intercommunication between the various parts of the coast are being increased and improved, and thus farmers are enabled to bring more and more of their productions into the market, it is becoming more and more necessary to have improved methods of packing the transported articles. We have been shown some boxes for eggs which are said to serve their purpose excellently well, and we saw some eggs from Oregon which had lately arrived in them in very good condition. The boxes are the Stevens Bros. patent, and are to be seen at 210 Clay street. They are said to be coming into quite general use, and to possess several advantages beside that of keeping the egg sound and good. Just thirty dozen eggs can be put into one box; and hence, while there is no necessity of counting (and this trouble can be saved, as a glance will show whether the proper number are in the package), it also avoids the possibility of dispute on the point between farmer and commission merchant; for each egg has a separate compartment, and if every compartment is filled, there are no more or no less than thirty dozen in a box. Messrs. John Gray & Co., produce and commission merchants, No. 210 Clay street, are willing to send to farmers, who deal with them, these boxes without charge. They do so because they, themselves, as well as the farmers, are gainers thereby, saving in time and trouble besides in the breakage and loss of eggs.

Liquid Grafting Wax.—This is a substance which is often very convenient and necessary for use in fruit orchard and vineyard, The *Country Gentleman* gives the following receipt for making it: Melt one pound resin gently, then add one ounce of best tallow; stir it well, take it from the fire, cool off a little, then mix with it one table spoonful of spirits of turpentine, and add seven ounces of alcohol, 95 per cent. proof; this will cool it down so rapidly that it will be necessary to put it over the fire again, stirring it constantly, taking care that it does not inflame; remove from the fire as soon as the lump begins to melt again, and continue stirring until thoroughly mixed. It will appear like strained honey. After setting the scions, apply a thin coating with a small brush; the wax will then harden, and is impervious to air and water. Use a kettle large enough, so that it will not foam over when you put in the alcohol, which should be poured in gradually.

The Sacramento Valley.—There are principalities in Germany where civil government is maintained, and all the pomp of a court kept up on a much smaller extent of territory than the Sacramento Valley. The inhabitants of New England can with difficulty conceive of a valley forty miles wide. The dwellers by the Mohawk and the Shenandoah can have just as little comprehension of it. The valleys of the Rhine and the Rhone are insignificant in point of territory when compared with it. And we have just as little idea of the cultivation of their valleys as they have of the extent of ours. Can we not learn a lesson of each other? *Our* lesson is that the most magnificent natural advantages are nothing unless we improve them. *Their* lesson is not to remain clinging to the scanty acres of Europe, but to take up their march for the New World.—*George Barstow, before the Chico Agricultural Society.*

What I Know of Farming—No. 17.

Commercial Fertilizers—Gypsum.

Prices vary so widely in different localities that no fertilizer can be pronounced everywhere cheapest or best worth buying; and yet I doubt that there is a rood of our country's surface in fit condition to be cultivated to which gypsum (plaster of paris) might not be applied with profit. Where it costs $10 or over per ton, I would apply it sparingly—say, one bushel per acre—while I judge three bushels per acre none too much in regions where it may be bought much cheaper. Even the poor man who has but one cow should buy a barrel of it, and dust his stable therewith after cleaning it each day. He who has a stock of cattle should never be without it, and should freely use it, alike in stable and yard, to keep down the noisome odors, and thus retain the volatile elements of the manure. Every meadow, every pasture, should be sown with it at least triennially; where it is abundant and cheap, as in Central New York, I would apply it each year, unless careful observation should satisfy me that it no longer subserved a good purpose.

As to the *time* of application, while I judge any season will do, my present impression is that it will do most good if applied when the summer is hottest and the ground driest. If, for instance, you close your haying in mid-summer, having been hurried by the rapid ripening of the grass, and find your meadows baked and cracked by the intense heat, I reckon that you may proceed to dust your meadows with gypsum with a moral certainty that none of it will be wasted. So if your corn and other fall crops are suffering from and are likely to be stunted by drouth, I advise the application of gypsum broadcast, as evenly as may be and as bounteously as its price and your means will allow. I do not believe it so well to apply it specially to the growing stalks, a spoonfull or so per hill; and I doubt that it is ever judicious to plant it *in* the hill with the seed. The readiest and quickest mode of application is also, I believe the best.

How Gypsum Impels and Invigorates

vegetable growth, I do not pretend to know; but that it *does* so was demonstrated by Nature long before man took the hint that she freely gave. The city of Paris and a considerable adjacent district rests on a bed of gypsum, ranging from five to twenty feet below the surface, and considerable disintegrated in its upper portion by the action of the water. This region produces wheat most luxuriantly, and I presume has done so from time immemorial. At length, it crawled through the hair of the tillers of this soil that the substance which did so much good fortuitously, and (as it were) because it could not do otherwise, might do still more if applied to the soil, with deliberate intent to test its value as a fertilizer. The result, we all understand.

Gypsum is a chemical compound of sulphur and lime—so much is agreed; and the theory of chemists has been that, as the winds pass over a surface sown with it, the ammonia which has been exhaled by a thousand barn-yards, bogs, etc., having a stronger affinity for sulphur than lime has, dissolves the gypsum, combines with the sulphur, forming a sulphate of ammonia, and leaves the lime to get on as it may. I accept this theory, having no reason to distrust it; and knowing that sulphate of ammonia is a powerful stimulant of vegetable growth (as any one may be assured by buying a little of it from some druggist and making the necessary application), I can readily see how the desired result *might* in this way be produced. For our purpose, however, let us suffice that *it is* produced, of which almost any one may be convinced by sowing with gypsum and passing by alternate strips or belts of the same clover-field. I suspect that not many fertilizers repay their cost out of the first crop; but I account gypsum one of them; and I submit that no farmer can afford not to try it. That its good effect is diminished by many and frequent applications, is highly probable; but there is no hill or slope to which gypsum has never yet been applied which ought not to make its acquaintance this very year. I am confident that there are pastures which might be made to increase their yield of grass one-third by a moderate dressing of it.

I have heard Andrew B. Dickinson, late of Steuben county, and one of the best unscientific, unlearned farmers ever produced by our State, maintain that he cannot only enrich his own farm but impoverish his neighbors' by the free use of gypsum on his woodless hills. The chemist's explanation of this effect is above indicated. The plastered land attracts and absorbs not only its own fair proportion of the breeze-borne ammonia, but much that, if the equilibrium had not been disturbed by such application, would have been deposited on the adjacent hills. As Mr. D. makes not the smallest pretensions to science, the coincidence between his *dictum* and the chemists' theory is noteworthy.

Now that our country is completely gridironed with canals and railroads, bringing whatever has a mercantile value very near every one's door, I suggest that no township should go without gypsum. Five dollars will buy at least two barrels of it almost anywhere; and to barrels may be sown over five or six acres. Let it be sown so that its effect (or non-effect) may be palpable; give it a fair, careful trial, and await the result. If it seems to subserve no good purpose, be not too swift to enter up judgment, but buy two barrels more, vary your time and method of application, and try again. If the result be still null, let it be given up that gypsum is not the fertilizer needed just there—that some ill-understood peculiarity of the soil or climate renders it there ineffective. Then let its use be there abandoned; but it will still remain true that, in most localities and in countless instances, gypsum has been fully proved one of the best and cheapest fertilizers known to mankind.—*Horace Greeley.*

Sulphur for Grape Mildew.—The vineyards of France seem, to a great extent, to have recovered from the "odium," as it is called there, which at one time threatened to nearly ruin the vine in some of the departments. The remedy applied was sulphur, as used here. The "odium" is a species of the mildew, and if not identical with that which attacks the grapes of this country, is certainly very similar to it, and of the same cryptogamous nature.

In the application of the sulphur, the De Verges bellows is the implement used there, in which a pound of sulphur is placed at a time. Much practice is required to eject the sulphur skillfully, so as to cover with the dust the entire surface of the stems and leaves. Application is made then in the same manner as suggested by our correspondent two weeks ago;—first, at a season just preceding bloom; second, just following the last bloom; third, when the fruit is two-thirds formed.

To Neutralize the Acid of Fruit in Cooking.—The acid in fruit pies may be neutralized by adding to each as much carbonate of soda as will cover a 25-cent piece. This simple precaution, which does not affect the flavor of the fruit or impair its healthiness, saves much sugar, otherwise needed to render the fruit palatable.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, May 12, 1870.

Flour, Extra, ⅌ bbl	$5 50	@$5 00
Do. Superfine	4 50	@ 6 00
Corn Meal, ⅌ 100 ℔s	2 00	@ 2 25
Wheat, ⅌ 100 ℔s	1 50	@ 1 90
Oats, ⅌ 100 ℔s	1 50	@ 1 80
Barley, ⅌ 100 ℔s	1 25	@ 1 55
Beans, ⅌ 100 ℔s	2 50	@ 3 50
Potatoes, ⅌ 100 ℔s	75	@ 1 50
Hay, ⅌ ton	12 00	@20 00
Live Oak Wood, ⅌ cord	9 00	@14 00
Beef, extra, dressed, ⅌ ℔	7	@ 12½
Sheep, on foot	2 50	@ 3
Hogs, on foot, ⅌ ℔	5	@ 9
Hogs, dressed, ⅌ ℔	8	@ 8½
GROCERIES, ETC.		
Sugar, crushed, ⅌ ℔	12½	@ 13
Do. Hawaiian	8	@ 10½
Coffee, Costa Rica, ⅌ ℔	—	@ 19
Do. Rio	—	@ 18½
Tea, Japan, ⅌ ℔	75	@$1 00
Do. Green	60	@ 1 25
Hawaiian Rice, ⅌ ℔	8	@ .9
China Rice, ⅌ ℔	6½	@ 7
Coal Oil, ⅌ gallon	40	@ 42½
Candles, ⅌ ℔	15	@ 18
Overland Butter	20	@ 30
Ranch Butter, ⅌ ℔	20	@ 28
Isthmus Butter, ⅌ ℔	25	@ 28
Cheese, California, ⅌ ℔	12½	@ 18
Eggs, ⅌ dozen	22½	@ 30
Lard, ⅌ ℔	15	@ 16
Ham and Bacon, ⅌ ℔	15	@ 16
Shoulders, ⅌ ℔	9	@ 10

Retail Prices.

Butter, California, fresh, ⅌ ℔	35	@ —
do. pickled, ⅌ ℔	—	@ —
do. Oregon, ⅌ ℔	—	@ —
Cheese, ⅌ ℔	20	@ 25
Honey, ⅌ ℔	25	@ 30
Eggs, ⅌ dozen	40	@ —
Lard, ⅌ ℔	18	@ 20
Hams and Bacon, ⅌ ℔	22	@ 25
Cranberries, ⅌ gallon	00	@ 1 23
Potatoes, ⅌ ℔	2	@ 3
Potatoes, Sweet, ⅌ ℔	—	@ 2
Tomatoes, ⅌ ℔	—	@ —
Onions, ⅌ ℔	3	@ 5
Apples, No. 1, ⅌ ℔	4	@ 5
Pears, Table, ⅌ ℔	5	@
Plums, dried, ⅌ ℔	10	@ 12
Peaches, dried, ⅌ ℔	10	@ 15
Oranges, ⅌ dozen	50	@ 75
Lemons, ⅌ dozen	—	@ 1 00
Chickens, apiece	75	@ 1 00
Turkeys, ⅌ ℔	—	@ 25
Soap, Pale and C. O.	10	@ 12
Soap, Castile, ⅌ ℔	18	@ 20

Scientific Press.

W. B. EWER............................SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance	$4 00
One copy, six months, in advance	2 50
Delivered by city carriers, per month	50

Rates of Advertising.

One square (ten lines agate), one week	$ 1 00
One square, one month	3 00
One column, one month	40 00
One column, one year	400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, May 14, 1870.

Table of Contents.

Gas Works for Country Residences—Ill........321
General Mining Revival.321
Ophthalmic Disease....328
Full List of Patents....328
Notes of Recent Patents.328
Artificial Propagation of Fish—Ill..............329
Mining in Humboldt Co.322
El Dorado Co. Sketches.322
Law for the Preservation of Fish..................322
The Law of Circulation—Ill...................332
The Root Blower........328
S. F. Stock Market......325
S. F. Metal Market..... 334
S. F. Market Report....327
New York Metal Market.335
S. F. Shareholders' Directory...................325
FARMING AND GARDENING.—Trees and Temperature; Revolving Sulky-Harrow and Seeder; The Crops in Alameda and Santa Clara; Orange Culture; Comforting Use of Flowers; Flowering of a California Pitcher Plant; Transportation of Eggs; What I Know of Farming; Sulphur for Grape Mildew, etc..........326
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Idaho, Colorado, Nevada, Oregon, Utah, New Mexico and Montana...................324
MECHANICAL PROGRESS — Device for Preventing Boiler Explosions; Compounding Single Cylinder Beam Engines; Cast Malleable Iron; Wooden Water Pipes, etc......323
SCIENTIFIC PROGRESS — The Electric Light for Photo-micrography; The Ohio Mounds; Possible Relations of Similar Natural and Artificial Substances; Size of Atoms; Jargonium, etc.......323

Notices to Correspondents.

A. J. B., Treasure City.—Bismuth is used principally for forming alloys with other metals, and is consumed, probably, in far greater quantities in Birmingham, England, than in any other place, although used in considerable amounts at the East, in the manufacture of the so-called Brittania ware. It is also used in casting type on account of its alloys filling the molds (instead of shrinking) on cooling, and it enters into the composition of various other alloys, which, in general, it renders more fusible. Its oxide is used in certain cosmetics and medical preparations. Still, the total amount produced is comparatively small, and its price is often, to a great extent, speculative, depending on the amount in the market at any time. It has been as high as $10 and as low as 50 cents per pound, and is worth at the East about $3.50, just at present, as nearly as we can find out.

WHAT A BLIND MAN SAW.—San Francisco has been fortunate this week in the opportunity of hearing Rev. W. H. Milburn, the eloquent blind preacher. His lectures on "What a blind man saw in England and in Paris" were most eloquently delivered, and abounded in most thrilling as well as most humorous passages. It is seldom that we have the chance to hear such lectures, and exceedingly seldom that they are properly appreciated as these have been. We advise all our readers to hear the "old man eloquent."

* * *

ELECTRO-SILVERED PLATES.—We have been shown a private letter from the superintendent of the Crescent Mills, Indian Valley, Plumas Co., to the superintendent of the Kanaka mine. One paragraph reads as follows:

"I am pleased to inform you that I have been experimenting with electro-silvered plates for some weeks and the result of our operations with them leads me to anticipate a new era in the art of saving fine quartz-gold, as I am satisfied that much amalgam can be saved by their use, which would otherwise be lost."

* * *

THE first quartz mill for the San Diego mines, which was sent per steamer Oriflamme, is one of Wilson's steam stamp mills. This is to be put up in the Julian District for working on custom ore, and will be in operation within two weeks. It is calculated to crush 25 tons daily.

Ophthalmic Disease.

To chronicle progress is a pleasant duty; and especially pleasant is it to chronicle progress in those arts which directly relate to the relief and prevention of human suffering.

We passed a most agreeable hour the other day at the rooms of Dr. David E. Dudley, an oculist who has recently come among us. We were exceedingly interested in the examination of the Doctor's instruments, models, books and plates, and his explanatory remarks thereon. In this hey-day of quacks, it is refreshing to meet with a medical specialist who does not come under that head. We fully believe that such a thing is possible, despite the prejudice against specialists, which is so general among the members of the medical and surgical profession. It seems to us, by the way, that if any branch of that profession should be set apart as a specialty, it is that which relates to diseases of the eye; not merely because it is in itself a study for a lifetime, but also because it is only by constant and exclusive practice that the delicacy of touch so necessary to one who handles that most delicate of organs can be acquired and retained.

Few persons outside of the medical ranks,—and we fear we might add, few *inside*,—really know what it is to be an oculist. The ophthalmoscope of Helmholtz created a revolution in ophthalmic practice. Before the invention of that instrument, the interior of the eye was a sealed book. The physician was literally looking in the dark, when he attempted to explore it. The sunlight, the aid of which he sought, was shut off in a great measure from the spot where it was most needed, by the necessary interposition of his own head. But now, the little concave mirror of the ophthalmoscope reflects the light from a lamp behind and a little on one side of the patient, directly into the very depths of the organ; displaying and defining every part with all the distinctness of the letters upon a printed page. The observer, who inspects the picture through a small hole in the center of the mirror, can thus acquaint himself with the condition of the interior, as exactly as with that of the exterior, of the eye. By patient study of every little elevation, every little depression, and every peculiarity of color, both in the healthy eye and in the eye under all conditions of disease, he learns to attach to each appearance its meaning; and then, if already well grounded in the principles of general physiology and pathology, he has taken the first step in an oculist's preparatory studies. And the first step only. The reading is yet to be done, which shall enable him to avoid the stumbling-blocks of preceding practitioners; the hand is yet to be trained, which shall coolly and steadily make the critical knife-thrust, where a bungler's awkward slip might "hurl the spirit from its throne of light." Add to this, the ever-changing forms of disease; the complications produced by the presence of other disorders; and especially the fact, just beginning to be recognized, that serious constitutional disease may, much more often than it has been supposed, be prematurely detectable in the more delicate and therefore more susceptible tissues of the eye,—and thereby often furnish a hint for the treatment of the eye itself;—and one may perceive that ophthalmic science is in fact still in its infancy, and hence that the oculist's profession is, as we have said, a lifetime study.

Our readers will not confound the *oculist*, who has gone through these steps, with the *eye-doctor* of the period. The latter belongs to a different school. His system of treatment is different;—so is its result. For example:—the oculist's practiced eye detects in the eye of a patient who presents himself, the deep-seated sign of incipient disorganization, which, if neglected, will soon be irreparable. Not an hour is to be lost; an immediate operation is necessary; he promptly performs it, and the eye is saved. A similar case presents itself to the eye-doctor. Having no notion whatever of the real state of things, and consequently feeling no alarm, he gracefully attitudinizes in front of the patient,—glibly gabbling "glittering generalities" the while,—and gravely proceeds to anoint his eyelids with some perfumed and tinted salve. Meantime the golden moment for action slips by, the mischief is done, the disorganization is complete, and the victim's eyesight is hopelessly lost. This, we may remark, is not wholly a fancy sketch. We, however, also remark, and gladly, that so far as we are aware, nothing of the kind has ever occurred on *this* side the Continent.

Among the advances of late years in ophthalmic surgery, may be mentioned the operation for cataract. This, as most of our readers doubtless know, is an opacity of the crystalline lens; which thus becomes a mechanical obstruction to the passage of light on its way to the retina. Formerly the operation generally performed for its cure was that of "couching,"—which consisted in thrusting a needle into the lens, and depressing it below the line of vision; leaving it there as a foreign body to irritate,—perhaps even to the point of destructive inflammation. This crude and unscientific operation is no longer thought of by the enlightened oculist. The lens is now removed entirely. A very important difference between the two operations is that one almost always failed, while the other, as now performed, almost always succeeds. New instruments now make surgery possible, which, without such aid, would have been entirely out of the question.

Dr. Dudley, although as we have said, a new-comer, is by no means a new practitioner. A New Englander, and educated in the United States, he went early to South America. After a number of years' professional experience in the different cities of that continent, he returned home to perfect himself in the advances made during his absence. A three-years' European tour followed, during which he visited the principal oculists and instrument makers both in England and on the Continent. While in Paris he caused to be made, under his own supervision, the magnificent case of instruments which he showed us; unquestionably the finest that has ever found its way to the Pacific Coast. Every one of its many instruments is exquisitely finished, and the whole is a perfect marvel of compactness and completeness. Many of the improvements were designed by Dr. D. himself. And here we may allude to a most ingenious and important improvement made by him upon what may be considered the chief instrument of all,—the ophthalmoscope. As invented by Helmholtz, it was monocular. A French oculist subsequently made it binocular,—bringing into use both eyes of the observer at once; a great advance, as may readily be seen. The two eye-pieces were made to slide apart by hand, to fit the space between the eyes in different observers. Dr. Dudley, besides making other minor improvements, has put the perfecting touch upon the instrument, by attaching to these eye-pieces a small rod, so arranged, with a right-hand screw upon one end, and a left-hand screw upon the other, that by a single touch of its milled head, both eye-pieces are moved equally and in opposite directions to or from the center. The instrument can thus be adjusted at will with the utmost exactness, and without removing it from the eye.

We must not omit to mention,—although perhaps it belongs to the opticians, rather than the oculist's, part of the subject,—the advance that has been made in the matter of selecting glasses for the various grades of abnormal sight. This has been little better than guess-work; it is now reduced to system. Short-sighted and long-sighted persons, and persons with certain peculiarities of distorted vision, of which perhaps they themselves were never conscious until discovered by a chance comparison of notes with others, have often no conception of the comfort they may derive from properly adapted glasses. And for many reasons it is desirable that the oculist should make the examination and tests of the eyes, and *prescribe* the exact number and form of the glasses; leaving nothing to the optician but the task of preparing them. Dr. D. showed us a complete set of apparatus for the purpose of making such tests.

The manner of Dr. Dudley is marked by affability, by a modesty which itself indicates merit, and withal by a peculiar gentleness which especially fits him for this kind of practice. We take pleasure in introducing him to our readers as a gentleman who, we feel sure, is destined to take a high position.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING MAY 3D.

ORE SEPARATOR.—Thomas Batss, Pinos Altos, New Mexico Territory.

APPARATUS FOR BLASTING LOGS.—Matthew Cooke, Sacramento City, Cal. Antedated April 27, 1870.

HORSESHOE.—George Copeland, Denver, Colorado Territory.

MAINSPRING BARREL ATTACHMENT FOR WATCHES.—Ola L. Eliason, Salt Lake City, Utah Territory.

BOILER FURNACE.—John A. T. Overend, San Francisco. Antedated April 23, 1870.

CARRIAGE WHEEL HUB.—Almond F. Cooper, San Francisco.

PROPELLING WHEEL.—A. C. Lond, San Francisco.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

* * *

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

METALLIC PACKING FOR STATIONARY JOINTS.—H. T. Lee, Marysville, Cal.—Mr. Lee has obtained several patents for similar purposes, and this device is, in fact, an improvement on one granted him in June, 1869, and can be made at a less cost. In rendering steam or water tight any stationary joint, a suitable wire, rod, bar or strip of copper or other malleable metal is given an oval or other shape which will produce two thin sharp edges on opposite sides. This is bent so as to fit the outer edge of the surface to be packed, and the edges are united with solder or other brazing materials. A second encircling band is formed of the same material to fit the inner edge of the surface. In order to protect any bolt and to prevent steam from escaping beside a loosely fitting one, rings of the same material are placed around such bolts and between the two bands above spoken of, to which they are soldered. This packing frame having been properly placed on the surface of the steam chest, the cover is placed on it and pressed down firmly by turning the nuts of the bolts. By this pressure the edges of the wires or bands will be compressed, or rather upset, so as to fit each surface tightly, filling any depressions or unevenness in either part. Such a packing can be cheaply made and put upon sale, whereas the ordinary kinds have to be fitted expressly for the particular surface to which they are to be applied.

PRUNING AND GRASPING SHEARS.—C. L. Nichols and F. A. Edler, Folsom, Cal. This device is so constructed that it will not only cut the limb, branch or twig to be severed, but also grasp it, and may be employed not only for pruning, but also for picking or gathering fruit. The blade or cutting jaw is oval in shape, with one sharp edge. The opposite or closing jaw has an equal amount of curve, the two vibrating portions of the shears being united in such a manner that, in closing them, a gap or opening of uniform width will result at every point between the two, and thus the branch or twig will be cut square off, without being forced by a shear motion towards the points. The spring for grasping the severed twig is in the form of a C-spring and is secured to the blade near the back, its sweep bringing it around to the proper position near the cutting point for grasping whatever may be severed by the knife. The operating handles are formed in one of the ordinary styles, but the springs for keeping them separate slide over and past one another in opening and closing the shears, to facilitate which, their ends are curved in opposite directions. The handles have also an ordinary spring catch to keep them closed when not in use.

* * *

CRUCIBLES.—American black lead crucibles, from the manufactory of J. H. Gautier & Co., are to be obtained from E. de Sahla, commission merchant, 310 Davis street, S. F. These have been tested at several places in the city and are very highly spoken of.

Artificial Propagation of Fish.

[CONCLUDED FROM LAST WEEK.]

Artificial Spawning Beds.

While artificial fecundation, says the Report of the Department of Agriculture (of which, with a number of other works,* we have made liberal use), apparently fulfils the chief requisites for the propagation of some fishes, such as the salmonids, there are others for which it cannot be employed with equal advantage. Nature has, in such cases, been assisted by the preparation of places suitable for the deposit of the ova and milt of the fishes which it is desired to propagate, and by the preparation for each of beds which will be instinctively resorted to by them. This practice has been especially employed in France. M. E. Blanchard, professor at the Museum of Naturel History, thus describes an artificial spawning bed, illustrated in Fig. 5:

"For carp, bream, roach, etc., which attach their ova, agglutinated together by a viscid matter, to aquatic plants, stones, or any bodies to which their eggs can be fixed, artificial spawning beds are especially advantageous. Such are easily constructed. A framework of sticks or laths should be made, and to this boughs, furze and aquatic plants should be fastened by cords, so as to form irregular structures. By taking hoops for frameworks a circular form may easily be obtained. The form and size vary according to the character or size of the body of water in which they are to be immersed. They should be held to the bottom by stones and fastened to a stake or post on the bank. It will be readily understood that each bed will be especially serviceable in those streams and canals which are so clear as to be devoid of any natural spawning beds. For the salmonids, which spawn on a gravelly bottom, and whose ova remain free, it is only requisite to cover in certain places the beds of rather shallow and rapid streams, near the bank, with a thick layer of gravel or pebbles, and to prepare slight excavations or furrows, perhaps to raise small heaps of pebbles at the edge of these furrows. By such means trout especially would be attracted, and would spawn in places which they otherwise would not frequent, and where it would be convenient to keep them."

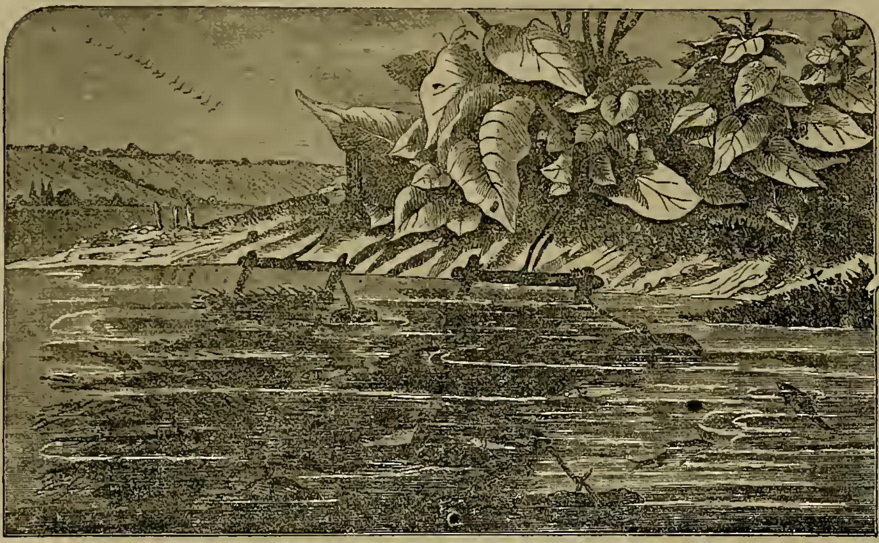


Fig. 5—Artificial Spawning Bed.

Preservation of the Young Fish.

It takes but a few moments for the fecundation of the eggs. By close observation those which are vivified can be distinguished from the barren ones, and in a few days all doubt will be removed. The barren eggs become snow white, while the others show dark specks or lines, which gradually develop into the form of a young fish. The dead eggs must be removed and no sediment of any kind be allowed to collect in the boxes.

When the fish are hatched—which varies, according to the kind of fish and the temperature, from a few days to two months—the water should be raised in the boxes, by damming up the lower ends, and if the box is small, some at least should be put in a stream or pond where they will be protected from all foes. As long as the huge umbilical bladder remains the fish are quiet, and, feeding on its contents, need no other food. After this they must be fed. Twice or thrice a day a little clotted milk, rubbed very fine in water, is a good article. As they grow in size they will take more and larger morsels. Great care must be taken not to give more than is devoured, else the matter on putrifying will sicken and kill the fry.

The food question is important as an economical matter. Raising fish in limited numbers or in the early stages of growth is a simple affair, but to rear large numbers for the table demands close management. Liver chopped fine is very generally given. Beef reduced to small particles is said to be even better, especially if cooked. Fish is sometimes given. Live minnows, small crustacea, and the like, are especially good, and the spawn of the more worthless kinds, as well as the small fry, might easily be obtained in the artificial way with but little trouble. In these fish ponds by introducing aquatic plants, mosses, etc., there will be supplied not only a large amount of food, but also the necessary chemical elements which are being continually exhausted by the fish.

Mr. Norris, in his book on "American Fish Culture," recommends, as a cheap and good way, the breeding of maggots, or the larvæ of the green fly, in refuse meats. A large amount of food can thus be easily obtained, by using any simple device for catching the maggots. He recommends also curds. In regard to the quantity required, each person will soon determine by experiment. Fish, like some other animals, can easily be educated to gorge themselves. Mr. Ainsworth gives about a quart of beef's liver, chopped fine, for each meal for his 1,500 trout, using about two livers weekly. In calculating the expenses of fish culture, Mr. N. gives the following figures, which are of value in this connection:

Pond No. 1—10,000 yearlings	3 qts. curds per day
Pond No. 2—8,000 2-year olds	6 qts. curds per day
Pond No. 3—7,000 3-year olds	12 qts. curds per day
Total..25,000 trout	21 qts.

The Fish Ponds.

The young fish must soon be removed to ponds, of which it is well, if not necessary, to have three. These ponds should be of a shape which will permit the proprietor to watch and have under control all parts, and an oblong form may be recommended. The pond for the youngest fry, say up to the age of 1½ years, should be rather shallow, and may well vary from six inches to two feet in depth. The bottom should be covered with fine gravel. Instead of a pond a trough may be used, if circumstances render it preferable. In a trough twenty-four feet long, two feet wide, and eighteen inches deep, Mr. O. Desh, of New York, has kept 800 to 1,200 trout. A second pond, deeper and larger, can contain older fish, and the third, still larger and deeper, the oldest. These ponds can be connected by troughs, say, for trout, five or six inches deep, two to three feet wide, and twenty or more feet long, with gravel bottom and with screens of painted wire at the outlets. If the bottom of the ponds are covered with stones of rather large size, the fish will seek to spawn in the troughs, and can readily be captured in them at the proper times.

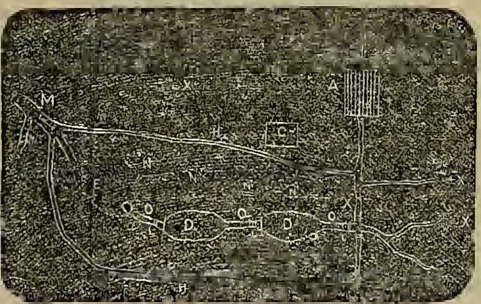


Fig. 6—West Barnstable Fish Establishment.

It is better not to spread out a small amount of water over a large area, but rather to keep it confined in smaller limits, so as to be sure of a current of running water. Some shade should be provided. The objection against trees is, that the leaves, etc., fall into the water and obstruct the screens. Some writers recommend floating boards for this purpose.

According to accounts, Mr. Seth Green, the New York pisciculturist, has some 9,000 trout in a pond seventy-five feet long, twelve feet wide, and five feet deep. Mr. Norris, in his book, bases some calculations on the rate of ten trout to one cubic foot of water. We give these figures merely for their bearing on the determination of the size of a fish pond.

Transportation of Eggs.

Many of the fish establishments sell large quantities of the eggs, which can be transported long distances and used to stock exhausted streams. Various methods have been proposed, which are more or less simple. One plan, that of Mr. Lymen, Commissioner of Massachusetts, appears to be a good one. Take a tin box, the size and shape of a pint measure, collect also a good handful of peat moss, which has been well washed, and lay a stratum of this, wet, on the bottom of the box, covering with a fold of the gauze called "mosquito bar." On this spread a single layer of eggs and cover these with a second fold of the gauze. Then put more moss and another layer of eggs in like manner, and thus continue until the box is full. Put on a cover with a few holes in it, pack the tin in a case of sawdust, and the eggs are good for a month without opening. The eggs must be taken quite early; a good time is as soon as the specks appear on it, as they develop almost as much in the wet moss as in water. By some such apparatus spawn can be transported long distances.

American Establishments.

Of late years, the interest in this subject has largely increased in the United States, and now there are in New England and the Middle States some thirty or forty establishments for the cultivation of fish, principally trout, with a view to profit. One establishment in New York is said to hatch several hundred thousand trout annually, and to have realized as much as $10,000 profit in a single year, the profit arising mainly, however, from the sale of young fish, and of fecundated eggs. We have already taken up so much space that we have no room to describe these, but simply give our readers a diagram showing the West Barnstable (Mass.) establishment.

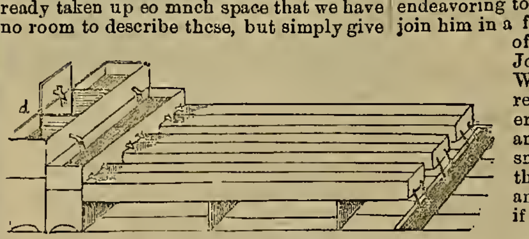


Fig. 7—Hatching Troughs.

The place selected was a swampy piece of ground at the head of a brook, M, of considerable size, fed by half a dozen or more springs, X. The supply of water is about eighteen square inches, and is obtained by sinking wooden tanks in the soft mud, at the points where the springs come to the surface, until the substratum of sand was reached, at an average depth of five feet. The two ponds, D, D, are 40 feet long, 20 feet wide, and from 3 to 4½ feet deep. It is calculated that one will sustain over 2,000 fish weighing about three pounds each, while in the other, three times that number of smaller ones can be kept. The ponds are stoned, and on the bottom are placed flat rocks, so that the trout will not spawn in them, but take to the ways, O, O, O, for this purpose. These ways are plank troughs 50x3½ feet, and filled to the depth of six inches with coarse gravel, over which there are six inches of water flowing with a slight current. The hatching house, A, is 20x12 feet, and is supplied with the amount of water which flows with a moderate pressure through two faucets, one inch in diameter. The hatching troughs, six in number, are of wood lined with slate, and are 16 feet long, 15 inches wide and 8 inches deep. The bottom is covered with an inch of moderately fine gravel, covered with an inch of flowing water. Fig. 7 gives a representation of these hatching boxes. The water flows into the upper trough shown, where it passes through flannel strainers, *d*, thence into the next or distributing trough, and thence through faucets into the hatching troughs. The fish are fed daily with live minnows and shrimps, or, when these cannot be obtained, with chopped liver, the roe of codfish, etc. The establishment was begun in the spring of 1868, and the next year hatched some 60,000 trout and 2,000 salmon ova. In the cut, H, H, H, are drains, and C, E, N, N, N, N, proposed ponds.

Experiments on a Small Scale.

A family supply of fish may be attained at a small expense and little trouble by any one owning a spring of constantly flowing water. A spring supplying an inch of water, which can be collected in a sheltered pond, will suffice for a few specimens and serve to amuse and instruct the amateur; one supplying two inches will sustain a preserve large enough for profit as well as pleasure, although a bigger stream is desirable for experiments on a large scale. Simple contrivances will answer. By placing below the spring a box four feet long and a foot wide, so that the water will flow through it, one can have a hatching box sufficient for the purpose. The upper end is closed by stretching across pieces of flannel, so as to filter the water properly, the lower end is closed by a screen of painted wire, on the bottom is laid gravel, the size of peas, about an inch deep, and for protection against dirt and foes there is placed on top a movable cover. On the gravel lay a layer of eggs, and examine daily, removing the dead ones and any dirt. One will thus have soon a promising young family, which can be removed to a small reservoir, constructed near by, and by enlarging the accommodations as required, any one can soon have quite a fish preserve. For food, one can use refuse scraps of meat, insects, caterpillars, clotted milk, hasty pudding boiled with milk, small minnows, etc. Such a contrivance is within the means of almost any one in the country.

Conclusion.

One or two experiments have been tried in this State in this matter of fish culture. On the Pacheco road, leading out from Oakland, is the "fish ranch" of Mr. M. Disnay, who has made one or two attempts to raise fish. He has, however, been crippled by want of sufficient capital, and freshets have destroyed his young fish once or twice. Still enough has been accomplished to convince him of the profitableness of the thing, and he is, we believe, endeavoring to get one or two persons to join him in a fresh trial. We have heard of an establishment near San José, but have no particulars. We hope that our article may result in raising a more general interest in the matter, for an establishment on a very small scale even will repay the owner in the way of amusement and instruction, if not otherwise.

The last State Legislature passed an act providing for the preservation and restoration of fish in the waters of California, which we publish on page 322 of this issue. Under this act the Governor has appointed Messrs. B. B. Redding, S. R. Throckmorton and J. D. Farwell as Fish Commissioners, to establish and furnish fish-breeding depots upon such waters as may in their judgment be the most proper. We hope they may be well seconded by the people in their efforts; and as they are authorized to distribute ova to persons who will take charge of their culture without expense to the State, a good opportunity is afforded to farmers and others to commence in this pleasant and instructive pursuit. Should the provisions of the act be well carried out, and the people of California appreciate its necessity in time, we shall save many thousands of dollars which older countries have, through neglect of this matter, been obliged to expend. We rejoice in an abundant supply at present, but this should not blind us to the lesson taught by the experience of all other places.

---

*Fish Culture. F. Francis, London; Fish Hatching, F. Buckland, London; Treatise on Artificial Fish Breeding, W. H. Fry, New York; American Fish Culture, Norris; and various papers.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street..................... San Francisco

(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

---

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to 331 Kearny street, west side, between Pine and Bush, San Francisco.
21v18-1y

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.
DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, apposite the Occidental. 2v20-3m

---

DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated

References.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

---

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,
DENTIST.
Office, 313 Bush Street, near Montgomery.

Is a regular graduate, with twenty years experience in practice. 14v20-3m

---

DR. MABON,
ORTHOPÆDIST,
(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Professian at large to be the
MOST EFFICACIOUS INSTRUMENT
Yet invented for the cure of
RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased ta explain the principle of my Truss and modo of treatment.

Office, No. 128 Kearny Street, near Satter,
SAN FRANCISCO. 11v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

T. D. YOUNG,
IMPORTER OF MACHINISTS' TOOLS,
113 and 114 Beale St., San Francisco.
Screw Cutting and Hand Lathes; Planers; Shaping Drilling, and Paten Bolt Cutting Machines. All sizes Scroll and Screw Chucks on hand and for sale cheap.
21v19-6m

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 Clay Street, bet. Kearny and Montgomery, San Francisco. 11v203-m

---

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
16v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. Meerschaums Mounted with Silver. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

H. G. STILLEY,
PLANE MAKER.
Planes of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, Na. 3 Belden Place (near Bush street), below Kearny, San Francisco. 11v20-3m

---

D. BOYLE. JOHN DENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in tho Drug and Spice Line promptly attended to.
Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

---

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

F. SCHOENER,
METAL SPINNER
All kinds of Metal spun to order. Give me a call at No. 10 Stevenson Street, fourth story Pioneer Mills.
14v20-3m

NOTICE.
HYDRAULIC HOSE MANUFACTORY.
Hose made to stand any pressure—from 100 to 300 foot fall. Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

---

California File Manuf'g Co.
437 Brannan Street, bet. Third and Fourth.
W. Wusthoff, L. Kramer, M. Harris, J. Burke.
REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,
At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

---

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

---

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

Metallurgy and Ores.

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street, San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, ta Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralstan, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

---

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
☞ Gold and Silver Ores and Sulphurets baught.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE.......................... Manager.
J. A. MARS.................................. Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

---

FRANCO-ITALIAN MANUFACTORY.
NEW CALIFORNIA
Chocolate and Coffee Steam Mills.
DESCALZO, LASTRETO & CO.,
526 WASHINGTON STREET.
MANUFACTURERS OF
Hygienic Chocolate of Every Variety,
Ne Plus Ultra Ground Coffee,
And sole manufacturers in California of the world renowned Coffee,
"CAFE DES GOURMETS,"
CORCELET PROCESS. 9v20-q

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM
PRINTING ESTABLISHMENT.
Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf

The California Powder Works
No. 314 CALIFORNIA STREET,
SAN FRANCISCO.
Manufacturers and have constantly on hand
SPORTING,
MINING,
And BLASTING
POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the timo of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

M. & B., through agencies in New York and Liverpaol, import direct from Manufacturers, and will always have a desirable assortment. ☞ Can compete in prices with any other dealer. 11v20-3m

---

Carmen Island Salt Works
MANUFACTURE AND OFFER FOR SALE
TABLE, DAIRY, COARSE-FINE,
CARMEN ISLAND ROCK,
AND LIVERPOOL COARSE AND FINE
SALT.
Dealers and Packers supplied in quantities to suit, at the lowest market prices.
MILL, 249 STEWART STREET.
HOLLADAY & BRENHAM, Agents,
11v20-3m 325 Front Street, San Francisco.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business. I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done

M. PRAG,
3v18 ly Stove Store, Na. 125 Clay

THE FIREMAN'S FUND INSURANCE COMPANY.

OFFICE,
S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL	$500,000 00
SURPLUS	267,115 63
TOTAL ASSETS	$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.
13v20-3m

OCCIDENTAL Insurance Company

OF SAN FRANCISCO.

Cash Capital, - - - - - - - $300,000

GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 20v17

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2.500 secured for $6.

HOWARD & HOWE,
General Agents for the Pacific Coast.
No. 338 Montgomery street, corner California, Room 7.

☞Agents Wanted.☜ 14v20-3m

Pacific Bank.

PETER H. BURNETT..........President.
FORD H. ROGERS..........Cashier.

REMOVED

To its new Banking House, northwest corner of Sansome and Pine streets.

O. P. SUTTON, Secretary.
San Francisco, March 30, 1870. 15v20-3m

EDEN DALE COMPANY,

For the Cultivation of

Semi-Tropical Fruits, Silk Culture, Etc.,

ON A TRACT OF

Six Thousand Acres

ADJOINING THE CUCAMONGO RANCH,

ON THE "MUTUAL" PLAN.

☞ Prospectus, Maps, etc., furnished at the office, 344 Montgomery street.
Shares payable in ANNUAL installments. 18v20-1w

San Pascual Plantation,

NEAR LOS ANGELES.

For the Cultivation of Raisins, Semi-Tropical Fruits, etc.

FOUR THOUSAND SHARES AT $50 EACH.

Ten Dollars to be paid at date of subscription, and $5 per year afterwards till paid.
Maps, etc., furnished at the office, 344 Montgomery street. 18v20-1w

---

DR. F. SCHULTZ,

NO. 114 KEARNY STREET,
SAN FRANCISCO.

Office Hours—From 8 to 11 A. M. and from 2 to 6 P. M.

PARTICULAR ATTENTION GIVEN TO

SORE EYES, NEURALGIA,

RUNNING SORES and RHEUMATISM.
16v20-3m

WIESTER & CO.,

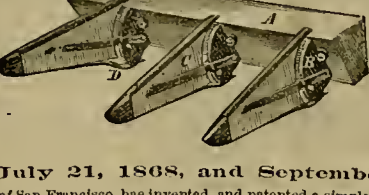
PATENT BROKERS,

No. 314 Bush Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

BONNEY'S IMPROVED GRAIN LIFTERS.



Patented July 21, 1868, and September 28, 1868.

Mr. O. BONNEY, Jr., of San Francisco, has invented and patented a simple and practical device for raising fallen down grain, that it may be secured by the knives of the header. Practical farmers and those whose interests are closely allied with them, can testify to the great amount of grain that cannot be gathered by the heading machines in use, and which is annually lost to themselves and the country.

It has been estimated that with the ordinary Harvester one bushel to the acre, on an average, is annually wasted in the State of California. Taking this estimate, which we think is very low, by the use of BONNEY'S IMPROVED GRAIN LIFTERS there would be annually saved to the people of this State more than 700,000 bushels of wheat, 400,000 bushels of barley, and 40,000 bushels of oats. In the above cut three Lifters are represented. A is the header beam, b an iron shank firmly bolted to the beam, to which the finger or lifter, c, is fastened by means of a joint bolt through the iron and the back part of the shank, b. The lifter has an iron point, and is bound with iron, which makes it very durable. They are smooth, affording no chance for grain to hang and burden a train. e is a strip of spring steel, and draws the point of the finger downward. By means of a stop-bolt through the front part of the shank, b, any angle can be given to the Lifter. They can be varied from one inch to two feet from the ground. By elevating the Lifters, they become a complete substitute for what are termed "trinklers," allowing the knives to run close to the ground. The hinge motion of the Lifters prevents them from injuring the header-beam in passing over rough ground. The entire weight of a full set of eight Lifters is forty-eight pounds. One minute is sufficient time to put on or take off each finger.

We claim that this auxiliary for harvesting is much superior to anything else of the kind ever invented, and are prepared to prove the same in the field. A single Lifter will be sent (C. O. D.) at the retail price—five dollars—to any person who may wish to examine them either with a view to buy territory or to purchase Lifters for his own use. If the Lifter is not satisfactory, it can be returned, and we will refund the money, less express charge on the Lifter. We will furnish Lifters at what they cost to manufacture to any person who buys a County or State Right. They can be made at any blacksmith shop, and allow a handsome profit. For Lifters or Rights address WIESTER & CO., 314 Bush Street, San Francisco.

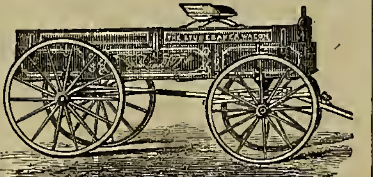
A NEW PAPER FILE AND MUSIC FOLIO.

Two excellent inventions included in one patent. Either can be manufactured at a small cost, and neither has an equal in its line. No more expense for binding music. Each sheet has a complete and durable binding as soon as it is placed in the folio. The California Legislature has endorsed the Paper File by purchasing three hundred and fifty, to take the place of the old style binders. It certainly is the most complete article of the kind ever invented. Whoever buys the right to manufacture and sell this invention will secure a good basis for a profitable business. Only the Territory west of the Rocky Mountains for sale. Parties in the city should call and examine the article. Full particulars furnished on application.

☞We have for sale the Right of A NOVEL AND VALUABLE LITTLE INVENTION for the city of San Francisco. One machine will go with the right. The machine can be attended by a man or small boy, and will yield to the owner a net profit of from two to four dollars per day. The present owner has built up a paying business, but is induced, at the request of friends, to relinquish it and go East. The Right and the Machine will be sold for the small sum of $175. Parties wishing to purchase will call at our office before the fifteenth of this month.

WIESTER & CO.,
314 Bush Street, San Francisco.

The Celebrated Studebaker Wagon,



Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

First.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover.

Second.—They are made by experienced mechanics.

Third.—The lightest running and most durable Wagon in the market.

Fourth.—Their Thimble Skeins never break, while all others do.

Fifth.—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not.

Sixth.—The only Wagon in which the Slope Shoulder Spoke is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying.

Seventh.—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction.

Eighth.—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road.

Ninth.—Last, but not least, Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others. Sold by

COPELAND & DEFREES,
K street, bet. Seventh and Eighth,
SACRAMENTO, CAL.

☞ Pioneer Agents for the Pacific Coast. 15v20-3m

AMES & WOOLVERTON,

General Agents for the Pacific Coast

FOR THE CELEBRATED

STUDEBAKER

Farm and Team Wagons,

Manufactured at South Bend, Indiana.

OFFICE and GENERAL DEPOT

—WITH—

THE KIMBALL MANUFACTURING CO.,
SAN FRANCISCO, CAL.

☞Orders and correspondence solicited. 15v20-3m

Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, Sacramento COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

---

DR. D. E. DUDLEY, OCULIST.

Dr. Dudley, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: No. 12 Montgomery street, opp Lick House. Hours from 10 to 3. ☞Se habla Español. On parle Français.

SOMETHING NEW

— FOR —

MINERS AND FAMILIES.

EAKINS' EGG SUBSTITUTE.

TRADE MARK.

One Can equal to three dozen Eggs,

And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.

Price, 35 Cents per Can.

MANUFACTURED BY ADAMS & CO.,
423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

---

CANVASSERS WANTED for a New Book: THE CHEMICAL FORCES—HEAT, LIGHT, ELECTRICITY; Their Application to Important Modern Inventions and Scientific Discovery, by Thomas Ruggles Pynchon, Professor of Chemistry and the Natural Sciences, Beautifully Illustrated by 259 Engravings and by many entertaining experiments. The work is elegantly printed. All experienced agents should send for descriptive circular and terms. F. DEWING & CO., 542 California street, San Francisco. 19v20-5w

---

WHOLESALE DEALERS IN

DRUGS, CHEMICALS,

Patent Medicines,

DRUGGISTS' SUNDRIES

TILDEN & CO'S

SOLID AND FLUID EXTRACTS,

Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.

SAPOINE

FRAGRANT SAPOINE FOR THE TEETH.

THE GREAT MEDICAL DISCOVERY!
Dr. J. Walker's California

VINEGAR BITTERS.

More than 500,000 Persons

Bear testimony to their wonderful Curative Effects.

WHAT ARE THEY!

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ Send for a Circular. ☜

They are not a vile

FANCY DRINK,

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, free from all alcoholic stimulants. They are the GREAT BLOOD-PURIFIER and LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition. No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

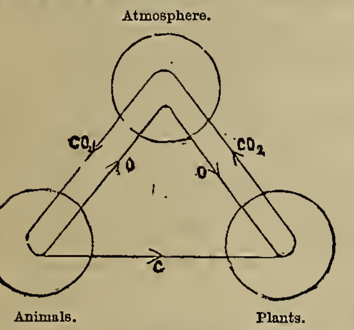
R. H. McDONALD & CO.,
Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞ SOLD BY ALL DRUGGISTS AND DEALERS.

The Law of Circulation.

A most interesting lecture was delivered last Saturday evening by Prof. J. LeConte, of the State University, at the Mechanics' Institute hall. The law of circulation or cyclical movement in Nature, the Professor said, has long been considered by philosophers as the most universal law of material existence. Illustrations of this law show not only its universality, but also that each and every operation is attended with most beneficent results.

The earth, considered as a whole, receives and radiates equal amounts of heat. But in one part, at the equator, it receives more than it radiates, while at the poles it radiates more than it receives. The tendency, then, is to accumulate heat in the one and to diminish its amount in the other; but this tendency is neutralized by currents of air which strive to maintain an equilibrium. The ocean and the land may be compared to a distilling apparatus, the ocean, like the boiler, continually changing water into vapor, which is condensed on the mountains to be returned in streams to the sea. At the poles and on the high mountain regions the snow and ice seek to accumulate; but from the poles the icebergs are floated to warmer climes, and down the mountain sides the glaciers move to feed the rivers; and both are slowly melted, to be evaporated and again carried back whence they came.



The circulation between the organic kingdom and the atmosphere was very neatly illustrated. The atmosphere contains a certain amount of carbonic acid, about one-twenty-five hundredth, besides other matter necessary for the existence of plants (and animals). The rough diagram illustrates this point. The plants draw from the atmosphere carbonic acid (CO_2), which they decompose, returning the oxygen (O), and furnishing the carbon (C) to the animals which feed upon them. These animals take the oxygen from the air and carbon from the plants, and unite these into carbonic acid, which they return to the air to be again decomposed by the plants; and so this circulation continues, without which the supply of food for the plants would soon prove insufficient, and when exhausted, life must cease.

The Professor drew many and varied illustrations from the planetary movements; from history, in the rise and fall of nations and the succession of forms of government; from philosophical systems and opinions. One exception, and one only, he finds to the universality of the rule. Science progresses ever. Here there is no decay and no reaction, but a steady advance to higher civilization and more extended knowledge.

The whole lecture was replete with interest and instruction, was delivered with force and eloquence, and illustrated in a most happy manner. It augurs well for those which are to follow, and which, being free, we hope will be well attended.

◆

Miller and McClellan's Improved Awning.—The patent right for this awning, which we illustrated in our issue of May 7th, for the Pacific States and Territories, has been purchased by Mr. J. M. Stroug, of Snelling, Merced county, Cal., to whom should be addressed any communication with regard to the device.

To Advertisers.

After January 1st, 1870, the latest hour for receiving mining and other advertisements for the M. and S. Press will be during Thursday evening, as our paper will be printed for the interior mails on Friday morning.

A Civil Engineer

Of thirteen years standing and highest Eastern, South American and Pacific coast references, tenders his services at moderate rates. Can present attractive inducements to capitalists. Address W. S. C., Box 1,035, San Francisco. 20v20-1m

☞ Maravilla Cocoa.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

Important Invention.—The best drink, not containing alcoholic stimulants, yet answering all the requirements, is that made by Kenyon, Gass & Co., and known as Champagne Mead. It is recommended by the medical fraternity of this city, and should be the exclusive drink of all temperance men. It contains no injurious acids. *

To Miners, Millmen and Metallurgists. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

Philo B. Fox is requested to report list of subscribers taken for the Scientific Press to date. His agency (for Napa, Sonoma and Mendocino counties) is hereby revoked. His receipts, given previous to this notice, will be acknowledged at this office.

DEWEY & CO., Publishers.

San Francisco, April 28, 1870.

Co-Operative Union Store.—This is becoming one of the most useful Institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block

To Farmers.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no recounting. 20v20-3m

Parties from the country should not fail to see the Portable Gas Light at P. J. Philips & Co., 650 Market street. The cheapest and best light in use. County Rights for sale and Lamps at retail. *

Mason's Bread of Life, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis and Sore Throat. Price, 25 cents per box. These lozenges are free from all dangerous properties. Compounded and put up by Dr. J. H. Mason, 750 Howard st. 16v20-3m

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.

10v18 6m B. F. Howland.

Thomas O'Neil Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Microscopes for Scientific Investigation and Educational Purposes. Price list sent free. T. H. McAllister, Optician, 49 Nassau street, New York. 16v20-3m

Drs. Martinache & Smith, Oculists and Aurists, 313 Bush street, between Montgomery and Kearny. Hours for consultation, 12 to 3. 16v20-3m

F. Gruber, Naturalist, No. 626 California street, between Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

Surveyors can have their instruments repaired at C. Muller's, 205 Montgomery street. *

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.
Thomas Poyzer—California.
F. B. Alderson—California.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. O. Renfrew.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hudson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

Mining Notices.

Alban Gold and Silver Mining Company.—

Location of Works: Virginia, Storey County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-first day of March, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J Ball	79	5	25
C C Green	49	20	$1 00
C C Green	82	20	1 00
C'C Green	141	7½	38
B W Lucas	146	5	25
B W Lucas	147	6	25
B W Lucas	148	5	25
B W Lucas	149	6	25
B W Lucas	150	6	25
B W Lucas	151	6	25
B W Lucas	152	6	25
B W Lucas	153	5	25
B W Lucas	177	40	2 00
J K Prior	35	10	50
J K Prior	36	10	50
J K Prior	37	6	25
J K Prior	38	6	25
J K Prior	39	3	15
J K Prior	140	23	1 15
W R Patton	40	10	50
Jos J Moore	101	2	10
Martinett & Schleg	103	2½	13
N Hastings	124	10	50
G E Krebs	126	6	25
J F Cassell	128	5	25
D T Berry	162	10	60
Calvin Taylor	185	6	25

And in accordance with law, and an order of the Board of Trustees, made on the twenty-first day of March, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 432 Montgomery street, San Francisco, Cal., on Saturday, the fourteenth day of May, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. B. SMITH, Secretary.

Office, 432 Montgomery street, San Francisco. ap30

Continental Silver Mining Company.—Location of Works: Treasure City and Vicinity, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-sixth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B F Bivins	7	600	$160 00
B F Bivins	8	500	150 00
B F Bivins	9	20	6 00
B F Bivins	73	2	60
B F Bivins	74	2	60
B F Bivins	75	2	60
B F Bivins	77	2	60
B F Bivins	78	6	1 50
B F Bivins	80	5	1 50
B F Bivins	81	6	1 50
B F Bivins	82	5	1 50
B F Bivins	83	6	1 50
B F Bivins	84	5	1 50
B F Bivins	86	5	1 50
B F Bivins	86	10	3 00
B F Bivins	87	10	3 00
B F Bivins	89	10	3 00
B F Bivins	90	10	3 00
B F Bivins	91	400	120 00
B F Bivins	158	4	1 20
B F Bivins	159	4	1 20
B F Bivins	150	4	1 20
B F Bivina	161	4	1 20
B F Bivins	162	4	1 20
B F Bivins	163	4	1 20
B F Bivins	164	4	1 20
B F Bivins	165	2	50
B F Bivins	166	2	60
R F Bivins	167	2	50
B F Bivins	168	2	60
B F Bivins	169	2	50
B F Bivins	170	2	60
B F Bivins	171	5	1 50
B F Bivins	172	6	1 50
B F Bivins	173	6	1 50
B F Bivins	174	5	1 50
B F Bivins	175	5	1 50
B F Blvins	176	5	1 50
B F Bivins	177	5	1 50
B F Bivins	178	5	1 50
B F Bivins	179	5	1 50
B F Bivins	180	6	1 50
B F Bivins	181	10	3 00
B F Bivins	182	10	3 00
B F Biviua	183	10	3 00
B F Bivins	184	10	3 00
B F Bivins	185	10	3 00
B F Bivins	185	10	3 00
B F Bivins	187	10	3 00
B F Bivins	188	10	3 00
B F Bivins	190	10	3 00
B F Bivins	191	10	3 00
B F Bivins	193	10	3 00
B F Bivins	194	33	9 90
B F Bivins	196	33	9 90
B F Bivins	198	2	60
B F Bivins	199	2	60
B F Bivins	200	2	50
B F Bivins	201	2	60
B F Bivins	202	34	10 20
B F Bivins	204	2	50
B F Bivins	205	2	60
B F Bivins	206	2	60
B F Bivins	207	2	60
B F Bivins	208	2	60
B F Bivins	209	2	60
B F Bivins	210	4	1 20
B F Bivins	211	4	1 20
B F Bivins	212	4	1 20
B F Bivins	213	4	1 20
B F Bivius	214	4	1 20
B F Bivius	215	5	1 50
B F Bivins	216	6	1 50
B F Bivins	217	5	1 50
B F Bivins	218	6	1 50
B F Bivins	219	5	1 50
B F Bivins	220	5	1 50
B F Bivins	221	5	1 50
B F Bivins	222	6	1 50
B F Bivius	223	5	1 50
B F Bivins	224	5	1 50
B F Bivins	225	10	3 00
B F Bivins	226	10	3 00
B F Bivins	227	10	3 00
B F Bivins	228	10	3 00
B F Bivins	229	10	3 00
B F Bivins	230	10	3 00
B F Bivins	231	10	3 00
B F Bivins	232	10	3 00
B F Bivins	241	141	42 30
A F White	2	500	150 00
A F White	5	20	6 00
A F White	142	100	30 00
A F White	195	286	85 80
A F White	233	330	99 00
A F White	234	34	10 20
A F White	236	34	10 20
A F White	238	34	10 20
A F White	240	34	10 20
C T Fay	131	23	6 90
C T Fay	147	25	7 50
C T Fay	148	50	15 00
C T Fay	237	65	19 80
J A Eaton	116	20	6 00
Mrs J A Eaton	69	100	30 00
Clark Symons	100	6	1 50
J D Dahms	101	12	3 60
H S Bunker	129	1	30
H T Wheeler	130	1	30
Perry Johnson	133	3	90
Orrin Simmons	149	200	50 00
W T Hovey, Trustee	153	1995	598 50

And in accordance with law and an order of the Board of Trustees, made on the twenty-sixth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Secretary, No. 302 Montgomery street, San Francisco, Cal., on Wednesday, the twenty-fifth day of May, 1870, at the hour of three o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

H. H. BLAKE, Secretary.

Office, No. 302 Montgomery street, San Francisco. a30

Cayuga Chief Mining Company.—Location of Works: White Pine Mining District, County of White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-ninth day of April, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the thirty-first day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-first day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room No. 5 No. 302 Montgomery street, San Francisco, Cal. my7

Green Monster Copper, Gold and Silver Mining Company, Inyo Mining District, Inyo County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
W H Baxter	12	12	$12 00
Sarah C Baxter	2 and 3	20	20 00
W K Flint	17	28	28 00
Henry Gerke	10	160	160 00
E L Goold	7	6	6 00
Mosse & Son	25	6	6 00
Hugh McCormick	33	12½	12 50

And in accordance with law and an order of the Board of Trustees, made on the tenth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the auction rooms of John Middleton & Son, No 310 Montgomery street, San Francisco, California, on Monday, the second day of May, 1870, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

I. N. THORNE, Secretary.

Office, No. 16 Montgomery Block, San Francisco. ar16

Postponement.—The sale of the above stock is hereby postponed until the sixteenth day of May, 1870, at the same hour and place. By order of the Board of Trustees.

ap30 I. N. THORNE, Secretary.

Land Purchasers' Association.—Notice.

At a meeting of the Board of Trustees of the Land Purchasers' Association, held May 3d, 1870, the following resolution was adopted by unanimous vote:

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers thereto; being for the monthly installment falling due and payable May 1st, 1870. Said assessment is payable on or before the thirtieth day of May, A. D. 1870, to James F. Crosett, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of May, A. D. 1870, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before, will be sold at the office of the Secretary, on the twenty-eighth day of June, A. D. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.

Office, 304 Montgomery street, San Francisco. m7-4w

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of April, 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 408 California street, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the twenty-third day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, 408 California street, San Francisco. ap16

Miser's Dream Silver Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of April, 1870, an assessment of forty (40) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room No. 36, New Merchants' Exchange, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the seventeenth day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fourteenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

W. F. R. SCHINDLER, Secretary.

Office, Room No. 35, New Merchants' Exchange, California street, San Francisco, California.

Patents on the Pacific Coast.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast we say, subscribe for the Scientific Press, published by Dewey & Co., San Francisco, Cal., at $4 per year. The opening of the railway across the continent has given to all patents a much higher value in that portion of our country known as the Pacific slope, and all interested will find the paper above alluded to a valuable reference.—*Mechanic and Inventor Detroit, Michigan.*

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Cliftou Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of May, 1870, an assessment of three (3) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the seventh day of June, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-eighth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. my7

Office of the Placer Gold Mining and Canal Company.—Location of Works: Township No. Six (6), County of Placer, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the ninth day of April, 1870, an assessment (No. 1) of two dollars ($2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 802 Howard street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Friday, the twentieth day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the tenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. S. HALEY, Secretary.

Office of Company, 802 Howard street, San Francisco, Cal. Office hours: 6 to 8 P. M. apr16

Pocahontas Gold Mining Company.—Location of Works: Mud Springs, El Dorado County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the second day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
L A Booth	12	40	$160 00
L A Booth	13	40	160 00
L A Booth	14	40	160 00
L A Booth	18	20	80 00
L A Booth	20	100	400 00
L A Booth	22	120	480 00
Joseph Sedgley	24	40	160 00
E B Mott, Jr.	27	40	150 00
J M Shotwell	29	40	160 00
Joseph T Sanborn	33	20	80 00
Newton Booth	35	80	320 00
John O Earl	36	120	480 00
N D Burlingham	40	100	400 00

And in accordance with law and an order of the Board of Trustees, made on the second day of March, 1870 so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of John Middleton & Son, No. 310 Montgomery street, San Francisco, on Thursday, the twenty-eighth day of April, 1870, at the hour of twelve o'clock M of said day, to pay said delinquent assessment thereon together with costs of advertising and expenses of 1

D. A. JENNINGS, Secretary.

Office, 419 California street, San Francisco, California.

POSTPONEMENT.—Notice is hereby given, that the above sale has been postponed until Saturday, the fourteenth day of May, 1870, at the hour of 12 o'clock, noon, at same place. By order of the Board of Trustees.

D. A. JENNINGS, Secretary.

San Francisco, April 25, 1870. ap30

Pinto Mining Company.—Location of Works: "Silverado," Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of May, 1870, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, No. 426 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the second (2d) day of June, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twentieth (20th) day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street. 1: v20

Silver Vault Tunnel and Mining Company. Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third (3d) day of May, A. D. 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 23 Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the ninth day of June, A. D. 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the twenty-ninth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOSEPH L. KING, Secretary.

Office, Room No. 23 Hayward's Building, No. 419 California street, San Francisco, California. my7

CRUCIBLES! CRUCIBLES!

EUGENE DE SABLA,

COMMISSION MERCHANT,

AND SOLE AGENT FOR

J. H. GAUTIER & CO'S CELEBRATED

American Blacklead Crucibles,

No. 310 DAVIS STREET,

SAN FRANCISCO. 20v20-3m

"ENTERPRISE" SAWING AND PLANING MILL.

D. A. MACDONALD, J. H. MACDONALD,
JOSEPH MCGILL, H. CHAPMAN.

D. A. MACDONALD & CO.,

Manufacturers of DOORS, SASHES, BLINDS AND MOULDINGS, 217 to 225 Spear street, and 218 to 226 Steuart street, between Howard and Folsom, San Francisco. ☞ Finishing Work for buildings constantly on hand and got up to order. 20v20-3m

New Advertisements.

By authority of a Special Act of the Legislature of the State of California, approved February 19, 1870, the Trustees of the Mercantile Library Association have the pleasure to announce that a

GRAND GIFT CONCERT

IN AID OF THE

Mercantile Library Association

—WILL BE GIVEN AT THE—

MECHANICS' PAVILION,

SAN FRANCISCO, CAL.,

THURSDAY, SEPTEMBER 1st, 1870,

Under the direction of Distinguished Artists, and embracing selections from the most Favorite Masters. Programme of Concert to be hereafter announced.

Tickets of Admission, $5 Each, Gold Coin.

Each Ticket consists of Five Coupons. The holder of a whole Ticket, or five coupons, will be entitled to admission to the Concert, and to the whole amount of the Gift awarded to it. The holder of each coupon will be entitled to admission to the Concert, and to one-fifth of any gift that may be awarded to such ticket.

To provide funds for this MAGNIFICENT ENTERTAINMENT,

200,000 Tickets will be Sold

At Five Dollars Each, Gold Coin.

TREASURER.......THE BANK OF CALIFORNIA.

During the Entertainment, the sum of

$500,000, U. S. Gold Coin,

Will be returned to the holders of tickets by the distribution, by chance, of the following

GIFTS:

1 Gift of	$100,000,	Gold
1 Gift of	50,000	"
1 Gift of	25,000	"
1 Gift of	20,000	"
1 Gift of	19,000	"
1 Gift of	18,000	"
1 Gift of	17,000	"
1 Gift of	16,000	"
1 Gift of	15,000	"
1 Gift of	14,000	"
1 Gift of	13,000	"
1 Gift of	12,000	"
1 Gift of	11,000	"
1 Gift of	10,000	"
1 Gift of	9,000	"
1 Gift of	8,000	"
1 Gift of	7,000	"
1 Gift of	6,000	"
1 Gift of	5,000	"
1 Gift of	4,000	"
1 Gift of	3,000	"
1 Gift of	2,000	"
1 Gift of	1,500	"
10 Gifts of $1,000 each	10,000	"
20 Gifts of $750 each	15,000	"
20 Gifts of $500 each	10,000	"
30 Gifts of $400 each	12,000	"
50 Gifts of $300 each	15,000	"
50 Gifts of $200 each	10,000	"
425 Gifts of $100 each	42,500	"
628 Gifts in all	$500,000	

After paying the expenses of the entertainment, and making the distribution of the gifts as above announced, the balance will be applied to extinguishing the present indebtedness of the Mercantile Library Association.

The Concert and Distribution will take place under the immediate direction of the Board of Trustees of the Mercantile Library Association, assisted by a Supervisory Committee, selected from State, City and County Officers and well-known citizens of San Francisco.

Holders of Tickets to which Gifts may be awarded, will receive the same on presentation of such Tickets or Coupons to the Business Agents of the Board of Trustees, at their office,

No. 318 California Street, San Francisco.

Orders for Tickets, post paid, accompanied by remittances, will meet with prompt attention.

Tickets for Sale June 1, 1870, only at the Office.

The Trustees have appointed MAURICE DORE and CHARLES R. PETERS, 318 California street, Business Agents for the sale of the Tickets and for the transaction of all business connected with the Entertainment, to whom all communications may be addressed.

ROBERT SWAIN, President M. L. A.
WM. C. RALSTON, Treasurer "
W. H. L. BARNES, Vice-Pres, "
THOS R. HAYES, Rec. Sec'y "
DAVID WILDER, Cor Sec'y "

TRUSTEES M. L. A.—Wm, Ashburner, Isaac Wormser, J. M. McNulty, Alfred P. Elfelt, Arthur M. Ebbets, Wm. G. Badger, Wm. E. Wood, F. B. Reynolds, Samuel Hubbard.

☞ NOTICE TO MECHANICS.—A premium of $500 will be given for the best model of two Wheels of Glass and Iron, for this distribution. The Trustees reserve the right to reject any and all models.

POST OFFICE BOX, 1089.

WILSON'S

STEAM STAMP MILL.

This mill has now been in use, enduring the severest tests, for the last ten years, during which time it has been introduced into most every mining State and Territory in the Union, and is everywhere received with great and increasing favor, having been in every instance eminently successful, and proved to be the cheapest in first cost, and the most economical in working, and most durable of all stamp mills.

It crushes from **25 to 40 tons** of rock through the ordinary size screens in twenty-four hours, and only requires from two to two and a half cords of wood per day (24 hours). It can be put in operation in a few days after it reaches the mines. The mill is complete when it leaves the shop, and weighs about 6,000 pounds. To be fully appreciated it should be seen in practical operation. Even the most skeptical in improvements of crushing machinery agree to its practicability; and mines that will not pay to work with the ordinary stamp mill can be worked at a profit with the Wilson Steam Stamp Mill. One of these mills can be seen in operation at the Pacific Iron Works, First street. Address,

FURMAN R. WILSON,
San Francisco.

NOTICE.—The improved steam stamp mill that was so complete a failure at Silver City, Nevada, was **NOT** one of the Wilson Mills, but was a **base and fruitless attempt to evade the Wilson Patent,** the Wilson Mill never having failed to give unbounded satisfaction in every particular, so much so that unprincipled parties are using the reputation of the Wilson Mill to foist their own fruitless experiments on the public.

FURMAN R. WILSON.

Railroads and Steamers.

SHORT ROUTE.

The following time will take effect
Sunday.....April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
7:00 A. M.	11:45 A. M.	11:20 A. M.	1:00 P. M.
4:00 P. M.	7:15 P. M.	8:20 P. M.	9:30 P. M.
ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M.	6:45 A. M.	6:15 A. M.	10:30 A. M.
1:15 P. M.	2:45 P. M.	3:15 P. M.	7:30 P. M.
ON SUNDAYS.			
10:15 A. M.	3:00 P. M.	2:30 P. M.	6:45 P. M.

TICKETS for sale at 313 Montgomery street, or on board steamer New World R. S. MATTISON, Superintendent.
L. C. FOWLER, General Freight and Passenger Agent.
N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf.
Vallejo, April 24, 1870 13v20-1y

Pacific Mail Steamship Company.—For NEW YORK, VIA PANAMA. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

May 18.....CONSTITUTION,
Connecting with Arizona.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

June 1—Steamer AMERICA, Captain Freeman.

Apply at the Pacific Mail Steamship Company's office corner Sacramento and Leidesdorff streets.

13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation COMPANY,

Steamer CAPITAL.....CAPT. E. A. POOLE
" CHRYSOPOLIS.....CAPT. A. FOSTER.
" YOSEMITE..... — —
" CORNELIA.....CAPT. W. BROMLEY
" JULIA.....CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE, President

13v12

CHOICE POULTRY.

Light Brahma and White Leghorns.

We are now booking orders for a few trios of the above named fowls, bred from choice imported stock. Will commence delivering in July. All orders filled in rotation, as received.

☞ A few clutches of eggs for setting from the above named breeds.

NICHOLS & WILLARD,

Importers and Breeders of Choice Poultry, Fruit Vale Avenue, Brooklyn, Alameda county, Cal.
20v20-3m

E. A. ARCHIBALD,

MANUFACTURER OF

Cast Iron Hubbed Wheels,

BY HIS PATENT PRESS PROCESS.

—ALSO—

Axles and Team Wagons of every Description.

METHUEN, MASS.

Particular attention given to Wheels for Portable and Fire Engines.

All my Wheels have my name cast on the hub, and are made by my Patent Press Process. By this new method the wheel is so compressed in every part that shrinkage or yielding of the part with all its attendant evils is wholly obviated, even in the driest climate. Any one understanding my process will be convinced of this. ☞ Send for illustrated circular.

20v20 E. A. ARCHIBALD.

ARCHITECTS AND BUILDERS

Are invited to examine an invoice of

Marbleized Slate Mantels.

As these mantles are so perfect an imitation of the most costly Italian Marble, and can be furnished at so much less cost, they are being placed in the finest houses in New York and other Eastern cities.

J. D. HUNT.
No. 716 Montgomery street, San Francisco.
May 5th, 1870. 19v20.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, May 12, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 ℔s.; Bar, 1@1½c ℔ ℔; Sheet, polished, 3c ℔ ℔; common, 1½@1¾c ℔ ℔; Plate, 1½c ℔ ℔; Pipe, 1½o ℔ ℔; Galvanized, 2½c ℔ ℔.		
Scotch and Eng. Pig Iron, ℔ ton	$30 00	@$32 00
White Pig, ℔ ton	28 00	@ — —
Refined Bar, bad assortment, ℔ ℔	— 03	@ — —
Refined Bar, good assortment, ℔ ℔	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
Copper.—Duty: Sheathing, 3½c ℔ ℔; Pig and Bar, 2½c ℔ ℔.		
Sheathing, ℔ ℔	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
Tin Plates.—Duty: 25 ℔ cent. ad valorem.		
Platee, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I O Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℔ ℔	— —	@ — 42
Steel.—English Cast Steel, ℔ ℔	— —	@ — 15
Quicksilver.—℔ ℔	— —	@ — 62½
Lead.—Pig, ℔ ℔	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℔ ℔	— 10½	@ — 11
Borax	35 00	@ 38 00

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON
Iron and Locomotive Works.

INCORPORATED.........APRIL 30, 1868.
CAPITAL.........$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Wm. Norris, Lloyd Tevis, Joseph Moore, John N. Risdon, Wm. Alvord, Chas. E. McLane,

JOHN N. RISDON.........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD.........Secretary.
24v17-qy

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

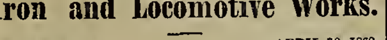
CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,
WILCOX'S PATENT WATER LIFTERS,
Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
Front Street, between N and O streets,
14v1 Sacramento City

GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,
SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings which they offer to the trade on liberal terms.
21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,
SAN FRANCISCO.

J. C. THWING & CO.,
Successors to T. G. Durning & Co.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867. 2v17

R. SAVAGE. R. E. DORAN.

SAVAGE & CO.,
Empire Iron Foundry,
No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights at Eastern Prices. 9v203-m

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,
SAN FRANCISCO,

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,
MARINE AND STATIONARY,
IRON AND BRASS CASTINGS,
Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,
Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description,

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of Iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their Inventions. 1v16tf

MACHINERY
— AT —
GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
13 and **15** Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA TOOL WORKS,
Blacksmith and Machine Shop,
143 Beale St., bet. Mission and Howard,
SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.
21v17-qy **J. WEICHHART, Proprietor.**

San Francisco Wire Works,
No. 665 Mission Street, near Third,
SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,
Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. CONNEN,

MINERS' CO-OPERATIVE BOILER SHOP.
228 FREMONT STREET,
Between Howard and Folsom, San Francisco.

— ALL KINDS OF —
High and Low Pressure Boilers Built.
Sheet Iron Work, Etc., Etc.
☞ Repairing promptly attended to.
17v20-6m WM. W. CANTY, Manager.

THOMPSON BROTHERS,
EUREKA FOUNDRY,
129 and 131 Beale street, between Mission and Howard San Francisco.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

CALIFORNIA BRASS FOUNDRY,
No. 125 First street, opposite Minna,
SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

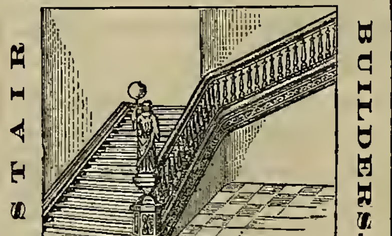
P. GALLAGHER. J. H. WEED V. KINGWELL

CITY IRON WORKS COMPANY,
CLERC & CO.,
IRON FOUNDERS,
Steam Engine Builders and Makers of all kinds of Machinery,
16v16q No. 28 Fremont street, San Francisco.

Greatest Discovery Ever Made.

MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has been the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would be to those afflicted with this painful disease, he with great difficulty and expense obtained the secret of preparing the Plaster; and during the many years MR. MAC has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will be convinced by referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street: Michael Gorman, No. 6 Front street; Mrs. W. S Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository merican Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 A. M., 2 to 4 P. M. and 7 to 9 P. M.
18v20-3m

HIBBERD. SANBORN & CO.,



South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

PARIS
Scouring and Blanket Cleaning
ESTABLISHMENT.

Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling.* Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

USE
DR. S. GIRARD SMITH'S
ARAMIRACULAS
— FOR —
RHEUMATISM, GOUT AND NEURALGIA

CURES GUARANTEED.

Has cured Thousands. Has never been known
One bottle will relieve you.

OFFICE, No. 121 POST STREET

Agents Wanted in every City and Town.—Terms Liberal.

Dr. S. Girard Smith, 621 *Kearny street.*—Dear Sir It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Ayer's Sarsaparilla,
FOR PURIFYING THE BLOOD.

The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this *SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears,* and other eruptions or visible forms of *Scrofulous* disease. Also in the more concealed forms, as *Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia,* and the various *Ulcerous* affections of the muscular and nervous systems.

Syphilis or *Venereal* and *Mercurial Diseases* are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. *Leucorrhœa* or *Whites, Uterine Ulcerations,* and *Female Diseases,* are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. *Rheumatism* and *Gout,* when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also *Liver Complaints, Torpidity, Congestion* or *Inflammation* of the *Liver,* and *Jaundice,* when arising, as they often do, from the rankling poisons in the blood. This *SARSAPARILLA* is a great restorer for the strength and vigor of the system. Those who are *Languid* and *Listless, Despondent, Sleepless,* and troubled with *Nervous Apprehensions* or *Fears,* or any of the affections symptomatic of *Weakness,* will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R.H. McDonald & Co., Sacramento, General Agents. 7v20eow-4m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, April 30, 1870.

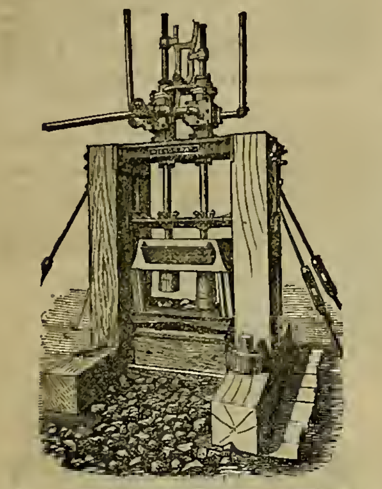
IRON.

Pig, Scotch, No 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No 2................	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common.............................	87 50	@	92 50
Refined............................	95 00	@	— —
Rods...............................	100 00	@	155 00
Horse-shoe.........................	115 00	@	— —
Hoop...............................	125 00	@	180 00
Scroll.............................	110 00	@	145 00
Nail-rods, per lb..................	— 8¼	@	— 0¼
Spring.............................	— 9¼	@	— —
Tire...............................	— 9¾	@	— —
STEEL.			
Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast...................	— 23	@	— —
Sheet, second quality..............	— 20	@	— —
Sheet, third quality...............	— 18	@	— —
Saw-plates, circular...............	— 27	@	— —
Double-shear, warranted............	— 23	@	— —
Single-shear.......................	— 19	@	— —
Moutague & Co. (cast bars).........	— 18	@	— —
Machinery, round...................	— 16	@	— —
German, best.......................	— 16	@	— —
German, goat.......................	— 13½	@	— —
German, eagle......................	— 12	@	— —
Blister, warranted.................	— 16	@	— —
Blister, common....................	— 15	@	— —
Jessop & Sons', common.............	— 17	@	— —
Double-refined.....................	— 26½	@	— —
Stone-ax shapes....................	— 26½	@	— —

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

☞The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S
PATENT AMALGAMATOR.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, **229** Fremont street,
1v1 San Francisco.

TO MILLMEN.

FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30 inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W. NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

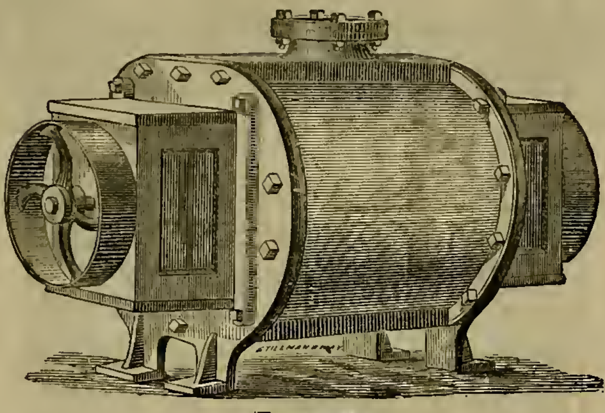
---

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

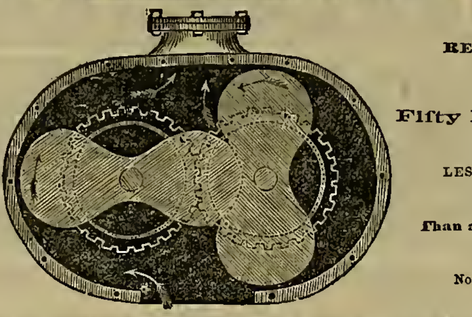
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.



REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

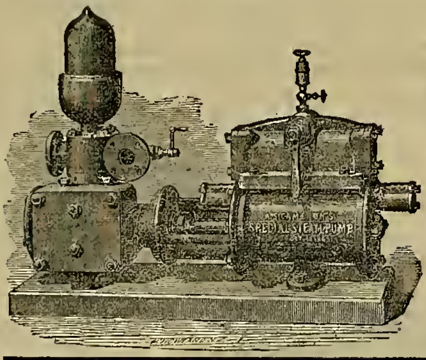
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
MARINE
ENGINES.
SURFACE
CONDENSERS.

DAVID STODDART,
BEALE STREET.

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

☞The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞All work done at the lowest prices. 1v20-3m

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

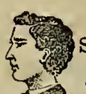
The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in tin cans only, with full directions. Take no other. Giant Cement and Miners' Rubber Cement are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

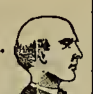
MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.



WONDERFUL

Scientific Discovery.

THE GREATEST EVER MADE,



Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 19v20-2m

---

ICE. ICE.

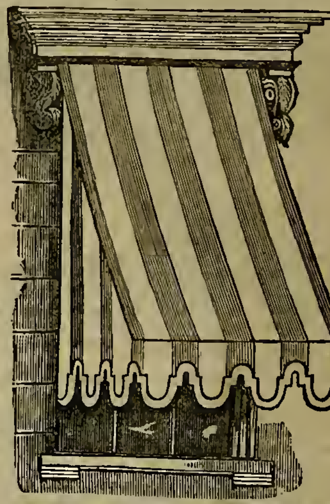
On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.

AMERICAN RUSSIAN COMMERCIAL CO.
D. E. Martin, Superintendent,
16v20-qy 714 and 716 Battery street.

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.

COMFORT AND ELEGANCE COMBINED.



KEEPS COOL AND SHADY

Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

---

SAN ANTONIO

PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of

STONE WARE,

Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also

Chemical Ware, of Sorts Made to Order.

We manufacture to order

Terra Cotta Equal to the Best French.

Samples on hand.

FIRE BRICK.

A No. 1 article made to order, warranted superior to any imported.

Flower Pots and Ornamental Vases

Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

☞Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.
8v20-tf

MARTIN'S

Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

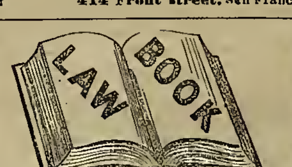
SOLE IMPORTERS OF

Devoe's Illuminating Oil'

PATENT CANS.

5v17-tf **414 Front street, San Francisco**

Agents Wanted for



Chamberlin's New

FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, May 12, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 ℔s.; Bar, 1@1⅜c ℔ ℔; Sheet, polished, 3c ℔ ℔; common, 1⅜@1¾c ℔ ℔; Plate, 1⅜c ℔ ℔; Pipe, 1⅜c ℔ ℔; Galvanized, 2⅜c ℔ ℔.		
Scotch and Eng. Pig Iron, ℔ ton	$30 00	@$32 00
White Pig, ℔ ton	28 00	@ — —
Refined Bar, bad assortment, ℔ ℔	— 03	@ — —
Refined Bar, good assortment, ℔ ℔	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04⅜
Sheet, No. 10 to 13	— 04⅜	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05⅜
Sheet, No. 24 to 27	— 05	@ — 06⅜
Copper.—Duty: Sheathing, 3⅜c ℔ ℔; Pig and Bar, 2⅜c ℔ ℔.		
Sheathing, ℔ ℔	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Naile	— 21	@ — 22
Composition Bolts	— 21	@ — 22
Tin Plates.—Duty: 25 ℔ cent. ad valorem.		
Plates, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Bauca Tin, Slabs, ℔ ℔	— —	@ — 42
Steel.—English Cast Steel, ℔ ℔	— —	@ — 15
Quicksilver.—℔ ℔	— —	@ — 62½
Lead.—Pig, ℔ ℔	— 7⅜	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℔ ℔	— 10⅜	@ — 11
Borax	35 00	@ 38 00

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON
Iron and Locomotive Works.

INCORPORATED............APRIL 30, 1868.
CAPITAL............$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Wm. Norris,	Lloyd Tevis, Joseph Moore, John N. Risdon.	Wm. Alvord, Chas. E. McLane,

JOHN N. RISDON............President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD............Secretary.
21v17-qv

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS.

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

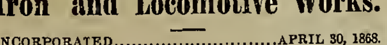
Front Street, between N and O streets,
14v1 Sacramento City

GLASGOW
Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,
SAN FRANCISCO,

Keep constantly on hand a large stock of best Bar and Bundle Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings which they offer to the trade on liberal terms.
21v16-3m W. McCRINDLE, Manager.

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,
SAN FRANCISCO.

J. C. THWING & CO.,
Successors to T. G. Durning & Co.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867. 2v17

R. SAVAGE. R. E. DORAN.

SAVAGE & CO.,
Empire Iron Foundry,

No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Fenders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights at Eastern Prices, 9v20 3m

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,
SAN FRANCISCO,

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,
MARINE AND STATIONARY,
IRON AND BRASS CASTINGS,
Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,
Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their Inventions. tv16tf

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
And better adapted to the wants of the Pacific States.
Ascertain our prices before purchasing. 8v20q

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
13 and **15** Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA TOOL WORKS,
Blacksmith and Machine Shop,

143 Beale St., bet. Mission and Howard,
SAN FRANCISCO.

All kinds of Edge or other Tools made to order. Particular attention paid to putting in order AGRICULTURAL MACHINERY. Job Grinding and Polishing by steam. Orders from the Country promptly attended to. ☞ All work warranted.
21v17-qy **J. WEICHHART, Proprietor.**

San Francisco Wire Works,

No. 665 Mission Street, near Third.
SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,
Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. CONNER.

MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,
Between Howard and Folsom, San Francisco.

— ALL KINDS OF —
High and Low Pressure Boilers Built.
Sheet Iron Work, Etc., Etc.
☞ Repairing promptly attended to.
17v20-6m WM. W. CANTY, Manager.

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

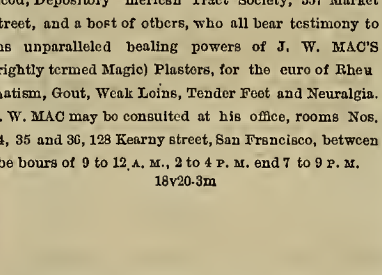
Steam Engine Builders and Makers of all kinds of Machinery,
16v16q No. 28 Fremont street, San Francisco.

Greatest Discovery Ever Made.

MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has been the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would be to those afflicted with this painful disease, he with great difficulty and expense obtained the secret of preparing the Plaster; and during the many years MR. MAC has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will be convinced by referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street; Michael Gorman, No. 6 Front street; Mrs. W. S Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository merican Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 A. M., 2 to 4 P. M. and 7 to 9 P. M.

18v20-3m

HIBBERD. SANBORN & CO.,



South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

PARIS
Scouring and Blanket Cleaning

ESTABLISHMENT.

Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling.* Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

U S E

DR. S. GIRARD SMITH'S
ARAMIRACULAS

— FOR —

RHEUMATISM, GOUT AND NEURALGIA

CURES GUARANTEED.

Has cured Thousands. Has never been known
One bottle will relieve you.

OFFICE, No. 121 POST STREET

Agents Wanted in every City and Town.—Terms Liberal.

Dr. S. Girard Smith, 621 *Kearny street.*—Dear Sir It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.

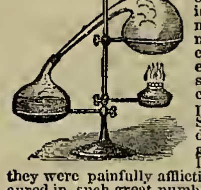
Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Ayer's Sarsaparilla,

FOR PURIFYING THE BLOOD.



The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this ***SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears,*** and other eruptions or visible forms of ***Scrofulous*** disease. Also in the more concealed forms, as ***Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia,*** and the various ***Ulcerous*** affections of the muscular and nervous systems.

Syphilis or ***Venereal*** and ***Mercurial Diseases*** are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. ***Leucorrhœa*** or ***Whites, Uterine Ulcerations,*** and ***Female Diseases,*** are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. ***Rheumatism*** and ***Gout,*** when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also ***Liver Complaints, Torpidity, Congestion*** or ***Inflammation*** of the ***Liver,*** and ***Jaundice,*** when arising, as they often do, from the rankling poisons in the blood. This ***SARSAPARILLA*** is a great restorer for the strength and vigor of the system. Those who are ***Languid*** and ***Listless, Despondent, Sleepless,*** and troubled with ***Nervous Apprehensions*** or ***Fears,*** or any of the affections symptomatic of ***Weakness,*** will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine every where. Crane & Brigham, San Francisco; R.H. McDonald & Co., Sacramento, General Agents. 7v20eow-4m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

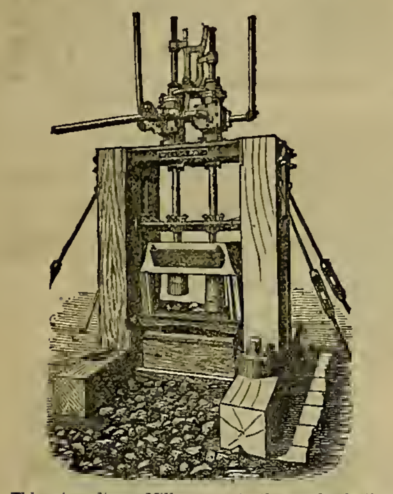
New York City, Saturday, April 30, 1870.

IRON.			
Pig, Scotch, No 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No 2...............	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common.........................	87 50	@	92 50
Refined.........................	95 00	@	— —
Rods...........................	100 00	@	155 00
Horse-shoe......................	115 00	@	— —
Hoop	125 00	@	180 00
Scroll.........................	110 00	@	145 00
Nail-rods, per lb..................	— 8½	@	— 9½
Spring.........................	— 9¼	@	— —
Tire...........................	— 9¾	@	— —
STEEL.			
Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast..................	— 23	@	— —
Sheet, second quality..............	— 20	@	— —
Sheet, third quality...............	— 18	@	— —
Saw-plates, circular..............	— 27	@	— —
Double-shear, warranted...........	— 23	@	— —
Single-shear....................	— 19	@	— —
Montague & Co. (cast bars)........	— 18	@	— —
Machinery, round.................	— 16	@	— —
German, best....................	— 16	@	— —
German, goat....................	— 13½	@	— —
German, eagle...................	— 12	@	— —
Blister, warranted................	— 16	@	— —
Blister, common..................	— 15	@	— —
Jessop & Sons', common...........	— 17	@	— —
Double-refined..................	— 26½	@	— —
Stone-ax shapes..................	— 26½	@	— —

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S PATENT AMALGAMATOR,

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, **220** Fremont street,
1v1 San Francisco.

TO MILLMEN.

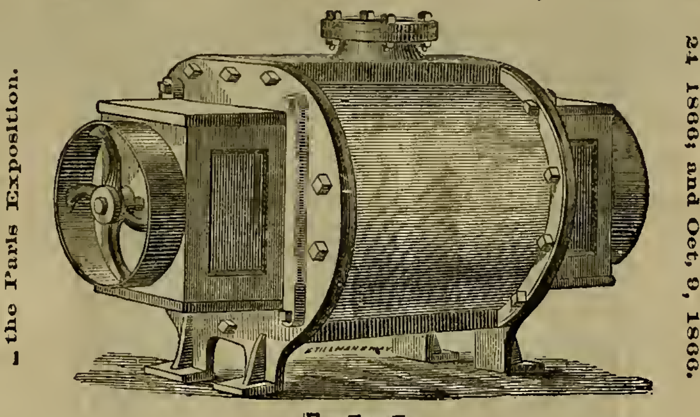
FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30 inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W. NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

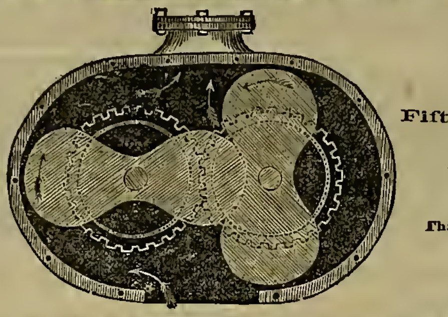
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.



REQUIRES Fifty Per Cent. LESS POWER **Than any Blower** Now in use.

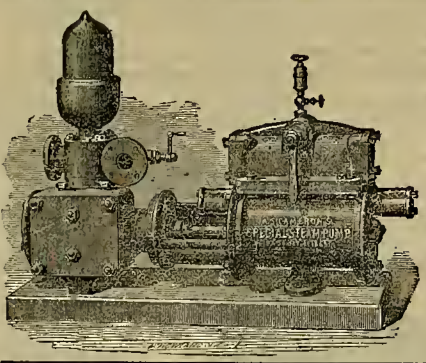
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

GIFFARD'S
INJECTORS.

MARINE
ENGINES.

SURFACE
CONDENSERS.

DAVID STODDART,
BEALE STREET.

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

☞The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞All work done at the lowest prices. 1v20-3m

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

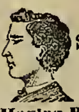
The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in tin cans only, with full directions. Take no other. Giant Cement and Miners' Rubber Cement are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List. to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.



WONDERFUL
Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 19v20-2m

ICE. ICE.

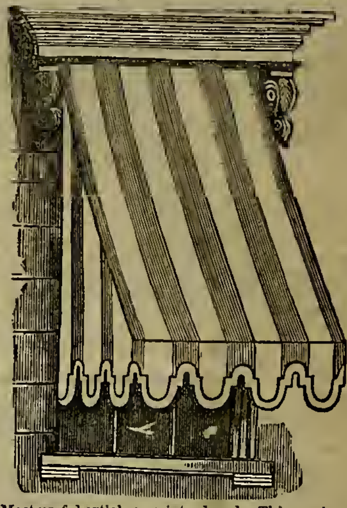
On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.

AMERICAN RUSSIAN COMMERCIAL CO.
D. E. Martin, Superintendent,
16v20-qy 714 and 716 Battery street,

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.

COMFORT AND ELEGANCE COMBINED.



KEEPS COOL AND SHADY

Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

SAN ANTONIO

PIONEER POTTERY.

DANIEL BRANNAN, Proprietor.

A Complete Assortment of

STONE WARE,

Such as Churns, Butter Pots, Preserve Jars, Jugs, Beer Bottles, etc., etc. Also

Chemical Ware, of Sorts Made to Order.

We manufacture to order

Terra Cotta Equal to the Best French.

Samples on hand.

FIRE BRICK.

A No. 1 article made to order, warranted superior to any imported.

Flower Pots and Ornamental Vases

Of all sorts and sizes. 200,000 on hand.

With our patent machinery and superior workmen we challenge competition.

Also, FIRE CLAY, MODELING CLAY and FIRE SAND, all of extra quality, for sale.

☞Orders promptly attended to, and goods put up and shipped with care to all parts of the country.

Brooklyn, Alameda County.
8v20-tf

MARTIN'S

Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS. NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

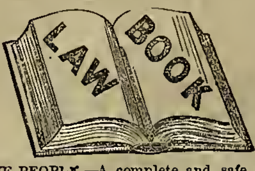
SOLE IMPORTERS OF

Devoe's Illuminating Oil'

PATENT CANS.

5v17-tf **414 Front street, San Francisco**

Agents Wanted for



Chamberlin's New

FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of
Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street, San Francisco

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	6 00
Chimney Corner	
Literary Album	
Loudon Society	6 00
All the Year Round	
London Ill. News	16 00

W. E. LOOMIS,

News Dealer

AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

LAND! LAND! LAND!

YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

40,000 Acres in Fresno County;
7,000 Acres in Sonoma County;
3,680 Acres in Tularo County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above.
YOUNG & PAXSON,
16v20-3m 424 Montgomery street.

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED **WEED** Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO $500

REMOVAL.

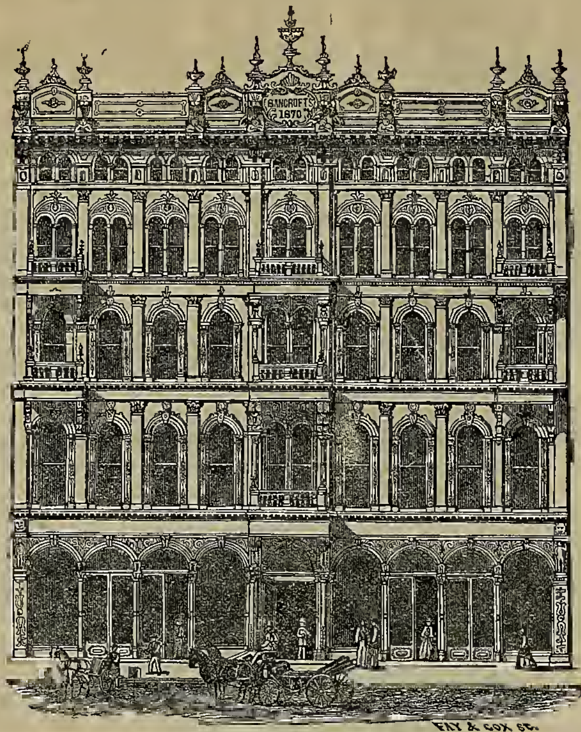
GEO. MILNE CLARKE & CO.,

PLUMBERS AND GASFITTERS, respectfully announce the removal of their business to No. 716 Market street, south side, near Bancroft's. 19v20-1m

---

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

BANCROFT'S



New Building, 721 Market Street, San Francisco.

BOOKS AND STATIONERY, PRINTING, BINDING, ENGRAVING.

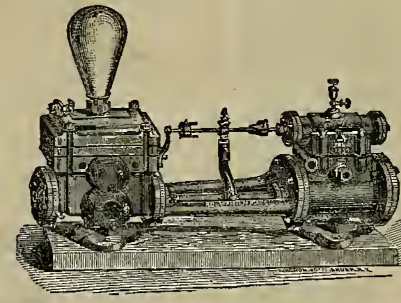
MESSRS. H. H. BANCROFT & CO., for fifteen years the leading house, covering every department of Books and Stationery; MESSRS. WM. B. COOKE & CO., Stationers, Book-Binders and Blank-Book Manufacturers, for sixteen years at 624 Montgomery street; MESSRS. TURNBULL & SMITH, the popular Steam Printers from Commercial street; and MR. A. W. STOTT, the elegant Engraver and Lithographer,

Have Removed to Bancroft's New Building, Market Street.

They have united their energies under one systematic arrangement, whereby the LARGEST EXPERIENCE and BEST BUSINESS TALENT are concentrated for the purpose of successfully competing with Eastern dealers in the manufacture and sale of Books and Stationery. Their object is to reduce prices, manufacture and SELL GOODS LOW, and DO THE BUSINESS, and they propose to do it. Address

A. L. BANCROFT & CO., San Francisco, Cal.

KNOWLES' PATENT STEAM PUMP.



This Pump has received the HIGHEST PREMIUM at every Fair where it has been exhibited. It is of superior make and finish; has all ground joints; no packing required. It is positive in its action. It is impossible to stop it on centers. It will always start without using a starting bar. We have two hundred different styles and sizes adapted for Factories, Steamships, Sugar Refineries, Breweries, Distilleries, Gas Works, Oil Works, Soap Works, Paper Mills, Tanneries, Bleacheries, Laundries, Railroad Purposes, Quarries, Petroleum Mines, Drainage, etc. Large Pumps for Water Works. Fire and Wrecking Pumps. ☞ Pumps guaranteed for every situation.

E. T. STEEN & V. CUSHING,
Sole Agents for the Pacific Coast,
No. 9 FIRST STREET. SAN FRANCISCO.

NEW AND SECOND-HAND ENGINS, BOILERS, and MACHINERY OF ALL KINDS, constantly on hand.

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

THE CALIFORNIA

Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:
JAMES T. DEAN.......................President;
JAMES MILBURN.......................Secretary.
RODGERS, MEYER & CO.................Treasurers.

Company's office, 121 Post Street, San Francis'o
12v20-3m

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.
THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

BARTON & RUTTER,

Importers and Dealers in

Guns, Pistols, Fishing Tackle

Pocket Cutlery, Etc.

SPORTING APPARATUS OF EVERY DESCRIPTION.

609 Clay Street, near Montgomery.

—SOLE AGENTS FOR—

Alexander's Celebrated Pocket Cutlery

For the State of California.

JNO. O. BARTON. R. A. RUTTER.
16v20-3m16p

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes,
H. M. RAYNOR,
57 Bond street, New York.
Platinum Scrap and Ore purchased. 15v20-1y16p

W. T. GARRATT & CO.

CITY
Brass and Bell Founder,
Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

—IMPORTERS OF—
HARDWARE.
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.
—ALSO AGENTS FOR—
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY
54 K Street, Sacramento.
7v20-ug

WILCOX'S

PATENT STEAM

WATER LIFTER.

Requiring no Engine.

Send for circular containing full explanations, price list, testimonials and references.
M. & A. WILCOX,
16v20-3m-nhxh 74 K street, Sacramento.

N W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market.
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws;
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect,
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, Made of Fulled Rawhide, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ **Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** ns

---

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,864 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422½ California Street.
9v20-qy16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

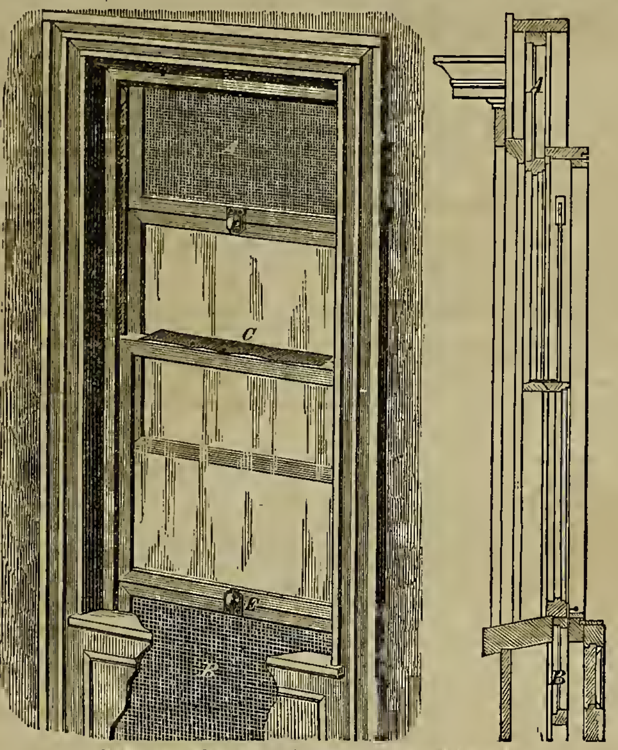
BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, May 21, 1870.

VOLUME XX.
Number 21.

Screen Attachment for Windows.

Reader, have you an antipathy for flies? Have you had your slumbers disturbed by the attacks of the persevering musquito, until you have lost all peace of mind and body? If you have had the experience of the majority in this respect, you will be interested in the device we illustrate to-day, which is intended to exclude insects from the interior of houses, while it permits the windows to be opened in warm weather for the entrance of the refreshing breeze.



IMPROVED SCREEN ATTACHMENT FOR WINDOWS.

The device is simple and can be easily understood from the cuts. A screen of wire, A, B, is attached to each sash and moves with it when raised or lowered. These screens work in box-heads formed above and below the windows, so that when the sashes are closed, they are out of sight, while they fill the open spaces when the window is open. To the top of the lower sash is fastened a guard or strip of elastic material, C, which reaches to the glass of the upper sash, thus preventing the entrance of the invading insect when the window is open.

By this arrangement, which is so constructed as to keep out the wind and rain when necessary, there is no danger of insects being able to enter the house through any carelessness or neglect in placing the screens, as these are always in place. And, moreover, they can be easily detached by means of a metallic strap, E, when it may be desired. The whole is very neatly constructed, and, while comparatively inexpensive, can be easily fitted up so as to present a very neat appearance.

The first cut gives a perspective view of the window with the upper sash lowered and the lower raised a little, so as to admit of the room being thoroughly ventilated. The second cut gives a section through the window showing the manner of construction. This, it will be seen, is very simple, and does not differ materially, except in having the box-heads above and below, from the common construction.

This arrangement will be appreciated by housekeepers, who are continually warring on the invading fly, and by all who live where troublesome winged insects abound. Being so simple there is no danger to be apprehended of its getting out of repair, while, as before remarked, it has the advantage of being always in place. A patent has been granted through the SCIENTIFIC PRESS agency to the inventors, Messrs. Hoagland, Reed & Newsom, of Brooklyn, Cal. Application for further information may be made to Messrs. Hoagland & Newsom, architects southwest corner of Sacramento and Kearny streets, San Francisco.

* * *

THE ACADEMY OF SCIENCES.—At the regular meeting this week a valuable collection of shells and antiquities was presented by Mr. A. Garrett, of Tahiti. A specimen of meteoric iron, from Mr. J. A. Lapham, of Wisconsin, was also received. A field meeting was ordered for to-day (Saturday), to examine the so-called Indian mounds at the Potrero. Dr. Cooper delivered an interesting lecture on the caves of California.

* * *

THE Butte *Record* states that, after an absence of nearly a year, the Locher steam plow made its appearance in town again on Thursday of last week. Their new machine is about ready to be put together, and the original one is to be dismounted, and the engine placed upon the new one.

The Endless or Band Sawing Machine.

Many years have elapsed since band or ribbon saws were first applied for the purpose of cutting curvilinear and irregular work. The advantages of such have long been seen. They are exceedingly simple, when considered with reference to the variety of work they perform. There is no jar or vibration; their action is continuous; the saw can be made thinner than those of reciprocating machines, and hence can be worked without making too wide a kerf or slit; the cut is at right angles with the face, and the dust is all carried down through the kerf, leaving the top surface clean, so that the operator can always follow the line.

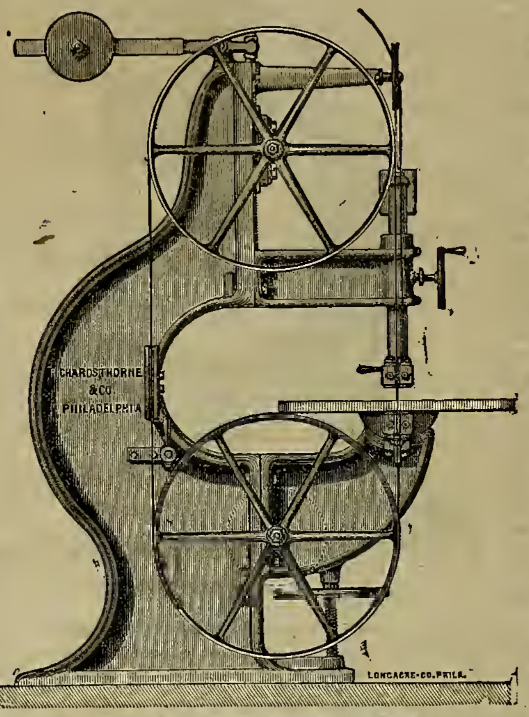


FIG. 1—NO. 4 BAND SAWING MACHINE.

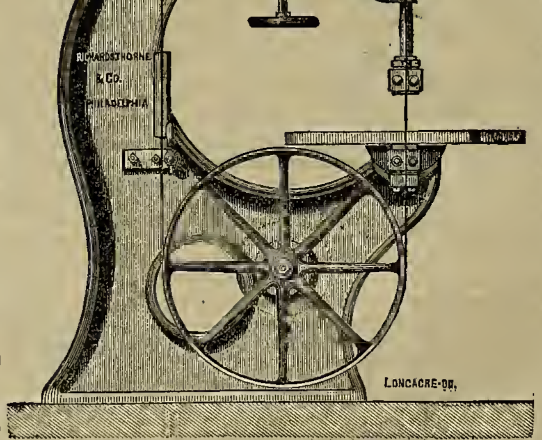


FIG. 2—NO. 3 BAND SAWING MACHINE.

The difficulty experienced in making the saw durable for a long time prevented any general use of these machines, until M. Perin, of Paris, if we are not mistaken, discovered a method of manufacturing and tempering by which the risk of breakage was lessened; and since then such advances have been made that, with proper care and attention on the part of the workman, there is but little danger of breakage, which results, generally, either from neglect or from a poor construction of the machine; not from cutting or from bending over the wheels.

We illustrate three band sawing machines designed by Richards, Thorne & Co., of Philadelphia, Pa., on which patents for improvements are pending. These machines are solidly constructed, the frames being cast in one piece and with enough metal in their cross section to withstand the strain of the saw and prevent vibration. The saws are supported by guides, with cylindrical back supports of hardened steel and adjustable lateral plates. This back support can be rotated so as to bring any part of its periphery in contact with the saw blade, and has a sufficient diameter to present about one hundred independent wearing surfaces. The lateral guides are also of hardened steel. The shafts are of steel, and run in long self-oiling brass bearings.

The No. 4 machine (Fig. 1) is of large size, and is adapted for ship-work and car-building and for large pattern shops. To regulate the tension of the saw-blade and provide for expansion and contraction—in earlier machines so fruitful a source of breakage—there is a weight and lever. The table is planed true and pivoted for bevel sawing, and can be set at various heights from the floor to suit the convenience of the operator or the depth of the stuff to be sawn. This is an important feature when both deep and thin sawing is done on the same machine, as the top of the stuff can thus be kept at the same level. Another important point is, that a compensating arrangement can be applied to the driving belt and the table continually adjusted to suit the depth of the work and prevent unnecessary strain on the driving shaft when light work is being done; this being effected by means of the hand-wheel seen in the cut; or two different belts, for deep or for thin sawing, can be used, the change from one to the other being conveniently performed by raising or lowering the bracket.

The No. 3 or medium-sized hand-sawing machine (Fig. 2) is adapted both to light and heavy work, and is so arranged that the saws can be readily changed to meet the requirements of jobbing. In the absence of other machines, it can be used for cross-cutting, slitting, and cutting out stuff.

No. 2 (Fig. 3) is a still smaller size, adapted for small shops where a cheap machine is wanted. Both of these are fitted with an elastic straining device, and all have a safety shield to protect the operator, should the saw happen to break.

For sawing metal the machines require no change, except the addition of proper appliances to regulate the speed of the saw. Each has a belt-shifter and a full set of wrenches, and is furnished with one saw and an apparatus for joining the blades. They are provided with improvements which are from time to time found to be of value, and the manufacturers claim great advantages for them. They are made by Messrs. Richards, Tborne & Co., Columbia avenue and Fifth street, Philadelphia, to whom any communications as to their operation and application may be addressed.

* * *

Morning Star Ore.

Editors Press:—As some misapprehension appears to exist as to the value of this ore, in consequence of my analysis, published in your issue of December 18th last, I beg to explain that as this analysis was made more for scientific than commercial purposes, no particular care was observed in taking the hand specimens, from which the analysis was made, from the *small* dump at the mouth of the tunnel. On testing a portion of the yellow pyritous ore, which constitutes the bulk of the *principal* dump at the hoisting works, I found a very marked difference in my results—the latter showing but $3.14 silver, traces of gold, and traces of copper; being, in fact, nothing but ordinary mundic. W. T. Rickard, F. C. S.

Leviathan mine, May 10th, 1870.

* * *

To Strengthen Fruit Trees.—Fruit and ornamental trees will sometimes so form their crotches as to split down under a heavy load of fruit or violent wind. The evil can be obviated in arching or cross grafting. Take a vigorous shoot in spring, and insert one end under the bark of the main stem and the other under that of the opposite branch. Tie the branches firmly together, to prevent slipping apart in windy weather. Or, instead of taking a separate scion, a growing sprout may sometimes be found near the place needing to be strengthened, and by cutting off the top it may be inserted under the bark of the opposite limb. These branches may be put in every few years, as the tree needs them. Such "Siamesed" trees are quite interesting objects to look at.

Communications.

Letter from Austin.

[Written for the Scientific Press.]

Editors Press:—I left Battle Mountain at 3 p. m. for Austin, taking the stage of J. P. Cope & Co. This company has a fine stock of horses, 40 in number, and makes the trip of 96 miles in less than eighteen hours. There are five stations on the way, the road is level, and the company shows every disposition to render the trip as comfortable as possible for the traveler and to give every accommodation to the public.

Austin and Vicinity.

We arrived in this place about half-past eight o'clock in the morning. Austin was first settled in 1863, at the discovery of the silver mines. It grew very rapidly at first, and then the population decreased, and now there are some 3,000 inhabitants. I see here fine and expensive mills and hoisting works, but am sorry to say that many are at present idle. There is a city hall, two brick churches and a daily newspaper, the Reese River *Reveille*, which, under the able editorship of Mr. O. L. C. Fairchild, is one of the best and liveliest of the interior papers. I understand that there is a prospect of having a branch road here from the C. P. R. R. This would be a great advantage to the place, and would enable the miners to obtain wood and other materials at so much lower prices that it would inspire new life into operations here, and enable mines to be worked at a profit which now must lie idle.

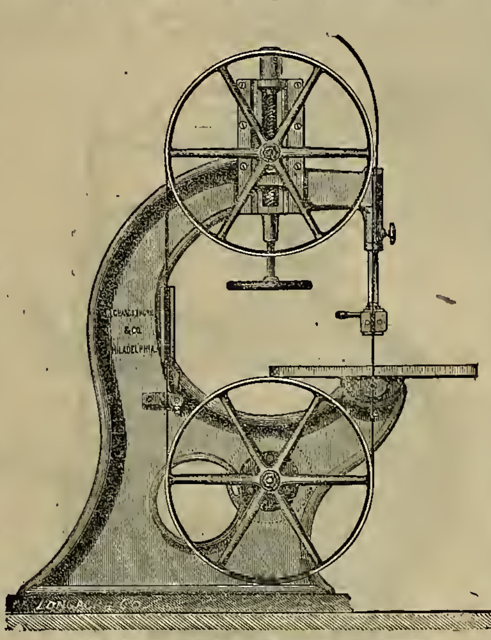


FIG. 3—NO. 2 BAND SAWING MACHINE.

I was suprised at the number of "chloriders," as they are called, who are hunting over the hills in search of new lodes and sorting rock, on shares, from dumps of mines which have ceased being worked. Some of these thus get rock, which they have treated at the Manhattan mill, and make money therefrom. I see in many of the dumps ore which will yield from $40 up to the hundreds per ton, but which, in the early days, was thrown out with the waste rock. There are many mines in this district with ore holding from $20 to $60 per ton, which are idle, waiting for new and cheaper process of reduction.

The Manhattan Company.

I visited the mill of the Manhattan company of New York and was conducted through the works by the general manager and superintendent, Mr. A. A. Curtis, a most energetic and capable gentleman. The mill is at present standing still, while being remodeled for the introduction of the Stetefeldt furnace, which is being built under the supervision of Mr. Edward V. Standish, whom you may know as a brother of the inventor of the Standish steam plow. The furnace will, it is thought, be in operation about the tenth of June, when, no doubt, your readers will have full accounts of its working. This company has bought the exclusive right for the district. Some miners are apprehensive that they will take advantage of this to keep up the price of working ores; but I am given to understand that the price will be reduced as much as possible. The furnace will be a great blessing to the place, and will do much to develop the mines, if properly managed.

Lander Hill.

To give a full description of the formations on this hill would fill a good-sized book, and, moreover, so much has already been published about the place that I need speak but briefly at the present time. The country rock, as you know, is granite, and the veins, which at first produced large amounts of the chloride of silver, at lower depths yield sulphurets, which render necessary a preliminary roasting in their treatment; and it is this roasting which makes the operation so expensive.

Hence, many mines are now idle, and the times have been very dull; but with the successful operation of the Stetefeldt furnace and with other improved processes which are bound to come, I look forward to a general brightening at no distant time and to renewed prosperity in the district. I send you a few notes relating to the present condition of some of the principal mines.

Manhattan, Pacific, Plymouth, Toyabe.

The Manhattan company, under its energetic management, have put in a new pump and engine lately, and are making other improvements. They will soon have about a hundred men at work, and evidently mean business.

The Pacific S. M. Co., of London, which has lately invested here, is at work on its mine west of the Manhattan, and is down 600 feet. They started in last December, and are pushing work under the able superintendence of Mr. James Brown.

Mr. D. F. McKim and others have lately struck a fine body of ore, yielding from $100 to $300 per ton, in the Plymouth shaft, to the west of the Pacific, having leased the mine from a New York company. They are stowing the ore away in the drifts (being fearful of losing it, should they bring it to the surface) until the furnace and mill shall get to work.

The main shaft of the Toyabe S. M. Co., of Philadelphia, is down 330 feet. I went through this mine in company with Mr. C. W. Calvert, the superintendent and part owner. Passing about 25 feet west, where the Lizzie Calvert ledge was struck, I found the vein 27 inches wide; but they have run a drift some 135 feet along the lode, when it widens out to four feet. Three different assays of the ore were returned as $127, $788 and $1,003; only two men are employed, however, at present, night and day.

Waverly—U. P. Tunnel.

On the Waverly ledge, owned by Geo. W. Henry & Co., they are 100 feet down and in ore assaying from $400 to $600 per ton. They are hoisting by means of a windlass.

The Union Pacific Tunnel Co., of New York, have their tunnel about one mile from town, on the grade going up the cañon. This was surveyed to run in under Lander hill, having a direction of N. 71° E., and to cut the ledges nearly at right angles. At the mouth of the tunnel is an open cut, 150 feet long and 44 feet wide, and having a face 22 feet high at the tunnel. This latter is 9 feet wide and 7 feet high, and is to have a double track. In the bottom they will have a drain two feet square for the water. They are now in some 80 feet, and employ daily nine men in three shifts. The greatest depth below the surface will be 1,500 feet. At a distance of 350 feet from the mouth they expect to cut the Old Pony ledge, and after this many others, among them the Manhatten, and Lane & Fuller. They talk of erecting at the entrance a wall 4 feet thick and 22 feet high, and a frame building, 44x50 feet, for ore house, blacksmith shop and office. They have bought 58 acres of land near the tunnel. The water they intend to carry around the side of the hill and use for irrigation purposes. Their work is attracting much notice, and, if successfully prosecuted, will bring about great results. The officers are: B. L. Franke, President, J. W. Naughin, Secretary, and T. J. Harlem, General Agent at the mime.

W. H. M.

* * *

The Mont Cenis tunnel will be finished this year. Ten thousand five hundred and ninety-eight metres have been excavated, leaving only 1,621 metres (less than one mile) to be done. Meanwhile such improvements have been made in engines and cars for very steep grades that the railway *over* the mountain may prove to be quite as economical, and quite as safe and comfortable, as the railway *through it.*—*Exchange.*

Letter from Cerro Gordo.

[Written for the Scientific Press.]

Editors Press:—Having seen in your valuable journal that you have heretofore re-published some of my communications, I take the liberty to direct a letter to you in person, which you may either publish or consign to the waste basket, as you may think proper. Being a constant reader of your paper (whenever I am fortunate enough to obtain a copy), I thought you would like to know what is transpiring in this section of our State in mining matters.

The Situation of the Camp.

Cerro Gordo, a mining camp of some four years of age, is situated in the southern end of the Inyo range of mountains, about 40 miles southeast of Independence, the county seat of Inyo county, and on the eastern side of Big Owens Lake, and eight miles distant from the same. About two years ago, Messrs. M. W. Belsbaw & Co. obtained a charter for and completed a toll road from the eastern shore of Big Owens Lake up the mountain to this place. Since that time the camp has been improving.

Smelting Works.—Water.

Upon the completion of the said road, Messrs. M. W. Belshaw & Co. erected roasting and blast furnaces, which have proved a perfect success in working the rebellious silver ores for which the Owens River country has been noted. B. & Co. are shipping crude lead bullion at every opportunity by mule teams to Los Angeles for San Francisco, and have on hand at present 1,200 bars. The most serious drawback heretofore to this camp was a scarcity of water, but that difficulty has been removed by the energy and enterprise of a number of the citizens of Cerro Gordo, Lone Pine and Independence, in laying a pipe to a spring four miles distant; and as I write, water is running to waste in the streets of Cerro Gordo, the supply having gained on the consumption 4,000 gallons in 48 hours. Knowing there are a number of gentlemen in San Francisco partially attracted by the richness of our mines, I think this will be a fact worth knowing.

Ores of galena are now selling at $15 per ton on the dump, silver ores at 20 per cent. discount of assay, less $60 per ton for working by the smelting process. Assays of the ores vary from 200 ozs. to 600 ozs. per ton; ores yielding less than the first named amount being retained upon the dump of the different mines as a second class.

The Mines.

Among the most noted of the present *partially* developed mines are, first, the Ignacio, being the oldest, and one of the richest, having been explored to the depth of 100 feet; second, the Belmont, now at the depth of 150 feet, with a tunnel coming to the surface at that depth, contains a vein of good paying metal of about four feet in thickness; third, the Wittekind mine, discovered about one year ago, has now a shaft of 90 feet in depth, with side drifts of 20, 60 and 90 feet in length, at the respective depths of 20, 60 and 90 feet, having yielded pay ore from the surface. Cumberland comes next in date of discovery, but yields richer ores than any of the preceding veins, although not quite as much in quantity. The Crowning Glory and Osceola are two new discoveries, showing veins well defined at 50 feet in depth, and from four to six feet thickness of pure metal—*i. e.*, free of barren quartz.

The most noted of the galena mines are named the Union, Santa Maria, Defiance, Frnnt, Freiberg, Guaymas, Buckingbam, and several of lesser developements, The Freiberg, Santa Maria and Union are cut by tunnel 500 feet in length. Large amounts of ore are being extracted daily from all of the above galena mines, except the Guaymas and Buckingham.

If such jottings as the above are in any manner interesting to you or your readers I shall be happy at times to devote a few moments in the jotting. Crowquill.

Cerro Gordo, Inyo Co., April 27, 1870.

* * *

An Elevated Railway.—They have an "elevated railway," as they call it, in New York city; but the most elevated railway in the world is that which runs from Arequipa to Cuscn, in Peru. Its highest point is 15,096 feet, or about three miles, above the level of the sea. At this altitude, the air is only half as dense as at the sea level, the average height of the barometer being only 14 inches. According to Mr. W. T. Brigbam (in *Old and New* for March), the highest pass on the great Pacific Railroad is 12,400 feet high.—*Journal of Chemistry.*

Mechanical Progress.

Cheseborough's Elevated Railway.

The N. Y. *Engineering and Mining Journal* describes a new system of locomotion for elevated roads. "The track consists of a series of inclined planes suspended by cables; the cars run down the inclines by their own gravity, and, by elevating platforms at the foot of every incline, they are raised to the head of the next. The elevating platforms are intended to be worked by compressed air, which is to lift a piston working in vertical cylinders; and to the piston-rod, the platforms, kept in place by guides, are to be attached directly. The compressed air is furnished by means of a stationary engine, air-pumps and receivers located at the end of the route. From the reservoirs a four-inch pipe is to run all along the road, and by the necessary smaller pipes and valves this is to connect with all the cylinders. Not more than fifty pounds pressure of air to the square inch are required, and even that will give nearly twenty thousand pounds of lifting force (more than twice as much as ordinarily required), if the cylinders are made with a diameter of twenty inches, so that the piston-head would contain nearly four hundred square inches. The inventor intends to give the sections such a grade at the outset or highest point as to secure for the cars a high momentum in starting, and then to reduce this grade gradually towards the lower end of the incline, so that the track would in reality not be a straight inclined plane, but cycloidal in form. * * Passengers are to reach and leave the cars by means of a staircase, twelve and a half feet in perpendicular height, and from here they are to be elevated with the car to the top of the incline."

Treatment of Wood for Paper Making.—The *Mechanics' Magazine* describes Cattell's improved process for this purpose. We condense as follows: The wood, in fine shavings, is first washed in cold water. It is then placed in a bath consisting of a solution of borate and phosphate of soda, potash, or ammonia, in the proportions of three lbs. of the borate and one lb. of the phosphate, together with one quart of benzole, or other volatile solvent having an action on resinous matters, and not soluble in water, to every cwt. of the material to be operated upon. The bath is heated until it boils, and is kept at that temperature for six hours with continuous agitation, until on removing a small portion of the material, and applying to it chlorine water, it is found capable of being readily bleached. The wood is then removed from the bath, washed, and again boiled for four hours in a bath consisting of alkaline sulphides. The liquor is then drawn off, and the material is drained without exposure to the air, and subjected to the action of sulphurous acid, until the alkalies are converted into hyposulphites, when it is thoroughly washed, and converted into pulp in the ordinary way.

Breaking up old Cannon.—To reduce these to manageable size for re-melting, powder, nitro-glycerine, wedges, the expansive force of freezing water, and various other means, have been tried. The *Tribune's* Buffalo correspondent writes: "Here they are cut in two by a continuous stream of molten iron, which wears away the iron as a stream of hot water would eat into a mass of ice. The gun is rolled upon a frame in front of and level with the furnace mouth. Then the muzzle end is shoved in as far as possible among the other iron, the opening filled up and luted around the gun, the end of which is melted off. At the next change it is shoved in another length, and is thus reduced until the breach can finally be rolled in and thus finished without any more expense than with pig or scrap iron."

Separating Brass and Iron Filings.—A late French invention is a machine for this purpose which will run through in an hour half a ton of mixed filings and borings. These are thrown into a hopper, whence they fall upon a revolving drum, which has upon its surface iron bands in contact with horse-shoe magnets within. The iron particles adhere to these bands, and are removed by a revolving brush beneath. There are two of these drums, and the iron and brass particles are finally delivered into separate receptacles.

The Whitworth Gun Metal.—We clip the following from an article in *Engineering:* "The great merit of the manufacture of the Whitworth metal consists in putting the molten steel under extreme pressure, and so expelling from the mass all those air bubbles and gaseous spaces which cannot otherwise be got rid of by the ordinary processes without larger proportions of carbon than are often consistent with due ductility. It is essentially a mechanical process, applicable to molten metals whatever their chemical constitution, but most useful in the case of low steels. The details of the system have no doubt taxed all the mechanical resources of the inventor, but the above is the simple result. The process has the advantage of not being in competition with the Bessemer or any other process of purifying and carbonizing iron. What it will compete with is the method of endeavoring to make an unsound ingot sound by hammering, or that of seeking to produce sound masses of ductile metal without hammering."

The Clip Pulley.—This is an English invention which has been introduced in the Pennsylvania iron mines. The circumference of the pulley is set throughout with pairs of movable jaws. The amount of motion in these jaws, and hence the amount of clutch upon the rope, is proportioned to the strain upon the rope. The especial advantage attending its use is, "that it entirely does away with the sawing action of the rope in the ordinary V groove of a pulley—the clips laying hold of the rope with an amount of grip proportionate to the pull upon the rope, holding it absolutely fast for the moment and afterwards completely releasing it as soon as it arrives at a point where it is tangent to the pulley. By this means, any power that is desired can be transmitted by the clip pulley, without involving either the loss from friction or the wear and tear of rope attending the use of the ordinary grooved pulley."

A Tellurion.—A Georgia paper notices a machine lately brought out by a citizen of Atlanta, which is to be manufactured for sale by a company organized for the purpose in Hartford, Conn. The cost of perfecting it, in time and money, was some $80,000. We quote: "It is believed to be the only tellurion which presents the movements of our earth and moon precisely as they are in nature. The earth is seen to travel, not as in most exhibitions of the orrery, or planetarium, in a circle, but in the ellipse which its orbit actually describes. It shows with precision, at a glance, the movements which produce day and night and the changing seasons. The movements of the moon are clearly shown—its exact revolutions, its crossing of the path of the earth, and the effect upon it of the attraction of the sun, and of the earth."

Coppering the Wire for Cushion Springs.—The iron wire used so extensively for this purpose is immersed in a solution of sulphate of copper for a short time, during which a thin film of copper is deposited upon it. It then goes through the draw-plate for the last time, and the necessary hardness and elasticity are given it, while at the same time it is protected from oxidation.

Another Brake.—An American invention recently patented in England is so arranged that a pair of "brake-wheels" are brought into contact with the running wheels and with the rails at the same time. The contact with the running wheels causes the brake wheels to revolve in one direction, while the contact with the rails gives them a tendency to revolve in the opposite direction.

Charcoal Bells.—M. Sidot carbonized wood in the vapor of sulphide of carbon, obtaining charcoal, which, when struck, was as sonorous as a piece of metal. He then got a bell turned in wood, carbonized it in the same way, and has an instrument which gives a sound like that of a silver bell. The carbonization is only superficial, and the bell, therefore, not very brittle.

Morocco Manufacture.—A new form of the tanning process consists in attaching the skins, in the form of bags, to nozzles, from which the tanning liquor is forced into them under pressure from a reservoir above—the liquor slowly filtering through the skin, and thereby permeating its pores.

Scientific Progress.

Philology and Darwinism.

F. W. Fnrrar epitomizes, in *Nature*, a pamphlet by Prof. August Schleicher of Jena, upon the parallel between the science of language and the Darwinian theory of the origin of species. We quote detached and condensed paragraphs:

"Prof. Schleicher regarded languages as natural organisms which, in accordance with definite physical influences and independently of human will, are produced and developed, grow old and die, and, therefore, manifest the series of phenomena to which we give the name "life." * * Mr. Darwin has constructed an ingenious diagram to illustrate the immense scope which must be allowed for gradual divergence of characters in animal and vegetable species derived by natural selection from an original genus. Prof. Schleicher has made an exactly similar table to serve as a genealogical tree for the Aryan families of language. But here the philologist has a distinct advantage, and the study of his results may be most suggestive to the naturalist; for the Darwinian diagram is to a great extent ideal and hypothetical; while the table of languages is an expression of indisputable discoveries. * *

The rudest forms of the most developed language have sprung by insensible derivation, from phonetic signs as vague, simple, and monosyllabic as those of Chinese itself. * * The ultimate roots of the Aryan languages closely resemble in character the actual words of those languages which have remained to this day nearly in their primitive condition. Such roots may, without fancy, be called speech-cells, in which the rudiments of all special organs are implicitly *involved*, but in which they are as little *developed* as in the germinal vesicles which represent the earliest forms of animal and vegetable life. There may have been multitudes of such sound-cells, as it were, from which different families of language have sprung by special lines of development, just as, according to the Darwinian hypothesis, many primordial cells, presenting a close similarity, may have been the earliest rudiments of all living organisms.

In speaking of the extinction of species and the struggle for existence, Mr. Darwin uses language which may be applied—without even verbal modification—to the phenomena of languages. Here, no less than in the animal and vegetable kingdom, the dominant forms of the prevailing groups tend to leave many modified descendants, while the imperfection of the weaker groups leads to their gradual disappearance. And in consequence of the extinction of languages many *intermediate* forms have perished; the primitive relationships have been disturbed by all sorts of external influences, and consequently languages radically different are now found existing side by side. All this represents a condition of things precisely similar to that which prevails in animated nature."

The Germ Theory of Disease.—The following is from a report of the discussion at a late meeting of the Polytechnic Association of the American Institute: The researches of Dr. Hallier, of Jena, were alluded to, and his conclusions in regard to the germs formed in the bile of cattle dying of the Texan cattle disease stated. This distemper answers to the yellow fever in the human system. In the bile from these cattle were found germs which not only lived, but grew and increased after the manner of those in yeast. It was stated that their development was largely influenced by the circumstances in which they were placed, one form being found when the growth was in carbonaceous substances, and another very different one when in substances containing nitrogen. Another interesting fact was stated, showing a close resemblance between the highest developed form of these germs, and those found in syphilitic diseases. Further developments resulting from close study of these germs may throw light upon the development theory.

Glaukopyrite—This is a new mineral, described by Prof. Sandherger, who discovered it in pieces of calc-spar from Andalusia. It belongs to the group of arsenical pyrites. "The color is light lead-gray to tin-white; the streak grayish-black; hardness, 4.5; specific gravity, 7.181. In contact with the air, it tarnishes slowly, first assaying a blackish, afterwards a yellowish-brown, and finally a blue color."

Experiments with Magnets upon Plants.—The following is from a recently published pamphlet by J. Vansant, M. D.: "I took three tulips in full bloom, flowers red, growing in the same pot within four inches of each other. These plants, which I shall designate as A, B, C, were about equally vigorous, almost exactly of the same size, and were kept in a light room at a genial temperature. If there was any advantage in vigor, it was in favor of A. By means of a steel-bar magnet, capable of lifting with one pole about an ounce of iron, I applied the southward end to tulip A, drawing the pole slowly from the surface of the soil to the top of the plant along the stalk and larger leaves, and repeating this manœuver for three minutes. I then made a similar movement over tulip B, but substituted the northward end. Tulip C was left untouched. Almost immediately there was a contraction or shriveling of the petals visible in both of the plants touched, but especially in A. Soon, however, the contraction disappeared from B, while in A it continued. About twelve hours afterwards I placed a small straight magnet four inches long by one-sixth of an inch in diameter, so that its + pole, resting against the scape of A, and its — pole against that of B, should keep up the same kind of magnetic action as first applied; and the instrument was left in this situation for 36 hours. At the end of that time the flower of A was very much withered and evidently dying. The flower and leaves of B, on the contrary, looked as fresh and of as good color as those of C, which were untouched. After eighty hours from the beginning of the experiment the flower of A was quite dried up, while that of B, though more shriveled than C, was far less withered than A. The green leaves of B appeared just as healthy as those of C, but the leaves of A were more than ever curled and pale."

Temperature of the Deep Sea.—In a recent lecture at the Royal Institution, Dr. W. B. Carpenter, V. P. R. S., gave the result of some recent dredgings in the deeper parts of the Atlantic, farther south than those made a year ago. The work done proves that after a depth of 200 or 300 fathoms is passed an enormous difference in the temperature of the water quickly takes place, and the area of the bottom of the deep Atlantic is covered with water only two or three degrees above freezing point, and this cold area is full of animal life. They dredged in water 500 fathoms deeper than that from which the Atlantic cable was raised, and they brought up great quantities of mud from a depth of about three miles. This mud contained plenty of the higher forms of life, including mollusca and cretacea, with well formed eyes. Temperature seems to exert a much greater influence upon animal life in the sea than depth. Hot weather superheats the surface water to a depth of about fifty fathoms.

As to the icy cold water at the bottom of the North Atlantic, it is a question which further research must solve whether this cold water does not come more from the south than the north pole, for there is so much water and ice near the former, and so much land near the latter. As the north pole is approached the Atlantic narrows very much, so that cold water coming from that region must be very much diluted as it flows southwards, because of the large area over which it has to spread itself. There is reason to believe that the water in the very deep sea is everywhere very little above its freezing temperature; it is therefore no wonder that arctic species are found in equatorial geological formations.

Heat and Force not to be Dissociated from Matter.—"Heat being a form of motion, a force, the difference between sensible and latent heat is, that the molecular motion of the first is communicable to the thermometer, while the latent heat is that peculiar molecular vortex motion, required to keep a body in the gaseous or liquid condition. This peculiar motion is not communicable except when driven out—that is, when by condensation or otherwise, the space required by the molecule in keeping it up, is contracted or sufficiently diminished. Even latent heat being thus a motion of matter, a store of force, a motion of material molecules ready to show itself undiminished at any time, heat cannot be asserted ever to become dissociated from matter. As further all mass motion is convertible into molecular motion (heat), and as in the essence of the true modern conception they are not only convertible, but, in a certain sense, identical forces, we cannot dissociate force from matter, without screwing up our imaginations to a high metaphysical tension."—*Dr. Van der Weyde*—*Chemical Repertory.*

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Items.—*Miner*, May 7th: Mt. Bullion tunnel is encountering very hard rock, yet is pushed with energy....M. C. No. 3 is making good progress in ore of low grade. ....Air pipe of galvanized iron has been put in the Silver Glance tunnel....Ore from the Pennsylvania, three tons, was taken to Reno this week to be worked by Stetefeldt....It is reported that the machinery for the Schenectady will be here at an early day....We learn that the survey of Mountain No. 1 has proved satisfactory, and that as soon as giant powder can be obtained work will be resumed.

Leviathan.—*Chronicle*, 7th: The erection of the smelting works has commenced, but it will be six weeks before they will be ready for operations. Next week coal burning will start up again.

Better.—Pennsylvania ore steadily improves, and that taken out this week is much richer than that sent to Reno on Monday.

Relocations.—As there are many claims upon which no work has been done for two years, several relocations have this week been made.

AMADOR COUNTY.

Oneida.—*Ledger*, 14th: Another satisfactory clean-up was made last Saturday after a run of two weeks.

Kennedy Mine.—The owners, for want of water at their own mill, are having rock crushed at the Maboney and at the Kearsing.

CALAVERAS COUNTY.

Angel's Camp.—Cor. of *Chronicle*, 14th: The Roanoke mine, owned by Jim and Joe Matson, has turned out a chunk weighing $1,123, with smaller ones ranging from $50 to $250. The Angel's Quartz Co. has pierced to the depth of 400 feet, the quartz paying from $40 to $100 per ton.

The Stickle's mine, on the same lode, had a good clean-up recently. Besides these there are 15 arastras working daily, and all paying.

Railroad Flat.—Cor. of same: Whisky Slide rock shows any amount of free gold, notwithstanding the raids upon the pile by specimen seekers. The shaft is 50 feet deep. The lead measures seven feet between the walls, and the rock prospects well. The owners have exhausted their means, and work has stopped.

The Petticoat mill, after a short run on rock from the Poe mine, cleaned up a large amount; and also realized handsomely from another lot crushed recently.

Mr. Burr, lessee of the Petticoat mill at Railroad Flat, has made the following proposition to the miners of the district: He agrees to pay them $1.25 per day for working their own lodes; the expense of hauling the rock to the mill to be equally borne by himself and them; he will do the crushing and give the miners half the proceeds.

EL DORADO COUNTY.

The Prospects.—Placerville *Democrat*, 14th: The evidences of prosperity are daily increasing; we constantly hear of some new mining strike, and it is more a matter of surprise that a man has not, than that he has, a good paying claim. And the fact that we are going to have a new ditch is no longer problematical.

Pleasant Valley.—Thos. R. Young and McLellan, from two months' washing, have cleaned up $2,600.

Pi Pi.—McKinney & Co. cleaned up three months ago, 140 ounces, after two months' run. During the past week they have cleaned up, after three months' run, between 50 and 60 pounds of gold, and are not entirely cleaned up yet. Steadman & Co., same place, have averaged $5 per day per hand, in opening their claims, and are certain of big pay when water comes next winter. Smiley & Co., for three months, have made $10 per day per hand at same place.

Georgetown.—Cor of same: Parties have been here from San Francisco negotiating, and there is a fair prospect that the Eureka will be sold. In the event that no arrangement can be made, the present owners intend immediately to start the mine. There is an eight-stamp mill on the mine with everything necessary for working. The rock abounds in sulphurets, which have been found rich. The Woodside mine still remains in *statu quo*, the owners having no means to work it.

Water promises to be short. Claims which at this season usually have abundance of water, are now about to shut down for the summer.

INYO COUNTY.

Cerro Gordo.—Cor. of *Territorial Enterprise*, May 3d: The owners of the San Felipe are setting up a claim to the Union vein, as being one and the same, and are taking out ore from it. From the Defiance Co's shaft H. W. Gould and others are taking out rich galena. Ditto Mat. Gibson on the Front lode. The Jefferson Co. have been taking out very fine ore, and are now running a tunnel to tap the bottom of their shaft 65 feet deep. Mr. Williams, one of the owners, informs me that they have taken out of this shaft 275 tons of galena ore, which assays $120 per ton in silver and 70 per cent. in lead. Their location was made about the 8th of November, 1869. J. H. Phillips, formerly foreman of the Chollar-Potosi, has a contract with the Jefferson for taking out ore. The Buena Vista Co. has a tunnel in 300 feet, and has a prospect of striking the ledge in a few more feet. The La Depresa Co. has a tunnel in 138 feet.

MARIPOSA COUNTY.

Mariposa Mine.—*Gazette*, 13th: Workmen struck an exceedingly rich vein in the lower level last Monday, and the rock improves as they go down. The vein is nearly four feet in thickness, and shows gold freely.

NEVADA COUNTY.

Eureka.—Grass Valley *Union*, May 11th: There was a semi-monthly melting at the mine yesterday. The gold melted was from the mill alone and does not include anything from sulphurets, nor from the batteries. A 12-days' run gives $26,300.

Perrin's.—Same of 12th: The runs of Perrin's mill for the last four weeks make a total of $5,409.62. During the time 175 loads of rock were crushed.

Bowery Mine.—Same of 15th: The new pumping and hoisting works started up yesterday. Every thing worked well. The shaft is down 100 feet. The rock has paid $83 per ton, on an average, counting all taken out. The ledge is from 8 to 16 inches thick.

Prospecting.—On Gold Flat a large amount of prospecting is being done for quartz. Several of the ledges have yielded first rate rock. In addition to this the companies along Deer creek, as high up as the Cascades, are prospecting for gravel, with splendid indications. Other enterprises are being pushed forward at Cement Hill and other points.

Sucker Flat.—The Pittsburg Co. have completed a bed-rock tunnel 1,800 feet long, raised a shaft, and will commence washing in a few days. The Timbuctoo tunnel is in 750 feet. The Blue Point tunnel of Crary, O Brien & Co. will be through in a few months. Other companies are making good progress.

Bloomfield,—Same of 12th: The North Bloomfield Gravel Mining Co. are working 20 men in their claims. The company will in a short time commence work to connect the upper end of the new ditch with their big reservoir at Bowman's.

Blue Lake.—This district, in Meadow Lake township, seems to be attracting attention. Recently a number of locations of ledges have been made, in which San Francisco parties are largely interested.

Diamond Creek.—Same of 13th: The miners have had a short but lively season. Five companies have been washing, but the scarcity of water will soon force all of them to stop.

Lecompton Mine.—Same of 14th: A company of five working miners, who are acquainted with the ledge, have taken a contract to work the mine on shares for four years.

Omega.—We learn that 12,000 inches of water per week is used at Omega, and this is insufficient to supply the demand. The ditches are all running full, but this will only be for a few days longer.

The Prospect.—The present season bids fair to be one of the greatest in its yield in some years. The quartz interest is extending its area. We hear of many old claims started again, and many new ones opened. Several very heavy operations, which have been for years getting ready, will be at work this season.

Forest City.—We learn that things are assuming a lively appearance again. The re-discovery of the great lead from which such large amounts of gold were taken in years gone by, give an old-fashioned appearance to the town. The rich quartz ledge recently struck below Rock creek is supposed to be the same from which specimens were taken by Mr. Cornish a year since.

Graniteville.—Cor. of same, 13th: The Sweet ledge is reported to be in the hands of the Watt Brothers. They are down 300 feet on the Jim mine, and have a ledge four feet wide, of rock which must pay $25 a ton. The mill started up 10 days ago. The Banbury ledge has been worked all winter, and paid good dividends. They employ 30 men. The Birchville mine has been incorporated. They are down 150 feet with their incline shaft. At the Star mine, Pendleton & Co. have 200 tons of good looking rock out. The mill is being repaired.

PLACER COUNTY.

Ophir.—Cor. of *Herald*, 12th: Our mills cannot crush the rock as fast as the miner raises it....They have not taken out quartz from the St. Patrick this week, and will not for several days. Mr. Eaton has let a contract to sink the shaft deeper. The quartz in sight in the bottom is as rich in gold and sulphurets as ever....There are several companies south of Ophir, a short distance from town, that are getting good prospects....The Empire Co. have a number of ledges included in their purchase that look promising, and intend to go to work on them very soon.

SAN DIEGO COUNTY.

Julian District.—San Diego cor. of *Alta*, May 10th: The first quartz mill arrived yesterday. It has a capacity of crushing 25 tons of rock in 24 hours, and is owned by William McMillan and others. It will be put up at once in the Julian District. Several ledges are making a better showing. At a depth of 40 feet the rock is better and the ledges wider than on the top.

SHASTA COUNTY.

Horseshoe Bend.—*Courier*, 14th: If the logs and other obstructions are removed, and no rain falls for three weeks, the tunnel will carry about all the water in the river, and leave the channel dry enough to work for several miles. It is hoped that some effort will be made to work the claims this summer.

SIERRA COUNTY.

Mining Near Gold Lake.—*Messenger*, 14th: At Illinois Camp Steilman & Co. are taking out good pay. Near them Limprich Bros. are getting ready to hydraulic. Near Woodchuck, Culver & Co., Nova & O'Niel and Jackson have apparatus for hydraulicing, in place. Sol Bahb, at the mouth of Woodchuck ravine, has a hydraulic and derrick in operation. William Wilburn will put in a hydraulic. There are half a dozen other companies getting ready. The snow is quite deep yet.

Port Wine.—Cor. of same: The Monte Cristo boys are taking out big pay, and to-day word came down that they had found a 10-ounce specimen worth $200. The Union boys are taking out heaps of dust. Those in the Eagle are doing better lately.

Goodyear's Bar.—Quite an excitement has existed during the week over the discovery of an extensive gravel deposit, a mile below town, on the north bank of the river, 45 to 50 feet in depth, and paying from five to ten cents to the pan throughout.

SISKIYOU COUNTY.

Cottonwood.—Yreka *Union*, 13th: Jones & Barton of Humbug are getting out timbers for a quartz mill at Cottonwood, to which they will remove their machinery. The Norfolk and Lodi ledges will supply the quartz for the mill. It shows a great amount of free gold. It, however, has never been prospected, except in a hand mortar. The mill will be running early in June.

Sugar Creek.—O'Shea & Doll, on Tiger Fork, have found a ledge which at the depth of five feet shows a vein 2½ feet thick. It prospects well.

French Creek.—The Spidell Co. have run a tunnel and struck the ledge 100 feet below the surface. It looks well.

TUOLUMNE COUNTY.

Confidence Mine.—Sonora *Democrat*, 14th: Seven days' crushing cleaned up 735½ ounces, or about $14,000,—an increase of $6,000 on the run of last week.

Colorado.

Whale.—Central City *Register*, May 11th: The mill will have Bruckner cylinders, Freiberg barrels, Bertola pans, and a steam stamp mill. It will be completed by the middle of July.

Hukill Gulch.—The Fairmount lode has a shaft 100 feet deep, a crevice at the bottom ten feet in width, and a pay vein 30 inches. The first-class ore has sold for $150 a ton. Forty-seven assays average $209.73 per ton.

Mr. Baker is working the Shaffter lode. A test run of five or six tons made at the Fairmount arastra gave a yield of 2½ ozs. per ton. The Fairmount mill is shut down for completion.

Womack & Seaton.—Shaft 268 feet deep; crevice in the upper level ten feet wide, carrying a ten-inch vein of first quality ore, averaging 100 ounces silver and two ounces gold per ton. The eight men employed mine two tons every 24 hours.

St. Clair Mills.—Grove & Haskins are running this on gold ore by the Paul process.

Empire.—George Munson is running the Knickerbocker mill on ore from the 10th Legion lode. The last lot yielded five ounces gold per cord.

California Gulch.—Thomas Starr has been all winter ground sluicing, and has taken out 100 ounces of fine gold. George Henderson has been sluicing with good results, The lodes are looking finely. The Pilot is again yielding pay, as also the Lincoln and Printer Boy.

Payne's Bar.—Morilley & Anderson have struck it rich, and are averaging an ounce to the hand a day. Wednesday two men took out five ounces.

Fitzpatrick & Sariolle have a pay streak that averages an ounce of gold to the foot. Week before last three men, in six days, took out 17 ozs. 10 dwts.

John Collom has his smelting works at Swansea under full headway, and has commenced work on ore from the Griffith lode. This mill has a dressing capacity of 20 tons a day, while the furnace can smelt six tons every 24 hours.

Bullion.—*Herald*, 11th: The shipment for April from Central City was $78,000.

Potter & Holly are running their 15-stamp mill on ore from the Forks, Jones, Burroughs and French lodes. The Jones is yielding 11, and the French 16 ounces per cord. This mill has taken out $5,000 in the last three weeks.

Coaley & Gilpin.—The mine turned out six bricks of silver last week. Their weight was 247 pounds, worth in currency $4,000.

Prize.—The ore is yielding 6 oz. 15 dwts. per cord. This is worth $125 per cord.

Items.—Georgetown *Miner*, 5th: The Brown Co. shipped yesterday, a button of silver weighing 216 pounds troy; coin value, $3,369.60. The German Reduction Works, Huepeden & Co., shipped a silver brick weighing 1,073.80 ounces; coin value, $1,035.68; product of second-class Terrible ore.

Cascade.—This lode is thought by some to be an extension of the Terrible. The crevice is four feet wide. The ore varies in richness from $163 to $450 per ton.

A sample of Sunhurst ore assayed $1,816 per ton.

Idaho.

New Discovery.—*Statesman*, May 10th: Messrs. Montgomery, Alexander & Gibbs, who have been prospecting on Boise river all winter, finally struck a rich gulch on this side about ten miles above town, near Sheep creek, which prospects from twenty-five to fifty cents to the pan, coarse gold. There are several other gulches near by that also prospect rich. Nine hundred dollars have been taken out of the discovery claim.

Montana.

Silver Bow.—*New North-West*, April 29th: The water troubles are adjusted on a basis of 75, 60 and 45 cents per inch for 24 hours.

Rocker.—Cor. of same: The mild weather has given a supply of water, and the bars and gulches are alive with men busily sluicing. Although our population has increased considerably, there is a constant demand for labor. Wolverton & Liddle bought 300 feet in McMinnville bar for $2,000, and will soon have a hydraulic in operation. Owen & Co. are working day and night on their ground. A new discovery was made a few days ago near the head of Rock gulch. Hawkins & Co. are now the owners of the larger portion of the gulch.

Cedar Creek.—Mr. Botiel left Louisville April 21st. He estimates the number of men at Cedar creek at 2,000. Twenty strings of sluices were running. Wages are $6. There are many unemployed men in camp. Discovery company would have three strings of sluices running Monday. With four men to the string, two shoveling in, it yields $45 to $50 per day to the man. The pay streak is 108 feet wide. No. 8 above yielded $90 per day to the hand for first three days. Eight miles of the gulch will average $15 per day to the man. Diamond gulch is paying 6 cents in the gravel; no bed-rock yet struck.

Pilgrim Bar.—Same of May 6th: There are in the camp about 140 men, and 17 companies will work hydraulics and ground sluices. These will produce from $1,000 to $4,000 each per week.

Pioneer.—Some 15 large companies and a number of smaller ones will work this summer. The ditches will furnish 3,000 or 4,000 inches of water, and the snow on the Gold Creek mountains promises a continued supply. The Chinese, some 300 of them, have purchased a large number of claims, paying cash. There is some feeling on the subject.

BEAR GULCH.—There are some 250 men working, and 150 in the side gulches. Water is plenty, and there is not an idle man in the camp.

BUTTE.—Humphrey & Allison's ditch is carrying 600 and John Noyes' 250 inches of water. There are only 50 men in the camp, while 150 are needed. Wages are $6 for day and $7 for night hands.

WASHINGTON GULCH.—*Independent*, May 7th: We learn that the mines are bountifully supplied with water, and miners taking out large amounts of dust.

HENDERSON'S.—The miners are all working. They have plenty of water, and are doing well.

HIGHLAND.—R. D. Leggat reports that the miners have just got to work. Quite a number of men are needed. The fluming companies have resumed operations, but as yet water is scarce. The arastras of the Nevins and Only Chance companies will start up next week. The Nevins Co. are still pushing their tunnel. Only Chance are working on their shaft. The owners lately refused $20,000 cash for their mine. Dickey & Co. have seventy tons out that is very rich. They are erecting an arastra.

CABLE CITY.—Mr. Cameron informs us that the new steam hoisting and pumping works work admirably. The shaft is being sunk rapidly.

Nevada.

COPE DISTRICT.

ARGENTA.—Elko *Independent*, May 11th: The owners contracted to furnish the Reinhart & Drew mill 2,000 tons of ore,—not 200, as heretofore stated. The stage brought down on Monday 300 pounds Argenta bullion.

COPE DUST.—Oppenheimer & Co. received this week $1,600 worth of gold dust from Mountain City. The estimate of the dust taken out daily is $600.

ESMERALDA.

COLUMBUS.—Cor. Sac. *Union*, May 3d: Eaton's mill has been running two weeks. He has shipped 400 pounds of silver bullion, and will ship more this week. The rock worked was from his Baluarto mine.

The Pioneer mill has been working refractory ore, and has saved 80 per cent. of that roasted and 65 per cent. of that not roasted. In a week they expect to have the mill running steadily.

HUMBOLDT.

ITEMS.—*Register*, 14th: The Silver Mining Co's mill at Unionville has shut down, and work upon the mine suspended for the present....Isaac Miller has discovered a very rich ledge in American district.... Aiken & Co., of Raspberry, have discovered a rich mine in Sierra district. The ledge is several feet wide.

REESE RIVER.

MINERAL HILL.—Cor. Elko *Independent*, 14th: Our camp is reviving. All the mines are worked, and the ores improve. The Manhattan Co., of Austin, has let contracts for the erection of a Stetefeldt chlorination furnace.

WASHOE.

HALE & NORCROSS.—Gold Hill *News*, 14th: Daily yield, 160 tons; principally from the lowest level. At this point the body of ore is the best ever yet found in the mine, being not only of high grade, but of great extent. It bursts out 50 feet in width and is worked thus far 130 feet. This level, 1,182 feet from the surface, is kept perfectly drained by running the pump two hours out of the twenty-four.

OCCIDENTAL.—The lower tunnel is still driven ahead to connect with the winze from the upper mine. This will take three or four weeks.

CROWN POINT.—The incline from the 1,000-foot station is 87 feet deep to-day, but the rock is hard. The daily yield is 65 tons from the upper levels.

GOULD & CURRY.—Yielding 70 tons daily of good ore from the old mine. The bullion receipts for April footed up $48,721.80.

SIERRA NEVADA.—This is about the most regular in its yield of any. The surface deposits seem inexhaustible.

OVERMAN.—Daily yield 125 tons. The body of ore found a few days since seems extensive.

HOPE.—Daily yield 30 tons, all of which is worked. The lower level continues looking better, and the general yield is $20 per ton on the average.

KENTUCK.—An improvement is manifest during the past week. The daily yield is 50 tons.

CALEDONIA.—Yielding 30 tons per day of fair ore from the 200-foot level.

YELLOW JACKET.—This mine is all right again, giving its regular yield of 350 tons per day—200 of good grade from the lower levels, and 150 of low grade from the upper levels.

CHOLLAR-POTOSI.—Daily yield 200 tons of good ore. South of the old Blue Wing a very excellent and extensive body of ore has been developed. This new resource is designated the Belvidere section.

SACRAMENTO & MEREDITH.—The new mill starts up for the first time this afternoon.

VIRGINIA CONSOLIDATED.—The west drift from the 500-foot station is in 352 feet.

OPHIR.—The Ogden mill is run on ore from the south shaft of the old mine.

BELCHER.—The yield is the same, and the prospects for ore at the 730-foot level do not improve.

WHITE PINE.

ITEMS.—*News:* Bullion shipments for the week ending May 10th foot up $54,790. Tom Paine has been sold in Chicago, on terms similar to those for the Pogonip & Othello, the original owners retaining a large portion of the stock. Aurora South ships 60 tons ore per day. Noonday increases in richness, and the vein is 12 feet wide. Force of men reduced in Original Hidden Treasure, for some reason unknown to outsiders. Virginia has met with small bodies of exceedingly rich ore. Domingo has been incorporated, and the force will be increased. O'Connell has been incorporated. A lot of its surface ore milled $205 per ton. Miser's Dream will put on more men. Westford shows large quantities high grade ore. Erie, a base metal mine, has a shaft 112 feet deep, and a seven foot-ledge. John Steel, the owner, has contracted to deliver 400 tons ore at $60 per ton in Hamilton. Elko, also base metal, is shipping 100 tons to Santa Fé. A large body of rich ore struck in Aurora South on the 9th inst. Some of it was nearly pure silver. Col. Whepley and Capt. Boylo have leased the White Pine Mill.

STANFORD MILL.—The *News* has interviewed this establishment, and devotes some space to description. Every thing about it is very complete. The bullion shipment for 30 days ending May 15th, promises to be $70,000. Total since the mill was started, Oct. 28th, is $206,844, all from South Aurora ore.

RAILROAD TO ELKO.—The *News* urges action to this end, and shows that it would be a good speculation. Before the summer is over, the bullion and ore for shipment will be, at present rate of increase, 100 tons daily. To haul this would require 100 16-mule teams: and there being no return freight, the cost would be $50 per ton.

OUTSIDE DISTRICTS.—The bars of bullion brought in from the Parsons mill at Silver Park, on Wednesday, weighed 61 pounds, worth $1,087.21. Parties from Eureka report times improving rapidly, and four furnaces running. Col Cummings will erect smelting works in Robinson district

SILVER PARK.—*News*, 14th: Outside of White Pine, Silver Park promises to be the best district in Eastern Nevada. Two quartz mills are running within 400 yards of the principal group of mines, and charge only $30 per ton for crushing custom ore. Considerable work has been done among the claims opened. Magnolia has 80 tons of ore on dump. Liberty sunk a shaft 36 feet deep through $60 milling ore, and has opened a chamber 20x16 feet on the 36-foot level, with ore on all sides—horn silver, chloride, and some sulphurets. Ontario has an incline 25 feet deep, all the way through good ore. Wolverine has an immense body of good ore. Miners' Delight has a shaft down 20 feet, through a mass of rich ore. Great Eastern has a well-defined ledge of high-grade ore. Onglendor has a shaft 80 feet deep, at which point the ledge is 11 feet wide and the ore good. The Bradshaw, on Red Hill, three miles southeast, is the richest mine in the district, so far as known. A breast has been driven into the hill 20 feet, into a solid mass of ore, which will mill from $500 to $1,000 the ton.

NEW YORK has another project—viz: to construct a building or series of buildings for the approaching international exhibition on a much larger scale than ever before in that city. One of the parks is to be taken for this purpose, or, in case this is not allowed, a place will be selected on Long Island or, perhaps, Staten Island. The building will run around four sides of a square, leaving an interior space of some four acres for an ornamental garden. It is to contain the biggest picture gallery in world. A capital of $7,000,000 is said to be already raised for this purpose.

San Francisco Mining Stock Market.

As a general thing, the mining share market continues inactive, and during the past week the majority of stocks show a recession. The volume of business is fair, however, still exhibiting the absence of very extensive dealing by any other than inside speculators. White Pine stocks attract considerable attention, large sales of Noonday, Original Hidden Treasure and Mammoth having been effected.

HALE & NORCROSS—was in better request than last week, selling at a recession. During the week ending May 14th, 1,314¾ tons of ore were extracted—327 tons coming from the upper mine, and 987¾ from the lower mine. They had on hand in the dumps, 5,473 tons. On the 17th inst., the most northern breast, on the seventh level, was 120 feet north of the shaft. They are making slow progress, on account of the heavy breast of ore they are carrying, the same being about 25 feet wide. The cross-cut east and west at this point has not yet reached either wall. The south breast is now 20 feet south of the shaft, and they are opening this breast some twenty feet wide in the ore. The ore found in this locality is reported to be of excellent quality, and all the developments apparently promise well for the future.

CHOLLAR-POTOSI—sold to a large extent, at very uniform rates. They extracted 1,044 tons of ore during the week ending May 13th, the average assay from car-samples showing $52 20 to the ton; previous week the yield amounted to 1,069 tons. During the week under review 22 feet were added to the "raise" at the New Shaft. They expect to complete the entire distance and commence drifting from it in the course of the current month. On the 13th, $29,255 in bullion were remitted to the office in this city. The daily ore-slip of the 16th inst., states that 196¾ tons of ore were sent to four different mills.

GOULD & CURRY—under considerable sales, declined rapidly during the present week. They extracted 421¼ tons of ore during the week closing May 14th; average assays showing $51 35 to the ton; previous week, 580½ tons. On the 17th inst., $10,807 in bullion were dispatched to this city. At this date the cross-cut from El Dorado winze shows some good ore, which is not yet sufficiently developed to determine its value as a body. On the seventh station they are through the clay in cross-cut "A," the face of the drift showing quartz and porphyry. C. C. Batteman has been appointed Superintendent of this mine, in place of P. Deidesheimer, resigned.

BELCHER—was in the market to a fair extent. The ore-stopes above the 152-level have improved within the past week in quality, and recently a new "raise" has been completed from the 262 to the 152-level, which will afford access to the bodies of ore under the latter level. The north-drift on the 262-level, it is expected, will be extended to the body of ore near the Crown Point line in less than two weeks. From the 1st to the 16th inst., 1,019 tons of ore were sent to the Rhode Island Mill. They extract about 70 tons of ore per day. The bullion yield for the month of April foots up $31,698.

CROWN POINT—sold to a large extent. On the 15th inst. they resumed work on the main east drift from the 1,100-level, and said drift is now 720 feet from the shaft, the face showing hard porphyry. The incline from the 1,000-level is down 87 feet, the rock through which they are passing being hard, barren quartz.——KENTUCK meets with light inquiry. The receipts of bullion for May aggregate $21,226. They have some slight prospects of finding new ore deposits, and if not successful, it is likely they will suspend work for the present.——GOLD HILL QUARTZ levied an assessment of $20 per share on the 16th inst.——CONFIDENCE levied an assessment of $10 per share on the 14th inst.

IMPERIAL—has become quite active at a less figure than was obtained early in the week. On the 17th inst., the winze had attained a depth of 27 feet, the ore on the north side being four feet wide, but of a lower grade than they have been obtaining. The best of the ore is thought to be making east of the winze. Average assays of ore obtained from bottom of winze show $46 94 to the ton.——SEGREGATED BELCHER has been dull of sale. A letter of the 16th inst., states that they are taking out about 30 tons of ore per day. They sent forward $4,465 in bullion.

OPHIR—has also been largely dealt in, selling at a recession. The report for May 17th has the following: At shaft No. 1 the main drift is in hard porphyry and very wet. The south-west drift No. 1 is in good blasting ground; and No. 2 is in soft ground, making fair progress. Work at shafts Nos. 2 and 3, and drift from Walsh Tunnel, going briskly on, but barren of good results.——OVERMAN has been in moderate request. On the 14th inst., $12,600 in crude bullion was sent to the office in this city. It is reported that a fine body of ore was recently found on the 500 level, near the Segregated Belcher line, west of anything ever reached in either mine.——SIERRA NEVADA shows a yield of 408 tons of ore from the gravel deposits for the week ending May 14th.——JULIA levied an assessment of seventy-five cents per share on the 13th inst.——VIRGINIA (W. P.) levied an assessment of fifty cents per share on the 14th inst.——MAMMOTH (W. P.) will hold its annual meeting of stockholders on Monday, the 6th of June next.—*Cmmercial Herald,*

◆

QUITE an excitement was caused this week on Montgomery street by a successful but illicit financial operation. A check given by Treadwell & Co. on the Bank of California for the sum of $34.75 was altered to read $14,641.25, and then successfully passed on Hickox & Spear. The parties engaged in the operation have been caught, and most of the money recovered. The affair has, however, caused the ventilation of the rather loose way of some of the transactions of brokers and business men.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Aurora Cons., W. P., May 7, $4	June 14	July 7
Bromide Tunnel, W. P. April 20, 40c	May 55	June 13
Confidence, G. H., May 14, $10	June 17	July 8
Continental, W. P., March 26, 30c	April 30	May 25*
Cherokee Flat B. G., April 14, $5	May 16	June 2
Cayuga Chief, W. P., April 29, 15c	May 31	June 21*
Empire M. & M., S. co., April 22, $10	May 27	June 18
Gold Hill Quartz, G. H., May 16, $20	June 20	July 11
Hidden Treas. Cons., March 28, 25c	May 3	May 24
Imperial, G. H., May 7, $5	June 10	July 2
Julia, Storey co., May 13, 75c	June 15	July 1
Mineral City, May 12, $1	June 15	July 2
Mountain City, Elko co., April 8, 50c	May 23	July 11*
Miser's Dream, W. P., April 14, 40c	May 17	June 14*
Noonday, W. P., May 10, 30c	June 15	July 7
Nevada L. & M., Elko co., May 3, 3c	June 7	June 28*
Oriental, Sierra co., April 22, 20c	May 26	June 16
Ophir, Storey co., May 6, $5	June 9	June 30
Placer G. & C., Placer co., April 9, $2	May 20	June 10*
Pinto, W. P., May 2, 10c	June 2	June 20*
Rising Star, Idaho, April 6, 50c	May 14	June 4
Silver Wave, W. P., April 21, $3	May 23	June 13
Savage, Storey co., May 3, $7.50	June 6	June 26
Silver Vault, W. P., May 3, 5c	June 9	June 29*
Siempre Viva, Mexico, April 25, 25c	June 2	June 20
Tallulah, Sierra dist., May 10, $2	June 25	July 18
Virginia, W. P., May 14, 50c	June 21	July 6

MEETINGS TO BE HELD.

Alpha	Annual Meeting June 20
Bromide Flat	Annual Meeting June 7
Hearst	Annual Meeting June 6
Mammoth	Annual Meeting June 6
Oneida	Annual Meeting June 6
Planet Copper	Annual Meeting May 23
Peytona	Meeting June 6
Silver Eagle	Annual Meeting June 2
Wheeler	Annual Meeting June 6

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable April 11, 1870
Eureka, div., $7.50	Payable May 7, 1870
Golden Rule, div., 50c	Payable March 26, 1870
Hale & Norcross, div., $6	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
North Star, div.,	Payable May 5
San Marcial, div., 50c	Payable Jan. 10, 1870
Union, div., $10	Payable May 10, 1870

——*Advertised in this journal.

◆

Pacific Coast Pearl Fishery.

It is a long time since we have heard much of the Lower California Company, which obtained from Mexico a tract of land comprising forty-six thousand eight hundred square miles in that peninsula; and we now learn that the company is actively engaged in preparing an extensive expedition with the view of settling two of its provinces with American emigrants, and establishing a large ocean city. It is claimed that the company is armed with powers equal to those enjoyed by the great East India Company, which founded an empire. Its Superintendent and Governor-General is the Hon. John A. Logan, who has declared his intention of visiting the province, and giving it close personal inspection during the recess of Congress. The President of the company, the head-quarters of which is at No. 35 William street, New York, is Richard Schell; Wm. R. Travers is the Treasurer. Following which, we find the names of Gen. B. F. Butler, August Belmont, Wm. G. Fargo, Caleb Cushing, C. K. Garrison, John A. Griswold, John Anderson, Robert P. Lees, Ben Holladay, Robert M. McLane, Francis Morris, John McB. Davidson, Leonard W. Jerome, S. L. M. Barlow, Edward S. Sanford, J. B. G. Isham and Marshall O. Roberts.

This much is prefatory to discussing the pearl fisheries which exist in the Gulf of California. The Mexican revenue returns for 1869 show that the catch of pearls and pearl-shell along the gulf coast granted to the Lower California Co., amounted last year to the sum of $78,000 This is the value, as returned on the estimates made by the divers and speculators on the spot, but is clearly very short of the actual market value, which was probably four or five times the amount specified, and it is certain that not more than fifty per cent. of the whole catch is ever reported to the Government. The business is carried on in slip-shod, hap-hazard manner, which only excites astonishment that any returns at all are given. We have good reason to believe that the real value of the catch for 1869 was in the neighborhood of $300,000. But the business is attended with so many difficulties and obstacles that Americans soon get discouraged and abandon it. The divers are all Yackl Indians, in whom no confidence can be placed. They will contract to dive, but insist on a considerable advance, either in money or goods. After the advance has been made, the unlucky employer frequently finds himself some bright morning minus his divers, and is then compelled to go over the whole ground with a fresh set, only to be treated in like manner by the new comers. If well fed and well treated—things to which they are perfect strangers—they regard their employer as little better than a simpleton, laugh at his easy trust in human nature, and take themselves off without delay. It frequently happens that Indians who are not divers offer themselves in that capacity, requiring the advance, and, as the contractor cannot know the truth, he is as often duped. The real divers know their value, and take every possible advantage. Under these and other difficulties of a like nature, it is not singular that the pearl-fishery of this coast has not attracted a larger share of attention; but if conducted with system, and supported by the exercise of proper authority, it would prove most lucrative.—*Commercial Herald.*

◆

THE NATIONAL GUARD of this city, who are at the head of the militia companies, have a grand benefit on Thursday, Friday and Saturday evenings of this week at the California Theater. "Rosedale" and "Ours" are to be played, the whole company appearing in certain scenes. The performances will be (have been, by the time our readers see this notice) among the very best of the whole season.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Nut and Timber Trees—The Pecan.

The pecan trade is lively in western Texas. The Victoria *Advocate* has heard of one merchant paying out $5,000 in less than one week for this spontaneous product of the forest. The average price paid is $3, specie, per bushel.

The above extract has a bearing when applied to the wants of this State. The pecan tree is indigenous to western Texas, which has a climate in many respects like the coast country of California. It borders on the streams, and occupies the rich alluvial soils such as the plain tree, the willow, the cottonwood and mammoth oaks of our State best like. When growing in clusters and groves, it is very tall, the trunk is straight, and the timber excellent. When scattered along the streams, it is quite spreading in its habits. Everywhere it is a grand and beautiful object, inferior in appearance to no deciduous tree. Its timber is valuable. It resembles the hickory, but is not equal to it in toughness, although it is superior to ash timber. It is a very prolific bearer, and its fruit is equal in richness and excellence of flavor to any walnut.

California is capable of producing all the hard-wood timber that she will ever need; and there is no surer enterprise open to aspiring capital and to that steady, constant and successful spirit of enterprise that is willing to labor and to wait, than to set out forests of timber. Many of the Eastern hard-wood timber trees, the south of Europe and South American trees, the Australian trees, etc., in numerous varieties, may be grown.

Growing timber is no experiment, but a sure and certain success. And, among all the rest, the noble nut trees of America should stand ahead. The pecan is certainly one of the best. It is of rapid growth, and its fruit is quite as valuable as its timber. The writer has gathered the nut in its native groves, and knows of what he speaks.

This subject has frequently been discussed in the Scientific Press before, but it merits constant recommendation. Among all the various industrial interests relating to farming, none is of more importance to the State and the Pacific coast. Many a section of land that it would cost more to reclaim for the plow than it would be worth, might be utilized in this way. Mountain ravines and water courses now utterly worthless might thus be made more valuable than gold mines. The actual value of a grove of young timber and nut trees, and the increase in value as in size, would warrant the enterprise in the light of a venture or speculation. Thousands of farmers on this coast have localities which they should plant at once to nut and timber trees.

To avoid the depredations of squirrels and gophers, the nuts should be sprouted in boxes before planting, or else started in the nursery. It is better to plant the seed where it is to be grown than to grow the trees in nursery, as the tap root is essential where drouth of water ever prevails. California should make a large requisition on the State of Texas for the new crop of pecans, to be distributed equally among the land owners of this State.

Preserving Hops.—Much difficulty is encountered by growers and dealers in hops in preserving their quality for any considerable length of time while on storage or waiting for a market. It is stated in the *American Artisan*, however, that a process has recently been devised which accomplishes this desirable result in a very satisfactory manner. The apparatus appears to be a refrigerating chamber, in which the hops are stored and kept as near as possible at a given low degree of temperature, and nearly as possible free from dampness. Hops thus kept over an entire season are pronounced fully as good as when first baled. This fact, if it is such, is important; as in hop-growing districts the ability to hold over a stock of hops, without deterioration, when prices are low and the demand small, would rescue the profit of hop production from many uncertainties, especially in a country so distant from any large market as California.

Girdled Again.—It is stated that the orchard of Martin Green, of Benton Harbor, Michigan, the trees of which have already been reported as having been girdled and restored four times, has recently been visited and girdled for the *fifth* time! The excitement in the neighborhood, growing out of these repeated outrages, is intense. Somebody is either acting the insolent bravado, with a contemptuous nose-thumbing and taunting finger-shaking in the face of the community; or some one is engaged in a series of profound and persistent philosophical experiments to see how often an orchard can be thus treated without compassing its utter destruction—for the neighbors in the vicinity have made common cause with the proprietor of the orchard, and are unceasing in their efforts to save it. They turn out *en masse* every time it is girdled, and hasten as rapidly and skillfully as possible to apply the best known appliances for saving the injured trees.

Farming is a Science.—Unexpected things constantly arise to prevent the farmer from carrying out any given routine of plans; but a mechanic proceeds straight forward with his work, without let or hindrance. Hence farming is not a mechanical, but a scientific occupation, and should be classed as such.

The Reaper.

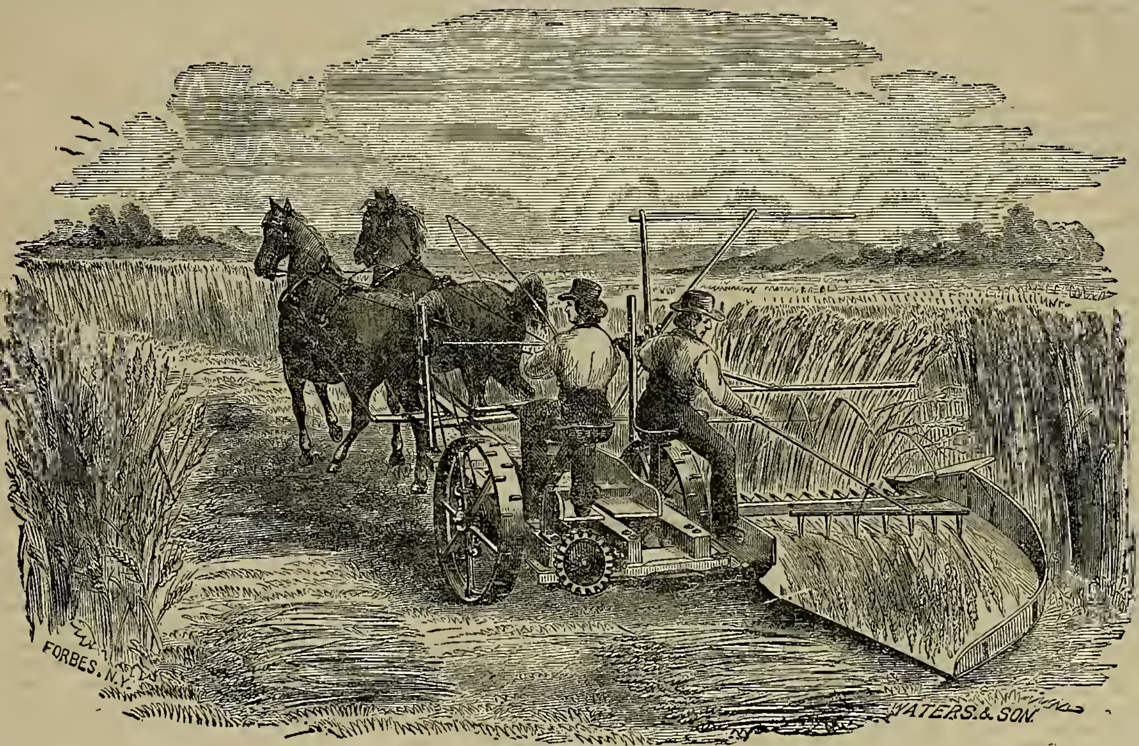
If we review the whole range of mechanical invention, we find no improvement which has so completely revolutionized the business it was designed to improve, as the reaper and the mower. By it the toil of the husbandman has been immensely lessened, and the labor of producing bread-stuffs reduced one-half. In this, as in most other departments of labor, the truth of the saying that "necessity is the mother of invention" has been fully verified. Whenever the urgent needs of men call for other than muscular help, inventive genius steps promptly in, and, quickened by the pressure of necessity, machinery is constructed, which, by a combination of forces working in harmony, performs the labor of dozens or hundreds of human hands by means of a single machine.

As harvest time is approaching in our State, where there is such opportunity for labor-saving machines, we propose to illustrate some of the best known devices which have stood practical working tests; and, in pursuance of this plan, we to-day present our readers with a cut of the Buckeye hand-rake reaper. The Buckeye machine has certainly achieved a high reputation in the West. Without declaring it better than any other, we can say that it has received the highest awards in a large number of field trials, and it has many testimonials as to its efficiency and durability. It was introduced into the market some thirteen years ago, and since then has received many valuable improvements. The following are some of the principal points for which the manufacturers claim especial advantages:

Two driving-wheels support the whole weight of the frame, gearing and driver; and side draft and weight on the horses' necks are obviated by the manner in which the machine is balanced. The wheels operate together or singly, so that short turns can be made to the right or left without clogging or stopping the knives. They have no cogs on them and no cog-wheel attached, but the gears are arranged at such a height above the ground as to avoid the danger of getting clogged by mud or sand. Pawls and ratchets are used to drive the gearing, and in backing, the knives cease to vibrate. Moreover, the pawls are held either in or out of gear by a spring, and, when out of gear, the wheels turn independently on the axis. The double-jointed cutter-bar adapts itself to all varieties of surface, entirely independently of the frame, over which it can be folded when not in use. The driver's seat is behind the cutters, enabling him to see their action at all times, and avoiding all danger of his falling on the knives.

The cutting apparatus has received especial attention, and the makers have decided upon using the malleable, steel-lined guard-finger and the three-and-a-half inch knife section, as the best. A leading wheel is attached to the inner shoe, to prevent the grass, over which it may pass, from being pushed along and clogging the machine, and to prevent the points of the guard-fingers from catching in the ground when passing over hollows and ridges. The outer shoe is of malleable iron, fitted with a steel plate for the knive to cut against, and with a steel runner. The track-cleaner is adjustable, and can be set at different heights, and both ends of the bar can be raised or lowered to cut at any desired distance above the ground. To pass obstructions, a lever is attached to the finger-bar and main frame, so that the driver can raise the bar easily, and a ratchet, connected with this lever, sustains the raised bar when desired. There is also a lever at the driver's side, by which to stop or start the gearing. The whole machine is made exceedingly light.

A self-raking attachment is added, and works well, being light, simple and compact; or, for those who prefer it, there is a hand-rake attachment. Our cut shows this latter, which can be easily understood. And, as in many places the dropper is liked the best, those who desire can have this style. Want of space prevents our speaking further of the details of this device, which is highly praised in the various parts of the country. Farmers desiring further information as to prices or details, can obtain the same by applying to the agents, Marcus C. Hawley & Co., 108 and 110 Front street, San Francisco.



THE BUCKEYE HAND-RAKE REAPER.

The Sex of Plants—The Potato.—In every variety of vegetable, as in the animal world, there is both male and female. It is also claimed by some that in many vegetables, as the potato, for instance, one end is male and the other female—the latter producing more abundantly than the former, and of better quality. It is also claimed by some experimentors that where the female or seed end of the potato only is planted, there will be no rot, and the yield will be much better than when both ends are mingled in the same hill. If any of our readers have, or should hereafter, experiment in this direction, we should be pleased to learn the results of their experiments.

Roots vs. Hay for Stock.—Many English farmers feed no hay to their work-horses. but keep them in high working order with straw, roots and shorts, and occasionally a little grain. When land is scarce and high, the raising of hay is poor economy, as the equivalent of ten tons of hay can be raised, in the form of roots, upon one acre of ground which would not yield three tons of hay.

A Woman's Crop of Carrots.—Mary N. Pinckney, of Onoudago, N. Y., raised, last year, seventy-three bushels of carrots on one-sixteenth of an acre of ground.

Mountain Agriculture in the Coast Range.

Last week I was in the Santa Cruz Mountains, and passed for some miles along their very summit. These hills are quite different in appearance, form, soil and vegetation from the Diablo range on the east side of San José Valley. The gravelly soils along the lower slopes of the Diablo range are of a harder and less friable nature than the same class of soils along the Santa Cruz borders; and while the grain in the former is perishing from drouth, the finest fields in San José Valley may be seen about the foot-hills of the Santa Cruz. Here beautiful lawns are naturally interspersed with timber, and in many places a dense growth of *chapparal* formerly occupied the soil, showing on the face of the land the superior quality of it. The superior abundance of forest and shrubbery evidently draws more showers, and the soil absorbs more rain than the soils opposite across the valley. Consequently, while one section is suffering from drouth, the other is luxuriant with promise. Throughout the valley the grain crop will be generally a failure; the only exceptions are in localities and under conditions already spoken of in a former letter. Along the summit of the Diablo range of hills, above 600 feet elevation, fine grain fields give promise of abundant harvests. Their well-rounded tops and intervening valleys offer a beautiful field for the plow. Wherever a claim has been effected among the hills and slopes of the Santa Cruz Mountains, orchards, vineyards, vegetables, corn and grain are cultivated with sure success. A greater amount of labor is required to clear and utilize the land in such localities; but its superiority for a general culture is everywhere manifest when once under the plow.

Standing upon the rugged heights of the Santa Cruz Mountains, over two thousand feet above the sea, a charming scene is unfolded to the vision. The immediate vineyards and fields; the forests of oak and laurel and redwoods; the lesser curious crags and peaks and spurs; the deep winding ravines, equal in beauty but not in grandeur the magnificent Sierras. To the west, the waters of the ocean melt into the vast horizon; to the east, is the beautiful valley of the Santa Clara, dotted with fields and houses and clustering trees and villages, and bounded by the checkered hills, whose grain fields carpet many a slope, and by the waters of the bay, nestling like a sleeping lake, while the peaceful scene elevates and enraps the senses with a sublimity and power of inspiration that simple language cannot convey.

S. H. Herring.

The Sunflower.

Years ago the leaves of the sunflower were used as a substitute for tobacco, and were said to be useful in asthma. They are excellent fodder for cattle. The seeds make good feed for chickens, besides yielding very superior oil. The stems make the very best bean poles, and if cut and kept dry, are good kindling wood. The leaves, whether green or dry, are eagerly devoured by horses or cows. We are not prepared to vouch for the correctness of the opinion that the sunflower is an absorbent of malaria, and, therefore, a preventive of fevers; but some persons who live on low ground cultivate it near their dwellings under this impression. Leaving this point of view out altogether, the plant is worthy of cultivation. One good quality has not yet been mentioned, but it is one of the most important recommendations—it affords excellent pasture for bees. Indeed the florets are so full of honey that the bees seem to be clogged with the excess of sweetness, and sometimes are so covered over with it that they become helpless, until their comrades come to their relief. We are persuaded that if a corner of a yard or garden has once become devoted to the raising of sunflowers, there will be no disposition in subsequent seasons to let the supply die out. Take it altogether, the sunflower is deserving of far more attention than has usually been allotted to it.—*Journal of the Farm.*

There is a small kind of sunflower that is indigenous to this coast which yields a rich seed. The native Indian women gather it every season for food. It makes a good chicken feed, but is not so valuable for bees as the larger sort, the well known old variety spoken of in the above article. Now that chicken raising is attracting so much attention in the State, the old sort should be given a trial. We are not sure but it would prove a good paying investment for oil, as well as for chickens and bees. The kind of poles and fuel that the stalks would furnish would be an item in some parts of the State. At any rate, as it is a useful product of the soil, California wants it, and can use it to advantage if any State can.

The Old-Time Country Garden.

In an interesting paper on "Flower Gardens and Flowers," in the *Old Guard* for April, we find the following graphic account of the old-fashioned country flower garden as it existed twenty or thirty years since. We are afraid that there are a few more of the same sort left, though the paper in question will do a good deal towards their improvement:

Every one remembers the old country garden—a little piece of ground, possibly a hundred feet, inclosed with a picket or puncheon fence, and taken care of mainly by the female part of the household. Beyond the mere rough digging or, perhaps, merely plowing in the spring, its cultivation and management were assigned to the women, the men and boys thinking it beneath their dignity to attend to anything so petty. It was generally a kitchen garden also. Here were grown the peas and beans, the lettuces and cabbages, the beets and carrots, the onions and crook-neck early squashes, consumed by the family. Along the fences were currants and rows of pot-herbs—the golden pot-marigold, thyme, sage, majoram and summer savory. The flowers were conventionally, of the same sort everywhere. Here was a bed of old-fashioned pinks, with reddish lilac blossoms and silver-green foliage; there a patch of johnny-jump-ups; a few scattered lady-slippers, single, and more given to leaf and stalk than to blossom; a stool of blue flags, and another of yellow and brown lilies; a few single hollyhocks, and, proudly towering over the rest, the tall and flaunting sunflower. This was all at some distance from the house, the space around which was open, and ornamented with the woodpile, the well, the ash-hopper and a dog house. Such were the gardens, and such the country houses, of years ago.

All this is, in a measure, changed. Even in far distant rural districts the traveler comes across garden after garden immediately around the house, where flowers of the rarer and finer kinds, arranged so as to afford harmonized masses of color, an external polychromatic decoration of the dwelling, marking the taste and refinement of those within.

Why do Bees Swarm?—At the recent Michigan Bee Keepers Convention this subject was discussed. Mr. Otis is reported as saying: The strongest instinct God has given to the honey bee is the love for storing honey. This instinct is so strong that she will remove the young larvæ from its cells and destroy it, that she may make room for the gathered honey. But she does not thus destroy the brood unless crowded for room by an unexpected rich harvest for honey. It is to guard against the destruction of the brood the queen-cells are started preparatory to swarming, which takes place as soon as one or more is sealed over.

The Creator has implanted in the queen-bee such unparalleled hatred toward a rival that but one normal queen is permitted to live in a family of bees. This hatred is so strongly developed that she will make divers attempts to destroy a rival while yet in the cell. But the worker bees keep the cells guarded, which so exasperates the old queen by the time one or more is sealed, that she rushes from the hive to find a new home, being accompanied by a majority of the colony. These are, therefore, the reasons why bees swarm: 1st. The want of combs to hold honey. 2d. To save the destruction of the brood. 3d. The hatred between rival queens.

What Our Young Men Can Do.—It would require but a few young men, with correct sentiments, to give to the great profession of agriculture, in any community, that character and respectability in the world which that calling so justly merits.

What I Know of Farming—No. 18.

Alkalies—Salt—Ashes—Lime.

I do not know a rood of our country's surface so rich in *all* the materials which enter into the production of the grains, grasses, fruits and vegetables, which are the objects and rewards of cultivation, that it could not be improved by the application of fertilizers; if there be such, I heartily congratulate the owners, and advise them not to sell. Nor do I believe that there are many acres so fertile that they would not produce more Indian corn, more hemp, more cotton, and more of whatever may be their appropriate staple, if judiciously fertilized. If there be farms or fields originally so good that manure would not increase their yield, I am confident that the first half dozen crops will have taken that conceit out of them. Prairies and river bottoms may yield ever so bounteously; but that very luxuriance of growth insures their gradual exhaustion of certain elements of crops, which must needs be replaced or their products will dwindle. Whoever has sold a thousand bushels of grain, or its equivalent in meat, from his farm, has thereby impoverished that farm, unless he has applied something that balances its loss. "I perceive that virtue has gone out of me," observed the Saviour, because the hem of his garment had been touched; and every field that has been cropped might make a similar report whenever its annual loss by abstraction has not been balanced by some kind of fertilizer. The farmer who grows the largest crop is the most merciless exhauster of the soil, unless he balances his annual drafts (as good farmers rarely do) by at least equal reënforcements of the productive capacity of his fields.

Clay as a Fertilizer.

The good farmer begins by inquiring, "Wherein was my soil originally deficient? and of what has it been exhausted by subsequent crops?" I judge that my gravelly hill-sides would reward the application of two hundred loads (or tons) of pure clay per acre, as I think the clay flats which border Lake Champlain would pay for a like application of sand or fine gravel where that material is found in convenient proximity; and yet I know very well that, on at least three-fourths of our country's area, such application would cost far more than it would be worth. Every farmer must act on his knowledge of his soil and its peculiar needs, and not blindly follow the dictum of another. Yet I know few farms which, were they mine, I would not consider enhanced in value by a vigorous application of *some* alkaline substance—lime, salt, ashes, or some one of the cheaper nitrates.

The Use of Ashes and Salt.

I should be very glad to apply one thousand bushels of good house-made, hard-wood ashes to my twenty acres of arable up-land, if I could buy them, delivered, at twenty-five cents per bushel; but they are not to be had. I doubt that there are a hundred acres of warm, dry, gravelly or sandy soil east of the Alleghanies that would not amply reward a similar application. But ashes in quantity are not to be had, since no good farmer sells them, and coal is the chief fuel of cities and villages. The marls of New Jersey I judge fully equal in average value to ashes which have been nearly deprived of their potash, by leaching, but not quite half equal, bushel for bushel, to *un*leached ashes. I judge that average marl is worth ten cents per bushel, where ashes may be had for twenty-five. But marl is found only in a few localities, and a material worth but ten cents per bushel will not bear transportation beyond forty miles by land or 200 by water. Salt is only found or made at a few points, and is too dear for general use as a fertilizer. Where the refuse product of saltworks can be cheaply bought, good farmers will eagerly compete for it, if their lands at all resemble mine. I judge the ton of potash I ordered fifteen years ago from Syracuse, paying $50 and transportation, was the cheapest fertilizer I ever bought. It was so impregnated with salt (from the boiling over of the salt kettles into the ashes) as to be worthless for other than agricultural purposes; but I mixed it with a large pile of muck which I had recently dug, and, six or eight months thereafter, applied the product to a very poor, gravelly hill-side which I had just broken up; and the immediate result was a noble crop of corn. That hill-side has not forgotten the application.

[Ashes are perhaps of less utility as a fertilizer for wheat than for almost any other crop. Hard-wood ashes contain all the elements of plant food except phosphoric acid; but as that acid is particularly important in the formation of the wheat grain, it follows that wheat sown upon land deficient in phosphoric acid would not fill out well, although it might present an abundant and vigorous growth of straw—Ed. Press].

Lime as a Fertilizer.

If I should try to explain how and why lime is a fertilizer, I should probably fail; and I am well assured that liming has in some cases been overdone; yet I think most observers will concur in my statement that *any region which has been limed year after year produces crops of notable excellence.* I cite as examples, Chester and Lancaster counties, Pennsylvania, with Stark and adjacent counties in Ohio. Possibly, results equally gratifying might be secured by applying some other substance; I only *know* that frequently limed lands are generally good lands, as their crops do testify. I heartily wish that the flat clay intervales of Western Vermont could have a fair trial of the virtues of liming. I should expect to see them thereby rendered friable and arable; no longer changing speedily from the semblance of tar to that of brick, but readily plowed and tilled, and yielding liberally of grain as well as grass. I am confident that most farms in our country will pay for liming to the extent of fifty bushels per acre where the cost of quick lime does not exceed ten cents per bushel; and most farmers, by taking, hot from the kiln, the refuse lime that is deemed unfit for building purposes, can obtain it cheaper than that.

A Hint to Experimentors.

I wish some farmer who gives constant personal attention to his work—as I cannot—would make some careful tests of the practical value of alkalies. For instance: the abundance and tenacity of our common sorrel is supposed to indicate an acid condition of the soil; and all who have tried know that sorrel is hard to kill by cultivation. I suggest that whoever is troubled with it should cover two square rods with one bushel of quick lime just after plowing and harrowing this spring; then apply another bushel to *four* square rods adjacent; then make similar applications of ashes to two and four square rods respectively, taking careful notes of the boundaries of each patch, and leaving the rest of the field destitute of either application. I will not anticipate the result; more than one year may be required to evolve it; but I am confident that a few such experiments would supply data whereof I am in need; and there are doubtless others whose ignorance is nearly equal to mine.
—*Horace Greeley.*

Destruction of Forests.—Reports come from New York that a terrible conflagration is raging in the woods in Sullivan, Orange, Madison, and other counties of that State. It is said to extend over a tremendous extent of territory, and the loss is already estimated at $5,000,000. In the night time the spectacle is grand and startling. By the wanton carelessness of some idiot, an irreparable loss is thus inflicted on the country.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, May 19, 1870.

Flour, Extra, ℘ bbl	$5 50	@	$6 00
Do. Superfine	4 50	@	5 00
Corn Meal, ℘ 100 ℔s	2 25	@	2 50
Wheat, ℘ 100 ℔s	1 75	@	2 00
Oats, ℘ 100 ℔s	1 60	@	1 80
Barley, ℘ 100 ℔s	1 15	@	1 30
Beans, ℘ 100 ℔s	2 50	@	3 50
Potatoes, ℘ 100 ℔s	75	@	1 50
Hay, ℘ ton	12 00	@	20 00
Live Oak Wood, ℘ cord	9 00	@	14 00
Beef, extra, dressed, ℘ ℔	7	@	12½
Sheep, on foot	2 50	@	3
Hogs, on foot, ℘ ℔	5	@	9
Hogs, dressed, ℘ ℔	8	@	8½
GROCERIES, ETC.			
Sugar, crushed, ℘ ℔	12¾	@	13
Do. Hawaiian	8	@	10½
Coffee, Costa Rica, ℘ ℔	—	@	19
Do. Rio	—	@	18½
Tea, Japan, ℘ ℔	75	@	$1 00
Do. Green	60	@	1 25
Hawaiian Rice, ℘ ℔	8	@	9
China Rice, ℘ ℔	6½	@	7
Coal Oil, ℘ gallon	40	@	42½
Candles, ℘ ℔	16	@	18
Overland Butter	20	@	30
Ranch Butter, ℘ ℔	20	@	30
Isthmus Butter, ℘ ℔	25	@	28
Cheese, California, ℘ ℔	17½	@	18
Eggs, ℘ dozen	22½	@	35
Lard, ℘ ℔	15	@	16
Ham and Bacon, ℘ ℔	15	@	16
Shoulders, ℘ ℔	9	@	10

Retail Prices.

Butter, California, fresh, ℘ ℔	35	@	40
do. pickled, ℘ ℔	—	@	—
do. Oregon, ℘ ℔	—	@	—
Cheese, ℘ ℔	20	@	25
Honey, ℘ ℔	25	@	30
Eggs, ℘ dozen	40	@	—
Lard, ℘ ℔	18	@	20
Hams and Bacon, ℘ ℔	22	@	25
Cranberries, ℘ gallon	1 00	@	1 25
Potatoes, ℘ ℔	2	@	3
Potatoes, Sweet, ℘ ℔	—	@	2
Tomatoes, ℘ ℔	—	@	—
Onions, ℘ ℔	3	@	5
Apples, No. 1, ℘ ℔	4	@	5
Pears, Table, ℘ ℔	5	@	
Plums, dried, ℘ ℔	10	@	12
Peaches, dried, ℘ ℔	10	@	15
Oranges, ℘ dozen	50	@	75
Lemons, ℘ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ℘ ℔	—	@	25
Soap, Pale and C. O	1	@	12
Soap, Castile, ℘ ℔	15	@	18

Scientific Press.

W. B. EWER........................SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance..................$4 00
One copy, six months, in advance.................. 2 50
Delivered by city carriers, per month.......... 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month.......................... 3 00
One column, one month.......................... 40 00
One column, one year.......................... 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, May 21, 1870.

Table of Contents.

The Endless or Band Sawing Machine—Ill.....337
Letter from Austin.......338
Letter from Cerro Gordo.338
Morning Star Ore.......338
The Sutro Tunnel.......344
Screen Attachment for Windows—Ill.............337
Elevated Railroads.....348
Stockton and Copperopolis Railroad..............344
Changeable Weather....344
New Incorporations....348
The Grand Hotel—Ill...345
Full List of Patents....345
Notes of Recent Patents.345
S. F. Stock Market......341
S. F. Metal Market..... 350
New York Metal Market.351
SCIENTIFIC PROGRESS — Philology and Darwinism; The Germ Theory of Disease; Experiments with Magnets; Temperature of the Deep Sea..339
FARMING AND GARDENING.—Nut and Timber Trees; Preserving Hops; The Reaper—Ill.; The Sunflower; Girdled Again; The Old-time Country Garden; Mountain Agriculture in the Coast Range; Why do Bees Swarm; What I Know of Farming; S. F. Market Report, etc..........342
MECHANICAL PROGRESS — Cheeseborough's Elevated Railway; Wood for Paper Making; The Whitworth Gun Metal: The Clip Pulley, etc....... 339
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Idaho, Colorado, Montana and Nevada.340
S. F. Shareholders' Directory...................341

The Sutro Tunnel.

The Gold Hill *News* of the 3d inst. has an article in reply to what was stated in a former issue of the PRESS with regard to the Sutro Tunnel. As, however, it takes it for granted that the tunnel would not do any good, while it would merely increase the company's expenses by the amount per ton of ore extracted which is to be paid as royalty to the tunnel company, it only begs the question.

In regard to our remarks upon "very low grade ore worth a few dollars per ton," we have merely to say that such expressions are comparative. We are acquainted with the fact that quite poor ores have been worked for some time at Virginia City, and we opine that still poorer ores will be worked in the future, with better milling processes and such advantages as the tunnel will offer. We are also aware that much low grade ore has been treated at a loss to the miners but a profit to the mills!

We are not inclined, however, to discuss the matter further, being firmly convinced by the evidence before us that the tunnel can be made of much benefit to legitimate operations. And so long as we see that the miners are in favor of the project and believe that the controlling influence of the mines *would be glad to take the tunnel*, could they get control of it, we shall probably hold to our present idea on the subject.

* * *

MEETING OF FISH COMMISSIONERS—A meeting of the Fish Commissioners was held on the 13th inst. Plans for the preservation of our fish and the introduction of new varieties were discussed. A resolution was adopted calling upon the District Attorneys to enforce stringently the laws against the illegal taking of fish, and asking them to give notice of any obstructions in the streams to the passage of the finny tribe. They request from all true fishermen notice of any violation of the laws. We hope that they may meet with general assistance in their labors to prevent the annihilation of fish in our streams.

* * *

THE preliminary survey of the railroad between Denver and Georgetown, Colorado, is completed. The work is to be pushed energetically, we are told. We congratulate our Georgetown friends.

Stockton and Copperopolis Railroad.

California seems determined to remove all grounds for a charge of being behind the age in the matter of railroads. There is unwonted activity just at present in railroad building, and a whole batch of new schemes are on the cards. We have spoken previously of several of our finished roads; we shall treat to-day of a new one—the Stockton and Copperopolis Railroad.

This road was projected as early as 1862, and a company was regularly organized in 1865, and some eleven or twelve miles out of Stockton graded. Owing to monetary depression in California, and more especially to the fall in the price of copper (which so injuriously affected the mines at Copperopolis), the scheme was temporarily abandoned. It is now revived with brighter prospects than ever, and the management are confident of success with the greater value of copper, the high protective tariff, the cheaper labor and the constant agricultural development in the country through which this short line of forty miles passes. Thirty-three miles of the road are through a perfectly level and rich agricultural valley, studded with ranches. Twenty-five miles out of Stockton there are a few steep grades, in no case, however, exceeding ninety feet to the mile. From the Reservoir at Salt Spring Valley to Copperopolis, a distance of eight miles, the grades are again easy, the country being either level or rolling.

The counties either directly benefited or tributary to the line are, San Joaquin, Tuolumne, Calaveras, Stanislaus, Mariposa, Merced, Fresno and Tulare. The agricultural resources of the district are very great; its upper portions, the forest lands, will afford large quantities of lumber and wood; marble of good quality, granite, freestone, lime, coal, iron and manganese ore are all found on or near the line of the railroad. An extensive slate quarry has recently been opened at Copperopolis. But the principal item of profit will, it is thought, be derived from the transportation of copper ore. The mines at Copperopolis, the immense copper ledge, with its two or three hundred claims, will be very directly benefited by the construction of this road. The Copperopolis mines have yielded since 1864 over 80,000 tons of superior ore, while 40,000 tons of low-grade ores lie on the surface, awaiting cheaper means of transportation than that afforded by teams at $8 per ton. The railroad will do it for $3.50. The ore freight at the Union mine, Copperopolis, long averaged 3,000 tons per month (26 working days). During the year 1865, this company paid over $290,000 freight money. Recent processes, notably the Kidwell, and also the lixiviating process tested at the Napoleon mine, have, it is claimed, shown the possibility of making ores no richer than 3 or 4 per cent. pay well. There are several mines, as that at Quail Hill, in which considerable sums of money have been sunk, and which are only awaiting the facilities of railroad transportation to resume working.

The benefits of the line to Stockton will be great, not merely in adding one more line to the net-work of railroads which will some day converge there, but in bringing it directly in connection with the rich agricultural lands of the San Joaquin Valley, Stanislaus, etc., of which it is the commercial depot. Wood costs there $6 to $9 per cord; now it is brought from a considerable distance; it will be reduced at least one-third in price by the difference in the cost of freighting. Stockton is said to have expended over one million dollars in grading and graveling its streets, the larger part of this sum having been spent for the latter item. The railroad, it is affirmed, will save the city hundreds of thousands of dollars in this one matter, and enable the authorities to complete all improvements needed.

The completion of this railroad will reduce the time occupied in a journey to the Big Trees of Calaveras to one day. The traveler of the future will be able to leave San Francisco in the early morning and sit under the shadow of the forest giants the evening of the same day. He will only have about thirty-two miles staging out of the entire distance; and the projectors of the line assert that they will put on an extra line of coaches, and take visitors through from San Francisco at a cost of from $7.50 to $9 a head. Thus one of the grand sights of California, visited last year by 3,000 persons, and to be probably inspected by a much larger number this year, will be within the reach of nearly everybody. At some future time the road may be extended to or near the Mammoth Grove itself.

The earnings of this road for the first year are estimated at $575,000; this estimate being based on the profits of agricultural freights, wood, etc., and only assumes that fifty passengers per diem will travel each way. The profits derived from the transportation of copper ores and other mineral products have not been included in it at all.

The above are some of the principal points urged in favor of the road. The benefits it will confer on the district are, apparently, appreciated by the inhabitants, who are liberally taking stock. The company has a land grant of 256,000 acres, but has no county or State aid, the management being confident of succeeding without such. Contracts have been made and ties bought for the first twenty miles, on which work is already commenced. We may add that the President of the company is Gen. J. C. Sullivan and the chief engineer R. L. Harris, while many other prominent men are interested.

* * *

SUBSTANTIAL ROOFING.—The Warren Felt, Cement and Gravel Roofing, which has been largely used in New York for many years, has proved perfectly satisfactory and durable, so far as we learn, and we know its use is being greatly extended. The proprietors warrant their roofs for some thirteen years. We know of a roof in Massachusetts covered to order by this roofing over nine years ago, that has well stood the test of a cold and hot climate. The proprietorship of this roofing has recently changed from Barnes & New to T. New, who will carry on the business as heretofore at No. 32 John street, New York. We would like to see a branch house established in San Francisco for the Pacific coast for this first-class, durable and economical roofing. We have known Mr. New intimately for many years, and as a gentleman of business qualifications, gentlemanly deportment and sterling habits, we doubt if he has his superior in all Gotham.

* * *

ZERAH COLBURN.—We regret to record the death of this most able engineer and talented writer at Belmont, near Boston. Standing in the foremost rank of his profession, of a most brilliant but wayward character, he has done as much as any other person in improving the management of American railways, and was a man, as has been said, whom the profession could ill afford to lose. Of late years, since 1866, he had the editorial charge of London *Engineering*, and remained in this position until a short time ago, when he returned to America, to die by his own hand.

* * *

THE STOCKTON STREET HILL.—A meeting of property owners interested in the proposed cutting down or tunnelling of Stockton street hill, from Sacramento to Sutter street, was held this week. Not much was accomplished, however, except the appointment of a committee to investigate the matter. There is strong feeling, apparently, both against and in favor of any such measure.

A Genuine Treat.

This (Saturday evening) a real treat will be given in the shape of a concert by the San Francisco Musical Institute. A most delicious programme is presented, consisting of selections from the works of Haydn, Gluck, Mozart and Beethoven. We note with pleasure that, although the Institute is but a few months old, the efforts of the managers have been so successful that the pupils have already become capable of sustaining the vocal portion of the programme.

Laboring quietly and diligently to inculcate in their pupils a true love of genuine music, the managers are to be congratulated on the success they have met with. This success is due not only to their diligence and attention, but also to their excellent method of teaching. From the beginning they give their pupils a correct understanding of what good music is. They teach the principles, and the pupil does not learn to "perform" merely, but to play feelingly and understandingly.

Many of you, dear readers, have an ill-defined aversion to what is termed "classical music." But don't confound classical music with musical (or unmusical) gymnastics. Running up and down the scale and showing off the mechanical agility of the performer, is not producing *music*. Many noted musicians, who visit us, insult us by hopping about and around their instruments, metaphorically speaking, and presenting to us merely what *they* can do, interspersing their performances with rattle-trap pieces, which show they consider us musically to be of most inferior capacity. Would you know what music really is? Come then to such concerts as these—you can undoubtedly get tickets by applying at 109 O'Farrell street—and we assure you that you will find *classical* music is capable of affording as much genuine pleasure, even to those without previous musical education, as "Shoo Fly" and "Pop Goes the Weasel."

A Complimentary Letter.

P. M. COLLEGE, VACAVILLE, May 7, 1870.

MESSRS. DEWEY & CO.:—For several months I have been a reader of your more than interesting journal. In doubt as to its claims, as judged of by a hasty glance when your agent, Mr. Murray, made us a visit some months ago, I concluded, as an experiment, to take it for six months only. The specimen leaves then submitted to me impressed me favorably, and encouraged me to make the trial, especially as I was pleased to indulge the hope that I should find it to be worthy of the great industrial department embraced within its scope—a field always interesting to me.

I am happy to say that my hopes are more than realized in the numbers that have come to me.

It is indeed gratifying to me to be able to say that on the Pacific coast we have a first-class journal representing the leading industries of the country. Less than three years ago I emigrated from the old States, where I had access to the best journals published on the Continent and also the reprint of the best published in Europe, and I do not hesitate to say that the SCIENTIFIC PRESS need not be ashamed to show itself beside the best of them.

Indeed, in its own sphere, I regard it the peer of any of them now issued from the Amcrican press.

During my whole lifetime, since early manhood, I have held a place among the public educators of the country, yet always interested in agricultural pursuits incidentally. In this relation I have given special attention to manipulated fertilizers and to the most economical modes of tillage, and that, too, with some marked results of personal experience, some of which I may find leisure to communicate at a future time. Quartz mining, too, has formed an episode in my history, owing to vicissitudes of health. As a matter of course, then, I find congenial and interesting topics ventilated in the PRESS.

Consider me in as a fixture on your list of subscribers, and accept my thanks for the pleasure which your journal has already afforded me. The healthy tone of your paper on theistic subjects is also refreshing in this age of heresy and demoralization.

I have some practical matters, in the shape of mechanical improvements, which I will submit at an early day. Most respectfully,

J. R. THOMAS,
President P. M. College.

[We shall be pleased to receive the promised articles, believing they will be of interest to our readers.—EDS. PRESS.]

* * *

W. H. MURRAY, traveling agent for the Scientific Press, favored us with a call this week. He has visited the Battle Mountain mines, and expresses himself as being highly pleased with the prospects in that district. He intends to visit the several mining districts along the railroad, reports of which will appear in the Press. Every miner should subscribe for the Press, a large portion of which is devoted to mining interests. It is published by Dewey & Co., in San Francisco. Terms, $4 per year, in advance.—*Humboldt Register, May 7th.*

The Grand Hotel.

That it requires a peculiar talent, and one of a high order, to be a first-class landlord is so universally admitted that no phrase is, or was some time ago, more common, when speaking of the qualities of a person not quite up to the desired mark, than, "he's a good fellow, but can't keep a hotel."

No such charge of incapacity has ever been brought against Messrs. Johnson & Co., the late popular hosts of the Lick House, and the present landlords of the Grand Hotel, whose recent completion has set San Francisco all agog, and has drawn a crowd of guests. Nay, we are wrong. It is the uniform courtesy and attention to the comfort of the guests on the part of the host, which has filled the house. San Francisco has long been proud of her hotel accommodations; she is still prouder now.

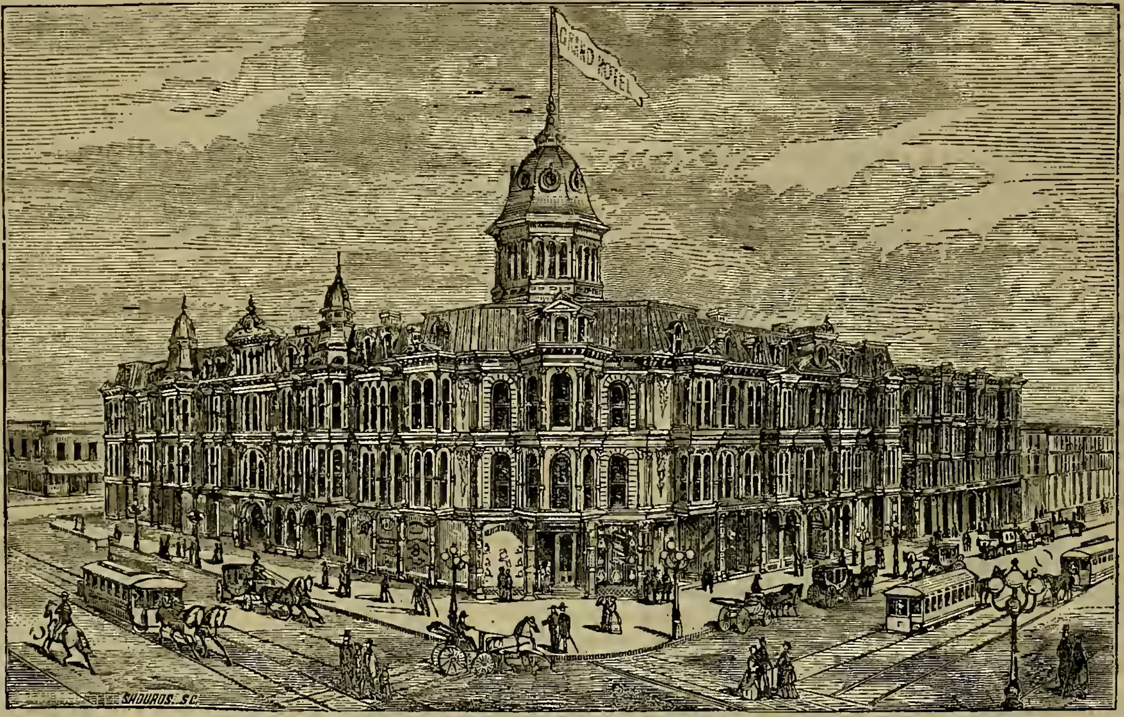
We give our readers to-day an illustration of our "Grand Hotel," with a condensed description of some of the principal points, acknowledging indebtedness therefor to the kindness of the able and energetic *News Letter*. The point of view is one diagonally opposite the corner of Market and Montgomery streets. The style of decoration is, as the *News Letter* remarks, elaborately ornate, affording a cheerful subject for that difference of taste which, not being a matter of argument, admits unlimited disputation. The main building covers the square bounded by Market, Second, Stevenson and New Montgomery streets, and the second building, on the other side of Stevenson street, is connected with this by a spacious gallery or corridor. The Montgomery street front is 335 feet long; Market street front, 205 feet. The hotel has three full stories and a fourth in the Mansard roof, from which one gets a full view of our beautiful bay. The plan of the hotel is that of a structure surrounding a central court, and is so arranged that there is not a room upon which the direct rays of the sun do not fall during the day; a most important point, especially in this climate. The central court has a glass roof and forms a spacious and lofty ball room. The outside rooms are arranged in suites, of a parlor with one, two or three bed rooms, bath room and water closet. The furniture is most luxurious. The dining room is a magnificent apartment of great size, lighted on two sides by windows, and by night by a series of superb chandeliers and side lights, while huge mirrors upon the walls multiply its apparent size to an unlimited extent. Adjoining are breakfast rooms, where also will be served the meals of the children with their nurses and other servants.

In the rear are the pantries, sculleries, and *such* a kitchen! Immensely spacious, along one entire side run the French "ranges," with a cooking capacity for a thousand guests, and capable, therefore, of always providing meals hot and fresh. Adjacent to the kitchen is the butcher shop. The laundry and the baker's department, with the store rooms, are on the lower floor. The office is situated at the Montgomery street main entrance; adjoining is the bar room, and in the basement story, entering from it, is the barber shop, bath rooms and billiard saloon.

The ladies' parlors, on the first floor, are richly furnished, of suitable size and most comfortable in appearance. The gas fixtures are exceedingly neat and of a general uniform character throughout. Upon every floor, along the corridors, a few yards apart, are coils of hose, the water constantly laid on, and available at any instant. The halls and corridors are very spacious, and the wide stairways, with their heavy carved balustrades, of easy ascent, reflect great credit on the builders, Messrs. Hibberd, Sanborn & Co., of the South Point Mills, Berry street. The hotel contains about 400 rooms, and will accommodate some 600 guests.

The hotel is a complete frame building, surrounded by brick walls, and so constructed that there is not the slightest danger to be apprehended from any earthquake shock. The severest one could only throw the brick walls *outwards*, leaving the skeleton standing intact with its roof and floors unmoved. Among others connected with the construction of the hotel, we must not forget the metal roofers, Conlin & Roberts, 749 Mission street, who, among other things, built the handsome galvanized iron chimney tops and other iron work.

For further details we have no room. We can merely say to travelers, come and try for yourselves. But if you can find better accommodations or more courteous and kinder hosts than Mr. Johnson and his associates, we should like to know of it.



THE GRAND HOTEL OF SAN FRANCISCO.

* * *

CHANGEABLE WEATHER.—The recent hot days of the 6th, 7th and 8th inst., following close upon a cold dry spell of weather, had a bad effect upon grain fields just headed out, injuring them so that the grain will not fill out well. The strawberry fields also suffered severely, where not thoroughly irrigated. Many plants were checked in growth and young fruit blighted. Last night, the 16th, quite a severe frost nipped the tops of potatoes, squashes and mellons, vines and corn. The high and drying winds through the day are also severe, and keep young plants backward in growth. Nevertheless, where not subject to the severe drouth, crops look promising this season. S. H. HERRING.

San José, May 17th, 1870.

* * *

BILLIARDS.—The billard tournament has come to an end. Messrs. Little and Mott, having each gained four games and lost two, on Tuesday played a deciding game, in which Mr. Little was victorious, and hence holds the silver cue and the title of champion of the Pacific coast.

* * *

C. C. BATEMAN has been appointed superintendent of the Gould and Curry mine, and entered upon his duties on the 14th instant.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING MAY 10TH.

PENCIL SHARPENER.—Hubert Burgess, Oakland, Cal.

GANG PLOW.—Peter H. Flansburgh, Haywards, Cal.

SELF DISCHARGING PULVERIZING BARREL. Almarin B. Paul, San Francisco.

PRESERVING AND HARDENING STONE, BRICK, ETC.—Elmor J. Salisbury, San Francisco, Cal., assignor to himself and George A. Brush, same place.

APPARATUS FOR SAVING GOLD.—Charles Schofield, Kernville, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

APPARATUS FOR SAVING GOLD.—C. Schofield, Kernville, Cal.—This relates to an improved apparatus to be attached to stamp-batteries and through which the ore pulp is passed, in order to separate the valuable portion from the gangue or refuse matter with which it is mixed when it comes from the batteries. It consists of a tank or box divided up into two compartments. At one end of each compartment is placed a hopper-shaped box, which is provided with a false bottom of perforated sheet metal. Water is introduced into the box below the false bottom, and rises through the perforated sheet and thus carries the lighter particles of the pulp, which is led in from above, over into the next similar box, while the heavy particles of metal or amalgam fall to the bottom. The holes in the false bottom of the first box are made larger than those in the second, as the larger and heavier particles are caught in the first. The number of boxes may be increased according to circumstances. In connection with these tanks are sluices with adjustable gates which lead to lower tanks. These are so arranged that, together with the boxes, the pulp is worked over and the sulphurets are concentrated. It is a simple contrivance, which can easily be put up, and which will undoubtedly work well when there is a sufficiency of water and a decent amount of care and attention is given.

PENCIL SHARPENER.—H. Burgess, Oakland, Cal.—To those who write much with the lead pencil, the frequent necessary sharpening of the article is really quite an item, consuming, as it does, considerable time, and being so likely to dirty the fingers. Hence it is that several devices have been invented for the purpose of rendering this work easier and cleaner. The latest and simplest one which we have seen is the one now to be spoken of. This consists of a cylinder, or other suitably shaped block of wood or metal, which is cut beveling on one side. This block or cylinder is perforated longitudinally with a hole, through which the pencil is thrust. A loosely revolving spring is arranged about the hole to clasp the pencil and allow it to revolve inside the block. A knife is used to sharpen the pencil, the bevel of the block guiding it in cutting the wood and sharpening the points. The whole device is exceedingly simple and very cheap.

NEEDLE.—J. W. Donaldson and D. Sheets, Suisun, Cal.—There are quite a number of needles in the market by which the threading is intended to be made easy. This device goes still further. Its chief novelty consists in constructing the end of the finger, or free side of the eye, with an enlargement made beveling each way from its highest point. It can thus be threaded by pressing the bight against the outside, as in the other needles lately patented. But, moreover, the bevel on the inside of the eye permits the thread to be withdrawn with equal ease, the object of this being to free the needle from it, when it is too short for use, without stopping to cut the twine, this being especially necessary in sewing sacks for a threshing machine. While at work there is no danger of the thread slipping out, as the tendency is to keep it at the upper end of the eye.

PRESERVING AND HARDENING STONE, BRICK, ETC.—E. J. Salisbury, San Francisco. This invention has for its object improvements in preseving and hardening building materials. By means of it, it is claimed, bricks or other porous material can be rendered equally durable with the most solid material. It is getting to be quite a matter of public interest now-a-days to know how buildings can be constructed in the cheapest manner, and hence of inferior stuff, so as to enable the poorest classes to have decent dwellings. This invention is a step towards making this a possibility.

* * *

SHEARING SPRING LAMBS—COTSWOLD SHEEP.—One hundred and seventy-six bales (42,000 pounds) of wool were received in this city, on Friday last, from the Buckley Brothers, of Snellings, Merced county. Of this amount, thirty bales (7,000 pounds) were from graded Cotswolds, eleven of which consisted of fleeces taken from spring lambs dropped in February and March last. Thirteen hundred of these fleeces averaged two and a half pounds each, the heaviest going as high as five pounds. This is said to be the first shearing of spring lambs on record, and affords a most remarkable evidence of the capacity of the climate of California in this important department of stock-growing. The Buckley Bros. have a stock of about 4,000 graded sheep. We shall take an early occasion to make a more extended reference to the operations of this firm.

* * *

PATENTS ON THE PACIFIC COAST.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast we say, subscribe for the SCIENTIFIC PRESS, published by Dewey & Co., San Francisco, Cal., at $4 per year. The opening of the railway across the continent has given to all patents a much higher value in that portion of our country known as the Pacific slope, and all interested will find the paper above alluded to a valuable reference.—*Mechanic and Inventor Detroit, Michigan.*

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 Merchant Street. 6v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street........ ....San Francisco
(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

DR. KNOWLES, Dentist,
HAS REMOVED FROM MONTGOMERY to **331** Kearny street, west side, between Pine and Bush, San Francisco.
21v18 1y

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.
DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

DR. D. T. MORGAN'S
Eye Infirmary,
REMOVED TO
526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated

References.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,
DENTIST.
Office, 313 Bush Street, near Montgomery.

Is a regular graduate, with twenty years experience in practice. 14v20-3m

DR. MABON,
ORTHOPÆDIST,
(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the

MOST EFFICACIOUS INSTRUMENT

Yet invented for the cure of

RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment.

Office, No. 128 Kearny Street, near Sutter,
SAN FRANCISCO. 11v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 Clay Street, bet. Kearny and Montgomery, San Francisco. 11v203-m

Farmers and Mechanics
BANK OF SAVINGS,
No. 235 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. Meerschaums Mounted with Silver. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

H. G. STILLEY,
PLANE MAKER.
Planes of every description made to order of beech timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 Belden Place (near Bush street), below Kearny, San Francisco. 11v20-3m

D. BOYLE. JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line promptly attended to.
Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

F. SCHOENER,
METAL SPINNER.
All kinds of Metal spun to order. Give me a call at No. 10 Stevenson Street, fourth story Pioneer Mills.
14v20-3m

NOTICE.
HYDRAULIC HOSE MANUFACTORY.
Hose made to stand any pressure—from 100 to 300 foot fall. Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street,
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

California File Manuf'g Co.
437 Brannan Street, bet. Third and Fourth.
W. Wusthoff, L. Kramer, M. Harris, J Burke.
REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,
At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 26v19-3m

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

"ENTERPRISE"
SAWING AND PLANING MILL.
D. A MACDONALD, J. H. MACDONALD,
JOSEPH McGILL, H. CHAPMAN.
D. A. MACDONALD & CO.,
Manufacturers of DOORS, SASHES, BLINDS AND MOULDINGS, 217 to 225 Spear street, and 218 to 226 Steuart street, between Howard and Folsom, San Francisco. ☞ Finishing Work for buildings constantly on hand and got up to order. 20v20-3m

Metallurgy and Ores.

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street, San Francisco.
Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
☞ Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE..........................Manager.
J. A. MARS..........................Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

CRUCIBLES! CRUCIBLES!
EUGENE DE SABLA,
COMMISSION MERCHANT.
AND SOLE AGENT FOR
J. H. GAUTIER & CO'S CELEBRATED
American Blacklead Crucibles,
No. 310 DAVIS STREET,
SAN FRANCISCO. 20v20-3m

The Scientific Press is devoted specially to matters of machinery, inventions and processes pertaining to the development of mines, and gives free and full discussions of such matters. Terms, $4 per year.—*White Pine News, May 4th.*

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM
PRINTING ESTABLISHMENT.
Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf

The California Powder Works
No. 314 CALIFORNIA STREET,
SAN FRANCISCO.
Manufacturers and have constantly on hand
SPORTING,
MINING,
And BLASTING
POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

MITCHELL & BELL
Carpet Dealers
606 Clay St

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞ Can compete in prices with any other dealer. 11v20-3m

Carmen Island Salt Works
MANUFACTURE AND OFFER FOR SALE
TABLE, DAIRY, COARSE-FINE,
CARMEN ISLAND ROCK,
AND LIVERPOOL COARSE AND FINE
SALT.
Dealers and Packers supplied in quantities to suit, at the lowest market prices.
MILL, 249 STEWART STREET.
HOLLADAY & BRENHAM, Agents,
11v20-3m 326 Front Street, San Francisco.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.
M. PRAG,
Stove Store No. 125 Clay street, below Davis.

THE FIREMAN'S FUND INSURANCE COMPANY.

OFFICE,
S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL	$500,000 00
SURPLUS	267,115 63
TOTAL ASSETS	$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.
13v20-3m

OCCIDENTAL Insurance Company

OF SAN FRANCISCO.

Cash Capital, - - - - - - - $300,000

GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary.
2@v17

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2.500 secured for $6.

HOWARD & HOWE,
GENERAL AGENTS FOR THE PACIFIC COAST.
No. 338 Montgomery street, corner California, Room 7.
☞Agents Wanted.☜ 14v20-3m

Pacific Bank.

PETER H. BURNETT..........President.
FORD H. ROGERS..........Cashier.

REMOVED

To its new Banking House, northwest corner of Sansome and Pine streets.

O. P. SUTTON, Secretary.
San Francisco, March 30, 1870. 15v20-3m

EDEN DALE COMPANY,

For the Cultivation of

Semi-Tropical Fruits, Silk Cultnre, Etc.,

ON A TRACT OF

Six Thousand Acres

ADJOINING THE CUCAMONGO RANCH,

ON THE "MUTUAL" PLAN.

☞ Prospectus, Maps, etc., furnished at the office, 314 Montgomery street.
Shares payable in ANNUAL installments. 18v20-1w

San Pascual Plantation,

NEAR LOS ANGELES,

For the Cultivation of Raisins, Semi-Tropical Fruits, etc.

FOUR THOUSAND SHARES AT $50 EACH.

TEN DOLLARS to be paid at date of subscription, and $5 per year afterwards till paid.

Maps, etc., furnished at the office, 344 Montgomery street. 18v20-1w

---

DR. F. SCHULTZ,

NO. 114 KEARNY STREET,
SAN FRANCISCO.

OFFICE HOURS—From 8 to 11 A. M. and from 2 to 6 P. M.

PARTICULAR ATTENTION GIVEN TO

SORE EYES, NEURALGIA,

RUNNING SORES AND RHEUMATISM.
16v20-3m

By authority of a Special Act of the Legislature of the State of California, approved February 19, 1870, the Trustees of the Mercantile Library Association have the pleasure to announce that a

GRAND GIFT CONCERT

IN AID OF THE

Mercantile Library Association

—WILL BE GIVEN AT THE—

MECHANICS' PAVILION,

SAN FRANCISCO, CAL.,

THURSDAY, SEPTEMBER 1st, 1870,

Under the direction of Distinguished Artists, and embracing selections from the most Favorite Masters. Programme of Concert to be hereafter announced.

Tickets of Admission, $5 Each, Gold Coin.

Each Ticket consists of Five Coupons. The holder of a whole Ticket, or five coupons, will be entitled to admission to the Concert, and to the whole amount of the Gift awarded to it. The holder of each coupon will be entitled to admission to the Concert, and to one-fifth of any gift that may be awarded to such ticket.

To provide funds for this MAGNIFICENT ENTERTAINMENT,

200,000 Tickets will be Sold

At Five Dollars Each, Gold Coin.

TREASURER.......THE BANK OF CALIFORNIA.

During the Entertainment, the sum of

$500,000, U. S. Gold Coin,

Will be returned to the holders of tickets by the distribution, by chance, of the following

GIFTS:

1 Gift of	$100,000,	Gold
1 Gift of	50,000	"
1 Gift of	25,000	"
1 Gift of	20,000	"
1 Gift of	19,000	"
1 Gift of	18,000	"
1 Gift of	17 000	"
1 Gift of	16,000	"
1 Gift of	15,000	"
1 Gift of	14,000	"
1 Gift of	13,000	"
1 Gift of	12,000	"
1 Gift of	11,000	"
1 Gift of	10,000	"
1 Gift of	9,000	"
1 Gift of	8,000	"
1 Gift of	7,000	"
1 Gift of	6,000	"
1 Gift of	5,000	"
1 Gift of	4,000	"
1 Gift of	3,000	"
1 Gift of	2,000	"
1 Gift of	1,500	"
10 Gifts of $1,000 each	10,000	"
20 Gifts of $750 each	15,000	"
20 Gifts of $500 each	10,000	"
30 Gifts of $400 each	12,000	"
50 Gifts of $300 each	15,000	"
50 Gifts of $200 each	10,000	"
425 Gifts of $100 each	42,500	"
628 Gifts in all	$500,000	

After paying the expenses of the entertainment, and making the distribution of the gifts as above announced, the balance will be applied to extinguishing the present indebtedness of the Mercantile Library Association.

The Concert and Distribution will take place under the immediate direction of the Board of Trustees of the Mercantile Library Association, assisted by a Supervisory Committee, selected from State, City and County Officers and well-known citizens of San Francisco.

Holders of Tickets to which Gifts may be awarded, will receive the same on presentation of such Tickets or Coupons to the Business Agents of the Board of Trustees, at their office,

No. 318 California Street, San Francisco.

Orders for Tickets, post paid, accompanied by remittances, will meet with prompt attention.

Tickets for Sale June 1, 1870, only at the Office.

The Trustees have appointed MAURICE DORE and CHARLES R. PETERS, 318 California street, Business Agents for the sale of the Tickets and for the transaction of all business connected with the Entertainment, to whom all communications may be addressed.

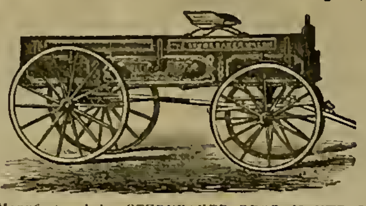
ROBERT SWAIN, President M. L. A.
WM. C. RALSTON, Treasurer "
W. H. L. BARNES, Vice-Pres. "
THOS R. HAYES, Rec. Sec'y "
DAVID WILDER, Cor Sec'y "

TRUSTEES M. L. A.—Wm. Ashburner, Isaac Wormser, J. M. McNulty, Alfred P. Elfelt, Arthur M. Ebbets, Wm. G. Badger, Wm. E. Wood, F. B. Reynolds, Samuel Hubbard.

☞ NOTICE TO MECHANICS.—A premium of $500 will be given for the best model of two Wheels of Glass and Iron, for this distribution. The Trustees reserve the right to reject any and all models.

POST OFFICE BOX, 1089.

The Celebrated Studebaker Wagon,



Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

FIRST.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover.

SECOND.—They are made by experienced mechanics.

THIRD.—The lightest running and most durable Wagon in the market.

FOURTH.—Their Thimble Skeins never break, while all others do.

FIFTH.—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not.

SIXTH.—The only Wagon in which the SLOPE SHOULDER SPOKE is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying.

SEVENTH.—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction.

EIGHTH.—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road.

NINTH.—Last, but not least, Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others. Sold by

COPELAND & DEFREES,
K street, bet. Seventh and Eighth,
SACRAMENTO, CAL.
☞ PIONEER AGENTS FOR THE PACIFIC COAST. 15v20-3m

AMES & WOOLVERTON,

General Agents for the Pacific Coast

FOR THE CELEBRATED

STUDEBAKER Farm and Team Wagons,

Manufactured at South Bend, Indiana.

OFFICE AND GENERAL DEPOT
—WITH—
THE KIMBALL MANUFACTURING CO.,
SAN FRANCISCO, CAL.

☞Orders and correspondence solicited. 15v20-3m

E. A. ARCHIBALD,

MANUFACTURER OF

Cast Iron Hubbed Wheels,

BY HIS PATENT PRESS PROCESS.
—ALSO—
Axles and Team Wagons of every Description,
METHUEN, MASS.

Particular attention given to Wheels for Portable and Fire Engines.

All my Wheels have my name cast on the hub, and are made by my Patent Press Process. By this new method the wheel is so compressed in every part that shrinkage or yielding of the part with all its attendant evils is wholly obviated, even in the driest climate. Any one understanding my process will be convinced of this. ☞Send for illustrated circular.

20v20 E. A. ARCHIBALD.

SOMETHING NEW

—FOR—

MINERS AND FAMILIES.

EAKINS' EGG SUBSTITUTE.

One Can equal to three dozen Eggs,

And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.

Price, 35 Cents per Can.

MANUFACTURED BY ADAMS & CO.,
423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

---

ARCHITECTS AND BUILDERS

Are invited to examine an invoice of

Marbleized Slate Mantels.

As these mantles are so perfect an imitation of the most costly Italian Marble, and can be furnished at so much less cost, they are being placed in the finest houses in New York and other Eastern cities.

J. D. HUNT.
No. 716 Montgomery street, San Francisco.
May 5th, 1870. 19v20.

THE CALIFORNIA Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:

JAMES T. DEAN..........President.
JAMES MILBURN..........Secretary.
RODGERS, MEYER & CO..........Treasurers.

Company's office, 121 POST STREET, San Francisco.
12v20-3m

WHOLESALE DEALERS IN

DRUGS, CHEMICALS,

Patent Medicines,

DRUGGISTS' SUNDRIES

TILDEN & CO'S

SOLID AND FLUID EXTRACTS,

Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.

SAPOINE

FRAGRANT SAPOINE FOR THE TEETH

THE GREAT MEDICAL DISCOVERY!

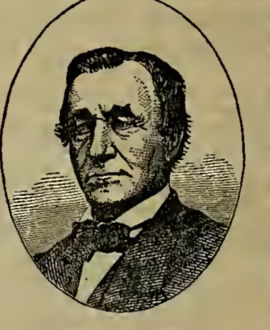
Dr. J. Walker's California

VINEGAR BITTERS.

More than 500,000 Persons

Bear testimony to their wonderful Curative Effects.

WHAT ARE THEY!



They are not a vile

FANCY DRINK,

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, FREE FROM ALL ALCOHOLIC STIMULANTS. They are the GREAT BLOOD-PURIFIER AND LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ SEND FOR A CIRCULAR.☜

R. H. McDONALD & CO.,
Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞SOLD BY ALL DRUGGISTS AND DEALERS.

New Incorporations.

The following have filed certificates of incorporation with the County Clerk, San Francisco:

O'Connell S. M. Co.—April 29th. Capital stock, $2,000,000, in 20,000 shares. Trustees, *pro tem.*: H. H. King, William Burling, Johu Gray, George Congdon aud C. W. Jones.

New Mexico M. Co.—May 4th. Capital stock, $30,000,000, divided into 500,000 shares. Trustees: G. D. Roberts, J. D. Fry, Alpheus Bull, Sol. Heydenfeldt and George W. Beaver.

Paoifio Submarine and Earthquake-Proof Co.—May 14th. Capital stock, $200,000. Trustees: B. M. Hartshorne, G. W. Gibbs, J. E. Davis, R. E. Raimond and W. L. Adams.

Arizona and Sonora M. Co.—May 16th. Capital stock, $1,000,000. Directors: Armand Ruschpier, E. M. Burmingham and Ezra Woolson.

The following have been recorded in the Secretary of State's office, Sacramento:

Robela Canal Co.—May 7th. Capital stock, $25,000. Trustees: W. P. Sproal, Stephen Boltzler and W. Collier. Place of business, Collier Ranch, Merced county.

Visalia and Owen River Toll Road Co.—May 9th. To extend from Visalia to a suitnble point on Owens river, Inyo county. Capital stock, $250,000. Trustees: M. Beaver, A. O. Thoms, E. W. Willett and E. Jacob. Place of business, Visalia.

Accommodation and Express Stage Line.—May 10th. Object: to rnn a line of stages from Columbia, Tuolumne connty, to Stockton. Capital stock, $10,000, divided into fonr hundred shares. Trustees: Robert Boyd, M. E. Hughes, H. B. McNeil, Thomas M. Byrnes, A. B. Preston, G. Hanna, S. Dengley, M. Magner, James G. Hughes and James N. Berger.

Maricopa Canal Co.—May 15th. Capital stock. $600,000. Directors: H. Hancock, J. Hancock and J. Bell,

Santa Anna Canal Co.—May 15th. Capital stock, $30,000. Directors same as last.

Alise Canada Canal Co.—May 15th. Capital stock, $10,000. Trustees: J. J. Moore, H. Hancock and W. B. Brink.

Rising Star S. M. Co.—May 16th. Trnstees: M. J. McDonald, George Hearst and Thomas Bell.

Meetings, Elections, Etc.

Exchequer M. Co.—April 30tb. Trnstees: John Sime, A. K. Grim, J. De la Montagnie, W. H. Sharp and S. Heydenfeldt.

Cayuga Chief M. Co.—Trustees: John Nightingale, R. G. Brown, Geo. A. Ecker, W. K. Dietrich and E. L. Smith.

Original Hidden Treasure M. Co.—May 3d. Trustees: W. B. Bourne, Alfred Wheeler, George Congdon, Samuel Linkton, William H. Sharp, J. E. Perkins and Marcus P. Hall.

South Aurora M. Co.—May 3d. Trnstees: A. P. Stanford, Leland Stanford, W. H. Sharp, S. W. Glazier and A. Seligman.

Independence Quartz M. Co.—May 11th: Trustees: C. J. Klein (President), F. G. Smith (Vice-Presidentand Secretary) and Alfred Wood (Superinteudent).

Ice Contest.—On the 5th inst. the agent of the Summit Valley and of the Little Grass Valley Ice companies held a trial of ice of their respective manufactures at Marysville. Two large pieces, of 131 ponnds each, were exposed to the sun, to determine which would last the longer. Tho contest commenced at ten o'clock in the morning. The Summit company's ice withstood the effect of the heat much the better during the day, but the Grnss Valley ice eventually came out ahead, lasting four hours and fifty minutes longer than the other. As, however, the pieces were of differeut shapes, and we aro not nssured that equal protection against the wind—a most important agency—was given, we do not feel quite satisfied. Let us have another test where every procaution for insuring the same circumstances for both kinds may be hnd. These may have been taken in the present instance, but the account does not state it.

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Merchants' and Bankers' Almanac for 1870.—It is seldom that we find snch a work as this gotten up in such style and with such marks of good taste. Handsomely bound, well printed and with choice engrnvings, it forms a most attractive-looking volume, while its coutents include very much of value and interest to those among whom it is intended to circulate. Besides its full list of banks and bankers in the United States and elsewhere, it contains the monthly prices of various commodities, as grain, flonr, wool, etc., etc., for forty-three years; the daily price of gold from January, 1864, to December, 1869; valuable articles on the parities of exchange, the progress of railroads in the United States from 1835 to 1869, the cotton crop, statistics of immigration, the public debt, and much other matter of great value for reference. It is published at the office of the Bnukers' Magazine and Statistical Register, 41 Pine street, New York.

To Advertisers.

After January 1st, 1870, the latest hour for receiving mining and other advertisements for the M. and S. Press will be during Thursday evening, as our paper will be printed for the interior mails on Friday morning.

A Civil Engineer

Of thirteen years standing and highest Eastern, Sonth American and Pacific coast references, tenders his services at moderate rates. Can present attractive inducements to capitalists. Address W. S. C., Box 1,036, San Francisco. 20v20-1m

☞ Maravilla Cocoa.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest clements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

To Miners, Millmen and Metallurgists. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Pnblished by Dewey & Co., publishers of the Scientific Press, San Francisco.

There is no light equal to the Portable Gas Light, for Families or Business places, in town or country; at one-fourth the cost of coal gas, and cheaper than coal oil. The Lamps and County Rights are for sale at P. J. PHILLIPS & CO., 550 Market street. No trimming wicks or breaking chimneys. Everybody should see and have them. 19v20

Muller's Brazilian Spectacles are just the thing for people fond of reading whose eyesight is beginning to fail. His great skill as an optician enables him to suit all conditions of sight. It is Muller who supplies the city with opera glasses. *

We call attention to the new portable gas burner—the only one that can be regulated to any size, flame, and burn without smoke or smell. Equal to any gas at one-fourth the cost. P. J. Philips & Co., 650 Market street, have county rights for sale for this valuable invention; also lamps for sale. No one should be without them who wants a good, cheap and safe light. 21v20-4w

Co-Operative Union Store.—This is becoming one of the most useful Institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

To Farmers.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no recounting. 20v20-3m

Mason's Bread of Life, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis aud Sore Throat. Price, 25 cents per box. These lozenges are free from all dangerous properties. Compounded and put up by Dr. J. H. Mason, 750 Howard st. 16v20-3m

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m R. F. Howland.

Thomas O'Neil Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Microscopes for Scientific Investigation aud Educational Purposes. Price list sent free. T. H. McAllister, Optician, 49 Nassau street, New York. 15v20-3m

Drs. Martinache & Smith, Oculists and Aurists, 313 Bush street, between Montgomery and Kearny. Hours for consultation, 12 to 3. 16v20-3m

F. Gruber, Naturalist, No. 626 California street, between Kearny and Dupont, San Francisco. Birds and auimals stuffed to order, 13v20-3m

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

Mining Notices.

Continental Silver Mining Company.—Location of Works: Treasure City and Vicinity, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-sixth day of March, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
B F Bivins	7	500	$150 00
B F Bivins	8	500	150 00
B F Bivins	9	20	5 00
B F Bivins	73	2	60
B F Bivins	74	2	60
B F Bivins	75	2	50
B F Bivins	77	2	60
B F Bivins	78	5	1 50
B F Bivins	80	5	1 50
B F Bivins	81	5	1 50
B F Bivins	82	5	1 60
B F Bivins	83	5	1 50
B F Bivins	84	5	1 50
B F Bivins	85	5	1 50
B F Bivins	86	10	3 00
B F Bivins	87	10	3 00
B F Bivins	89	10	3 00
B F Bivins	90	10	3 00
B F Bivins	91	400	120 00
B F Bivins	158	4	1 20
B F Bivins	159	4	1 20
B F Bivins	150	4	1 20
B F Bivins	161	4	1 20
B F Bivins	162	4	1 20
B F Bivins	163	4	1 20
B F Bivins	164	4	1 20
B F Bivins	165	2	60
B F Bivins	166	2	50
R F Bivins	167	2	50
B F Bivins	168	2	50
B F Bivins	169	2	50
B F Bivins	170	2	50
B F Bivins	171	5	1 50
B F Bivins	172	5	1 50
B F Bivins	173	5	1 50
B F Bivins	174	5	1 50
B F Bivins	175	5	1 50
B F Bivins	176	5	1 50
B F Bivins	177	5	1 50
B F Bivins	178	5	1 60
B F Bivins	179	5	1 50
B F Bivins	180	5	1 50
B F Bivins	181	10	3 00
B F Bivins	182	10	3 00
B F Bivins	183	10	3 00
B F Bivins	184	10	3 00
B F Bivins	185	10	3 00
B F Bivins	186	10	3 00
B F Bivins	187	10	3 00
B F Bivins	138	10	3 00
B F Bivins	190	10	3 00
B F Bivins	191	10	3 00
B F Bivins	103	10	3 00
B F Bivins	194	33	9 90
B F Bivins	196	33	0 90
B F Bivins	198	2	60
B F Bivins	199	2	50
B F Bivins	200	2	60
B F Bivins	201	2	60
B F Bivins	202	34	10 20
B F Bivins	204	2	60
B F Bivins	205	2	60
B F Bivins	206	2	50
B F Bivins	207	2	60
B F Bivins	208	2	60
B F Bivins	209	2	60
B F Bivins	210	4	1 20
B F Bivins	211	4	1 20
B F Bivins	212	4	1 20
B F Bivins	213	4	1 20
B F Bivins	214	4	1 20
B F Bivins	215	5	1 50
B F Bivins	216	6	1 50
B F Bivins	217	5	1 50
B F Bivins	218	5	1 50
B F Bivins	219	5	1 50
B F Bivins	220	5	1 50
B F Bivins	221	5	1 50
B F Bivins	222	5	1 50
B F Bivins	223	5	1 50
B F Bivins	224	5	1 60
B F Bivins	225	10	3 00
B F Bivins	226	10	3 00
B F Bivins	227	10	3 00
B F Bivins	228	10	3 00
B F Bivins	229	10	3 00
B F Bivins	230	10	3 00
B F Bivins	231	10	3 00
B F Livins	232	10	3 00
B F Bivins	241	141	42 30
A F White	2	500	150 00
A F White	5	20	6 00
A F White	142	100	30 00
A F White	195	286	85 80
A F White	233	330	99 00
A F White	234	34	10 20
A F White	236	34	10 20
A F White	238	34	10 20
A F Wbite	240	34	10 20
C T Fay	131	23	6 90
C T Fay	147	25	7 50
C T Fay	148	50	16 00
C T Fay	237	66	19 80
J A Eaton	116	20	6 00
Mrs J A Eaton	59	100	30 00
Clark Symous	100	5	1 50
J D Dahms	101	12	3 60
H S Bunker	129	1	30
H T Wbceler	130	1	30
Perry Johnson	133	3	90
Orrin Simmons	149	200	60 00
W T Hovey, Trustee	153	1995	598 50

And in accordance with law and an order of the Board of Trustees, made on the tweuty-sixth day of March, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the Secretary, No. 302 Montgomery street, San Francisco, Cal., on Wednesday, the twenty-fifth day of May, 1870, at the hour of three o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising aud expenses of sale.

H. H. BLAKE, Secretary

Office, No. 302 Montgomery street, San Francisco. a30

Land Purchasers' Association.—Notice.

At a meeting of the Board of Trustees of the Land Purchasers' Association, held May 3d, 1870, the following resolution was adopted by unanimous vote:

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each aud every share of the capital stock of the Land Purchasers' Association now held by subscribers thereto; being for the montbly installment falling due and payable May 1st, 1870. Said assessment is payable on or before the thirtieth day of May, A. D. 1870, to James F. Crosett, Secretary, at the office of tho Association, No. 304 Montgomery street, Sau Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of May, A. D. 1870, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before, will be sold at the office of the Secretary, on the twenty-eighth day of June, A. D. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.

Office, 304 Montgomery street, San Francisco. m7-4w

Cayuga Chief Mining Company.—Location of Works: White Pine Mining District, County of White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-ninth day of April, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the thirty-first day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-first day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room No. 5 No. 302 Montgomery street, San Francisco, Cal. my7

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of April, 1870, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to tho Secretary, at the office of the Company, No. 408 California street, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the twenty-third day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, 408 California street, San Francisco. ap15

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of May, 1870, an assessment of three (3) cents per sharo was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the seventh day of June, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-eighth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. my7

Pinto Mining Company.—Location of Works: "Silverado," Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of May, 1870, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, No. 426 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the second (2d) day of June, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twentieth (20tb) day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street. 1:v20

Silver Vault Tunnel and Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third (3d) day of May, A. D. 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 23 Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the ninth day of June, A. D. 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the twenty-ninth day of June, 1870, to pay the delinquent assessment, together with costs of advertising aud expenses of sale. By order of the Board of Trustees.

JOSEPH L KING, Secretary.

Office, Room No. 23 Hayward's Building, No. 419 California street, San Francisco, California. my7

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Travelling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring - California.
Thomas Poyzen—California.
F. B. Alderson—Nevada.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hudson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

A Valuable Book for Inventors and Artisans.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Press office, postpaid, for $1.—*New Age.*

New Advertisements.

The Latest, Cheapest, and Most Durable.

CRANDALL'S

PATENT SPRING BED.

This invaluable Spiral Spring Bed combines all the good without any of the bad features of the common spring mattrass. It consists of a framework of springs resting on a bed of stronger springs, thus giving it nearly double the elasticity of any other bed. The springs are self-supporting, each pair being independent of the others, and consequently the tendency to sag or incline toward the middle is avoided. Unlike other spring beds, they require no upholstering, and, of course, afford no harbor for fleas or dust. The medical faculty have pronounced it the best Bed in use. It commends itself to those who have examined and used it. They invariably pronounce Crandall's Patent the best Spring Bed ever offered to the public.

These Beds are on exhibition and for sale at the Cabinet Warerooms of

JOHNSON & BEST,

No. 413 PINE STREET, RUSS BLOCK,

Between Montgomery and Kearny. Also at

639 Market Street, near New Montgomery.

Beds guaranteed to give satisfaction

Or the money will be refunded.

Refer, by permission, to the following, among the many using our Beds, who are willing to testify to their superiority:

SAN FRANCISCO AND VICINITY—J. B. Pierce, Esq., residence Sixteenth and Capp streets, office 315 California street; J. H. Rogers, Esq., residence Oakland Point, office 16, 17 and 18 California Market; W. Zelheer, Esq., residence 613 Geary street; James Dexter, Esq., office 430 Sansome street; John A. Roth, Esq., residence 106 Silver street. James Counor, Esq., Alameda.

N. B.—Responsible persons can have one on trial.

S. B. SNEDAKER & CO.,
21v20-6w Agents for San Francisco.

Machinery for Sale.

One (1) small Engine, eight (8) inch bore sixteen (16) inch stroke, with tubular boiler twelve (12) feet long and thirty-two (32) inches in diameter, with thirty (30) two and one-half (2½) inch tubes, all complete and in running order.

One (1) engine, ten (10) inch bore, twenty (20) inch stroke, with tubular boiler, eleven (11) feet long and forty (40) inches in diameter, with thirty-eight (38) two and one-half (2½) inch tubes, all complete and in running order, with reverse motion alternative, at option of buyer, with complete hoisting and pumping machinery.

One (1) large engine, twelve and one-half (12½) inch bore, thirty-two (32) inch stroke, with tubular boiler fourteen (14) feet long and four (4) feet in diameter, (with fire box) and forty-eight (48) two and one-half (2½) inch tubes, all complete and in running order, with governor and reverse, and alternative, at the option of buyers, with hoisting machinery.

For further particulars apply to F. W. ROBINSON, at Union Hotel, Novada City, Nevada Co., Cal. 21v20-4w

Agents! Read This!

We will pay Agents a salary of $30 per week and expenses, or allow a commission, to sell our new and wonderful inventions. Address M. WAGNER & CO., Marshall, Mich. 21v20-2m

BULL'S HEAD STOCK MARKET,

JUNCTION OF

Hayes, Ninth and Market Streets,
SAN FRANCISCO.

H. B. PURDY & CO.,

— DEALERS IN —

CATTLE AND HORSES.

Work Oxen always on hand.

WAGONS AND HARNESS BOUGHT AND SOLD ON COMMISSION.

☞ Good Barns, Sheds, Corrals, and all other necessary accommodations. 21v60-3m

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe spacial ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY. and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School." New Haven, Conn. v16-1y16p

ECONOMY AND CLEANLINESS

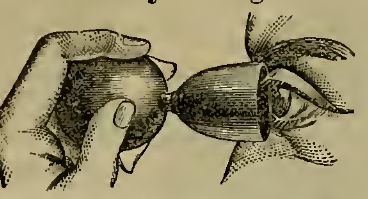
Are to be found in the use of the

PATENT SPRING BED.

They are the cheapest and best in the market. Manufactory on Twelfth street, bet. C and D, SACRAMENTO. Caveat filed Aug. 9, 1869. [15v20] G. B. DEAN.

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

Restore your Sight!



SPECTACLES RENDERED USELESS.

Failing Sight from age and other causes restored and preserved by

DR. STEVENS & CO'S

EYE-SIGHT RESTORER.

This simple and wonderful mechanical invention is applied by suction directly to the eye, bringing the sight to a natural focus and restoring the Cornea to its original convexity.

REFERENCES.—Mrs. Rev. James Wood, Mrs. Sutherland, T. C. Boyd, of San Francisco; Mrs. J. B. Hoyt, Suisun City.

M. A. SUYDAM, Sole Agent,
No. 20 Geary street, San Francisco, at Dr. Benton's rooms.

☞ Also Cornea Flatteners for cure of Near-Sightedness. 15v20

LEA & PERRINS'
CELEBRATED

Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

FRANCO-ITALIAN MANUFACTORY.

NEW CALIFORNIA

Chocolate and Coffee Steam Mills.

DESCALZO, LASTRETO & CO.,

526 WASHINGTON STREET.

MANUFACTURERS OF

Hygienic Chocolate of Every Variety,

Ne Plus Ultra Ground Coffee,

And sole manufacturers in California of the world renowned Coffee,

"CAFE DES GOURMETS,"

CORCELET PROCESS. 9v20-q

ENGRAVING ON WOOD

DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, tc., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F

Crandall's Patent Spring Bed.

Manufactory, corner Front and M streets, SACRAMENTO COOLEY, HENRY & CO., Proprietors. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. ☞ Orders received at our manufactory, or at our agency in San Francisco. 7v20-3m

---

WILSON'S

STEAM STAMP MILL.

This mill has now been in use, enduring the severest tests, for the last two years, during which time it has been introduced into most every mining State and Territory in the Union, and is everywhere received with great and increasing favor, having been in every instance eminently successful, and proved to be the cheapest in first cost, and the most economical in working, and most durable of all stamp mills.

It crushes from **25 to 40 tons** of rock through the ordinary size screens in twenty-four hours, and only requires from two to two and a half cords of wood per day (24 hours). It can be put in operation in a few days after it reaches the mines. The mill is complete when it leaves the shop, and weighs about 6,000 pounds. To be fully appreciated it should be seen in practical operation. Even the most skeptical in improvements of crushing machinery agree to its practicability; and mines that will not pay to work with the ordinary stamp mill can be worked at a profit with the Wilson Steam Stamp Mill. One of these mills can be seen in operation at the Pacific Iron Works, First street. Address,

FURMAN R. WILSON,
San Francisco.

NOTICE.—The improved steam stamp mill that was so complete a failure at Silver City, Nevada, was **NOT** one of the Wilson Mills, but was a **base and fruitless attempt to evade the Wilson Patents,** the Wilson Mill never having failed to give unbounded satisfaction in every particular, so much so that unprincipled parties are using the reputation of the Wilson Mill to foist their own fruitless experiments on the public.

FURMAN R. WILSON.

Railroads and Steamers.

SHORT ROUTE.

CALIFORNIA PACIFIC RAILROAD & STEAMER NEW WORLD VIA VALLEJO.

The following time will take effect
Sunday .... April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
7:00 A. M. 4:00 P. M.	11:45 A. M. 7:15 P. M.	11:20 A. M. 8:20 P. M.	1:00 P. M. 9:30 P. M.
ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M. 1:15 P. M.	6:45 A. M. 2:45 P. M.	6:15 A. M. 3:15 P. M.	10:30 A. M. 7:30 P. M.
ON SUNDAYS.			
10:15 A M.	3:00 P. M.	2:30 P. M.	6:45 P M.

TICKETS for sale at 313 Montgomery street, or on board steamer New World. R. S. MATTISON, Superintendent.
L. C. FOWLER, General Freight and Passenger Agent.
N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf.
Vallejo, April 24, 1870 13v20-1y

Pacific Mail Steamship Company.—For NEW YORK, VIA PANAMA. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

June 3 .... COLORADO,
Connecting with Alaska.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

June 1—Steamer JAPAN, Captain Freeman.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.
13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation COMPANY,

Steamer CAPITAL .... CAPT. E. A. POOLE
" CHRYSOPOLIS .... CAPT. A. FOSTER.
" YOSEMITE .... ——
" CORNELIA .... CAPT. W. BROMLEY
" JULIA .... CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE,
13v17 **President**

CHOICE POULTRY.

Light Brahma and White Leghorns.

We are now booking orders for a few trios of the above named fowls, bred from choice imported stock. Will commence delivering in July. All orders filled in rotation, as received.

☞ A few clutches of eggs for setting from the above named breeds.

NICHOLS & WILLARD,
Importers and Breeders of Choice Poultry, Fruit Vale Avenue, Brooklyn, Alameda county, Cal.
20v20-3m

MAGAZINES.	P.An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number.

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

— AND —

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

— ALSO —

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, May 19, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 ℔s.; Bar, 1@1½c ℔ ℔; Sheet, polished, 3c ℔ ℔; common, 1½@1¾c ℔ ℔; Plste, 1½c ℔ ℔; Pipe, 1½c ℔ ℔; Galvanized, 2½c ℔ ℔.		
Scotch and Eng. Pig Iron, ℔ ton	$30 00	@$32 00
White Pig, ℔ ton	28 00	@ — —
Refined Bar, bad assortment, ℔ ℔	— 03	@ — —
Refined Bar, good assortment, ℔ ℔	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
Coppea.—Duty: Sheathing, 3½c ℔ ℔; Pig and Bar, 2½c ℔ ℔.		
Sheathing, ℔ ℔	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
Tin Plates.—Duty: 25 ℔ cent. ad valorem.		
Plates, Charcosl, IX, ℔ box	12 00	@ — —
Plates, I O Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 60
Banca Tin, Slabs, ℔ ℔	— —	@ — 42
Steel.—English Cast Steel, ℔ ℔	— —	@ — 15
Quicksilven.—℔ ℔	— —	@ — 65
Lead.—Pig, ℔ ℔	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bsr	— 9	@ — 9
Zino.—Sheets, ℔ ℔	— 10½	@ — 11
Borax	35 00	@ 38 00

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Imprnved Steam Pnmp, Brodle's Improved Crusher, Mining Pnmps, Amalgamators, and all kinds of Machlnery.

N. E. corner of Tehama and Fremoat streets, above Howard street, San Francisco. 8-qy

---

THE RISDON
Iron and Locomotive Works.

INOORPORATED..........APRIL 30, 1868.
CAPITAL..........$1,000,000.

Curner nf Beale and Hnward Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machiaists, Foundrymen, and Msnufacturers of Car Wheels equal to the best imported, and guarsnteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Wm. Norris, Lloyd Tevis, Joseph Moore, John N. Risdon. Wm. Alvord, Chas. E. McLane,

JOHN N. RISDON..........President.
JOSEPH MOORE..........Vice Presidcat and Superintendent.
LEWIS R. MEAD..........Secretary.

24v17-qy

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dnnbar's Patent Self-Adjnsting Steam Piston PACKING, for new and old Cylinders.

And all kinds nf Mining Machlnery.

Front Street, between N and O streets,

14v1 Sacramento City

San Francisco Wire Works,

No. 665 Mission Street, near Third.

SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,

Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Gusrds, Feuders, Spark Guards, on hand and made to order. 13v20-3m

---

R. SAVAGE. D. R. DORAN.

SAVAGE & CO.,
Empire Iron Foundry,

No. 294 Howard Street, near Beale.

Steam Engines, Ship and Agricultural Castings, Stove, Range, Grates and Feuders, Iron Railing, and Ornamental Work of every description at the lowest rates. An assortment of Sash Weights at Eastern Prices. 9v203-m

---

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. OONNER.

MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,

Between Howard and Folsom, San Francisco.

—ALL KINDS OF—

High and Low Pressure Boilers Built.

Sheet Iaon Work, Etc., Eto.

☞ Repsiring promptly attended to.

17v20-6m WM. W. CANTY, Managsr.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO,

IRA P. RANKIN, A. P. BRAYTON,

GEO. W. FOGG, Snperintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other clssses of work gensrally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Johhing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremoat and Beale, San Frsacisco.

Flue or Tubulsr **Boilers**, with plain circulsr or spiral courses. Upright Flue or Tubular Boilers, Locomotive and snd Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonshle rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the dismeter of the pipe and thickness of Iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers nad Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attead to the selection and forwarding of Iron fur Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to sssist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Estshlishment is now working upon the

CO-OPERATIVE PLAN,

And sre therehy enahled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And hetter adapted to the wsnts of tho Pacific States. Ascertain onr prices before purchasing. 8v20q

---

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and **15** Fremont street, near Market, Saa Francisco. 10v14qr

---

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Missioa and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, mannfactnred 24v16qr

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, snd Hose Couplings and Conaecous of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL.

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Bullders and Makers of all kinds of Machlnery.

16v16q No. 28 Fremont street, San Francisco.

CANVASSERS WANTED for a New Book: THE CHEMICAL FORCES—HEAT, LIGHT, ELECTRICITY; Their Applicstion to Important Modern Inventions and Scientific Discovery, by Thomas Ruggles Pynchon, Professor of Chemistry and the Natural Sciences, Beautifully Illustraten by 259 Engravings and by many entertaining experiments. The work is elegantly printed. All experienced agents should send for descriptive circular and terms. F. DEWING & CO., 642 California street, San Francisco. 19v20-5w

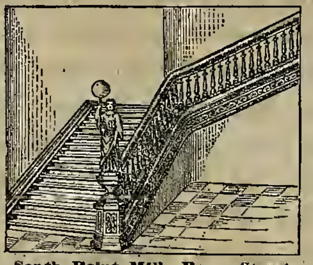
---

Scientific Press.—Dewey & Co. are the publishers of this sterling paper It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican*,

---

HIBBERD, SANBORN & CO.,

STAIR



BUILDERS.

South Point Mills, Berry Street,

Between Third snd Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Greatest Discovery Ever Made.

MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, thst for years he was completely crippled and unahle to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hsnd rendered useless, and accompanied with continued excruciating psin. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which wers so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usnal avocations. So effectusl has been tho remedy, that to this day he has enjoyed perfect health; without the slightest return of his former complaint. Knowing the grest blessing such a remedy would he to those afflicted with this painful disease, he with grest difficnlty and expense obtained the secret of prepsring the Plaster; and during the many years MR. MAC has applied thsse Plasters in New Zealand, Tssmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will he convinced hy referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Travoling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street: Michasl Gorman, No. 6 Front street; Mrs. W. S Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository merican Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the curs of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 a. m., 2 to 4 p. m. and 7 to 9 p. m.

18v20-3m

PARIS

Scouring and Blanket Cleaning

ESTABLISHMENT.

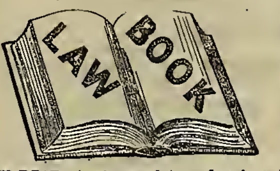
Blankets are cleaned in such a manner ss to give them their original elssticity and gloss. Flannels of all kinds sre cleansed and scoured *without fulling*. Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains sre washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be ohtained at the Powell street establishment snd in the branch offices, showing that my work is done in a super or and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly hy sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; hranch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell snd Bush. 10v20-3m

---

Agents Wanted for



Chamberlin's New

FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 Cslifornia street, San Francisco. 12v20-13t

---

REMOVAL.

GEO. MILNE CLARKE & CO.,

PLUMBERS AND GASFITTERS, respectfully announce the removal of their business to No. 715 Market street, south side, near Bancroft's. 19v20-1m

---

USE

DR. S. GIRARD SMITH'S
ARAMIRACULAS

—FOR—

RHEUMATISM, GOUT AND NEURALGIA

CURES CUARANTEED.

Has cured Thousands. Has never heen known One hottle will relieve you.

OFFICE, No. 121 POST STREET

Agents Wanted in every City and Town.—Terms Liberal.

Dr. S. Girard Smith, 621 *Kearny street.*—Dear Sir It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my hed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything ahout having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by rsferring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearry street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the msny systems of medicine by which we have attempted to heal the human body, snd rid it of disease, from ths science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, tims has abundantly shown hy their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, thst I must sdmit, is so natural and direct, that it recommends itself to all who are suffering with the sbove diseases. And it challenges and defies all the old methods of treatment. Although I hsve heen educated through a regular course, and graduated in Europo, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces ms to bear this testimony to its merits, for ths benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Ayer's

Hair Vigor,

For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a

HAIR DRESSING,

nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.

Prepared by Dr. J. C. Ayer & Co.,

Practical and Analytical Chemists,

LOWELL, MASS.

PRICE $1.00.

Sold hy sll druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, Wholesale Agents. 26v18-1y

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

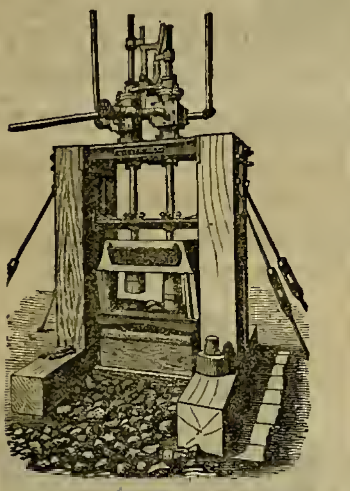
New York City, Saturday, May 7, 1870.

IRON.			
Pig, Scotch, No 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No 2...............	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common...........................	87 50	@	92 50
Refined...........................	95 00	@	— —
Rods..............................	100 00	@	155 00
Horse-shoe........................	115 00	@	— —
Hoop..............................	125 00	@	180 00
Scroll............................	110 00	@	145 00
Nail-rods, per lb.................	— 8¼	@	— 9¼
Spring............................	— 9¼	@	— —
Tire..............................	— 9¾	@	— —
STEEL.			
Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast..................	— 23	@	— —
Sheet, second quality.............	— 20	@	— —
Sheet, third quality..............	— 18	@	— —
Saw-plates, circular..............	— 27	@	— —
Double-shear, warranted...........	— 23	@	— —
Single-shear......................	— 19	@	— —
Montague & Co. (cast bars)........	— 18	@	— —
Machinery, round..................	— 16	@	— —
German, best......................	— 16	@	— —
German, goat......................	— 13½	@	— —
German, eagle.....................	— 12	@	— —
Blister, warranted................	— 16	@	— —
Blister, common...................	— 15	@	— —
Jessop & Sons', common............	— 17	@	— —
Double-refined....................	— 26½	@	— —
Stone-ax shapes...................	— 26½	@	— —

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S PATENT AMALGAMATOR,

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,
1v1 San Francisco.

TO MILLMEN.

FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30 inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

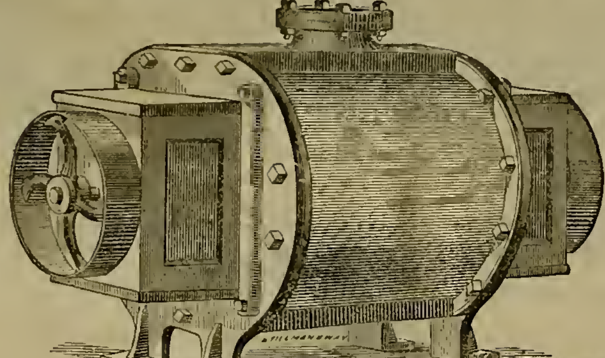
---

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

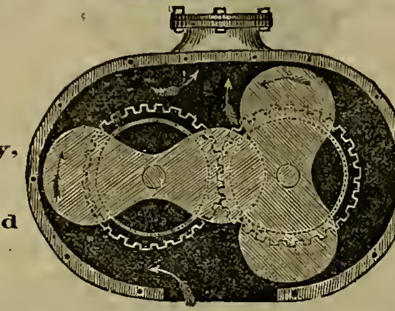
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24 1866; and Oct, 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** LESS POWER **Than any Blower** Now in use.

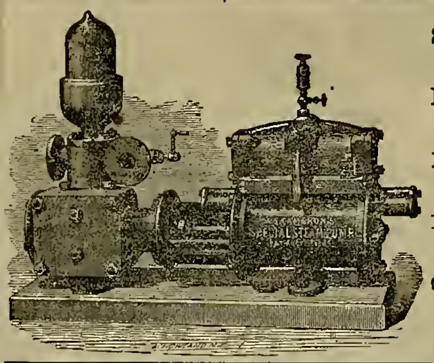
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.
4v16-3m



CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

MARINE ENGINES.

SURFACE

CONDENSERS.

DAVID STODDART,
BEALE STREET.

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

☞ The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in tin cans only, with full directions. Take no other. Giant Cement and Miners' Rubber Cement are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

WONDERFUL

Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor: I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 19v20-2m

ICE. ICE.

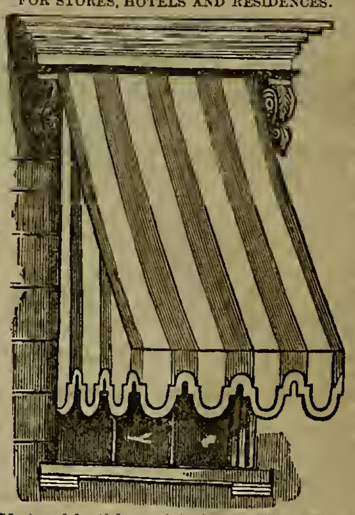
On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.

AMERICAN RUSSIAN COMMERCIAL CO.
D. E. Martin, Superintendent,
16v20-qy 714 and 716 Battery street.

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.

COMFORT AND ELEGANCE COMBINED.



KEEPS COOL AND SHADY

Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

Dr. Dudley, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: No. 12 Montgomery street, opp Lick House. Hours from 10 to 3. ☞ Se habla Español. On parle Français.

MARTIN'S

Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil,

PATENT CANS.

5v17-tf **414 Front street, San Francisco**

FROM **$65** The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED **WEED** Machines work *easier, simpler, faster* and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO **$500**

LAND! LAND! LAND!

YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

40,000 Acres in Fresno County;
7,000 Acres in Sonoma County;
3,680 Acres in Tulare County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above.

YOUNG & PAXSON,
16v20-3m 424 Montgomery street.

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,

Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDINO, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.

August 2, 1869. 5v19-1m

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of

Melting Pots, Portable Furnaces,

CRUCIBLES, and other fire-standing Goods,

Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT, Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass. GALLAGHER, WEED & CO., California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,

18v18-9p 519 Front street, San Francisco

BARTON & RUTTER,

Importers and Dealers in

Guns, Pistols, Fishing Tackle

Pocket Cutlery, Etc.

SPORTING APPARATUS OF EVERY DESCRIPTION.

609 Clay Street, near Montgomery.

— SOLE AGENTS FOR —

Alexander's Celebrated Pocket Cutlery

For the State of California.

JNO. C. BARTON. R. A. RUTTER.

16v20-3m16p

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.,

For all Laboratory and Manufacturing Purposes.

H. M. RAYNOR,
57 Bond street, New York.

Platinum Scrap and Ore purchased. 15v20-1y15p

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

WIESTER & CO.,

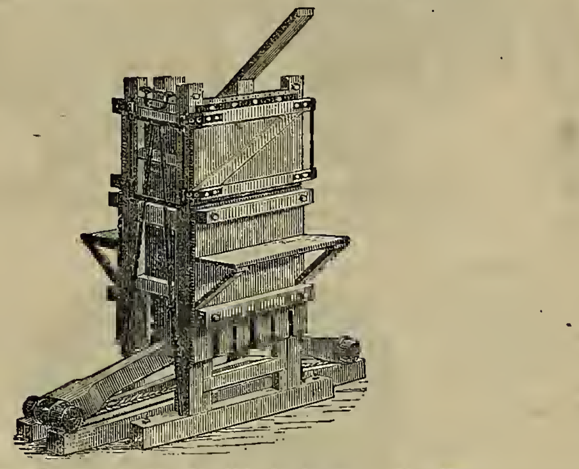
PATENT BROKERS,

No. 314 Bush Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

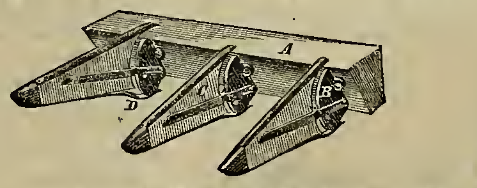
EAGLE HAY PRESS.



PATENTED JANUARY 10, 1865, AND JULY 24, 1866.

Here is an invention that we take pleasure in recommending. There is probably no farming implement more perfect in its line than this Press. It has advantages over any and all other Presses now in use. It costs only $300 and weighs only 1,500 pounds, which is $100 lower in price and 1,500 pounds less in weight than any other good Press on the Pacific coast. Three men and a pair of horses with this Press can bale from ten to fifteen tons per day, each bale weighing from 250 to 350 pounds. The power is applied by means of two lines acting on the principle of the toggle-joint, and the pressure acquired as they approach a vertical position can scarcely be estimated. On account of the great power obtained in this Press, it is well adapted to baling hides, rags, wool, cotton, etc. They can be built at any blacksmith and wagon shop. They cost to manufacture $150 less than any other first-class Press in the United States. A large number have already been sold, and all are giving good satisfaction. The Right to California, Oregon and Nevada will be sold in States or counties. We keep on hand well built sample Presses to furnish to parties buying territory. Any information in regard to the Press or territory can be obtained by addressing WIESTER & CO., 314 Bush street, San Francisco.

BONNEY'S IMPROVED GRAIN LIFTERS.



Patented July 21, 1868, and September 28, 1868.

Mr. O. BONNEY, Jr., of San Francisco, has invented and patented a simple and practical device for raising fallen down grain, that it may be secured by the knives of the header. Practical farmers and those whose interests are closely allied with them, can testify to the great amount of grain that cannot be gathered by the heading machines in use, and which is annually lost to themselves and the country.

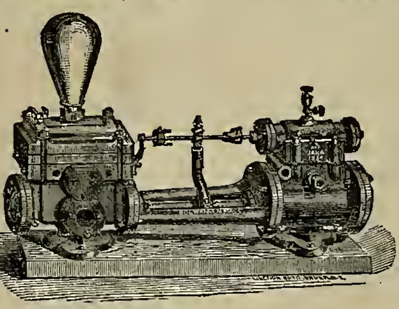
It has been estimated that with the ordinary Harvester one bushel to the acre, on an average, is annually wasted in the State of California. Taking this estimate, which we think is very low, by the use of BONNEY'S IMPROVED GRAIN LIFTERS there would be annually saved to the people of this State more than 700,000 bushels of wheat, 400,000 bushels of barley, and 40,000 bushels of oats. In the above cut three Lifters are represented. A is the header-beam, b an iron shank firmly bolted to the beam, to which the finger or lifter, c, is fastened by means of a joint bolt through the iron and the back part of the shank, b. The lifter has an iron point, and is bound with iron, which makes it very durable. They are smooth, affording no chance for grain to hang and burden a team. D is a strip of spring steel, and draws the point of the finger downward. By means of a stop-bolt through the front part of the shank, b, any angle can be given to the Lifter. They can be varied from one inch to two feet from the ground. By elevating the Lifters, they become a complete substitute for what are termed "trinklers," allowing the knives to run close to the ground. The hinge motion of the Lifters prevents them from injuring the header-beam in passing over rough ground. The entire weight of a full set of eight Lifters is forty-eight pounds. One minute is sufficient time to put on or take off each finger.

We claim that this auxiliary for harvesting is much superior to anything else of the kind ever invented, and are prepared to prove the same in the field. A single Lifter will be sent (C. O. D.) at the retail price—five dollars—to any person who may wish to examine them either with a view to buy territory or to purchase Lifters for his own use. If the Lifter is not satisfactory, it can be returned, and we will refund the money, less express charge on the Lifter. We will furnish Lifters at what they cost to manufacture to any person who buys a County or State Right. They can be made at any blacksmith shop, and allow a handsome profit. For Lifters or Rights address WIESTER & CO., 314 Bush Street, San Francisco.

☞ We have for sale the Right of A NOVEL AND VALUABLE LITTLE INVENTION for the city of San Francisco. One machine will go with the right. The machine can be attended by a man or small boy, and will yield to the owner a net profit of from two to four dollars per day. The present owner has built up a paying business, but is induced, at the request of friends, to relinquish it and go East. The Right and the Machine will be sold for the small sum of $175.

WIESTER & CO.,
314 Bush Street, San Francisco.

KNOWLES' PATENT STEAM PUMP.



This Pump has received the HIGHEST PREMIUM at every Fair where it has been exhibited. It is of superior make and finish; has all ground joints; no packing required. It is positive in its action. It is impossible to stop it on centers. It will always start without using a starting bar. We have two hundred different styles and sizes adapted for Factories, Steamships, Sugar Refineries, Breweries, Distilleries, Gas Works, Oil Works, Soap Works, Paper Mills, Tanneries, Bleacheries, Laundries, Railroad Purposes, Quarries, Petroleum Mines, Drainage, etc. Large Pumps for Water Works. Fire and Wrecking Pumps. ☞ Pumps guaranteed for every situation.

E. T. STEEN & V. CUSHING,
Sole Agents for the Pacific Coast,
No. 9 FIRST STREET, SAN FRANCISCO.

NEW AND SECOND-HAND ENGINS, BOILERS, and MACHINERY OF ALL KINDS, constantly on hand.

W. T. GARRATT & CO.

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells,

TAVERN AND HAND BELLS, GONGS, FIRE ENGINES; FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —

HARDWARE,

BAR AND SHEET IRON,

Steel, Coal, Smiths' and Miners' Tools,

Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and

RAILWAY SUPPLIES.

— ALSO AGENTS FOR —

ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY

54 K Street, Sacramento.

7v20-ng

WILCOX'S

PATENT STEAM

WATER LIFTER.

Requiring no Engine.

Send for circular containing full explanations, price list, testimonials and references.

M. & A. WILCOX,

15v20-3m-nbxb 74 K street, Sacramento.

N. W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws;

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect,

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, Made of Fulled Rawhide, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ **Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** ns

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,

SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.

A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.

9v20-qy16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

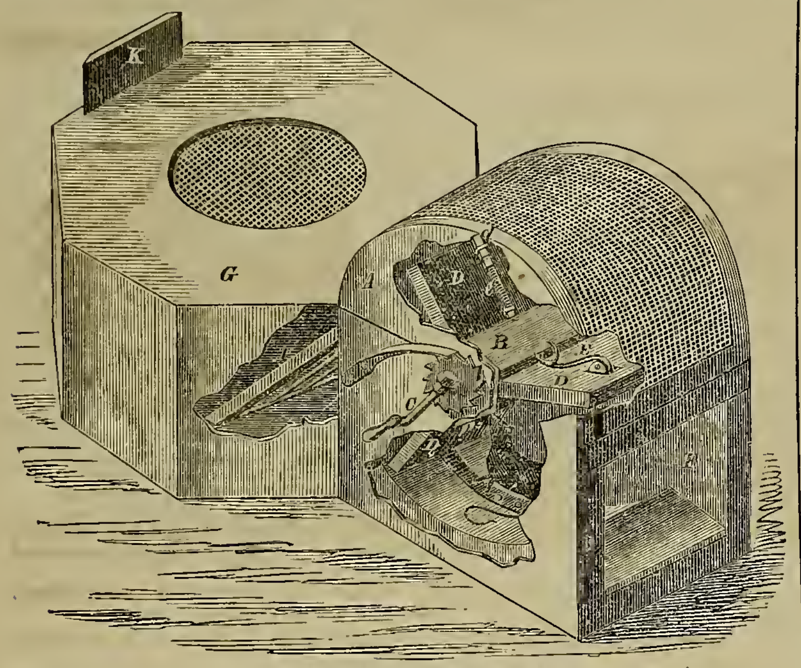
San Francisco, Saturday, May 28, 1870.

VOLUME XX.
Number 22.

Improved Animal Trap.

California has the reputation of being prolific geologically as well as botanically. The number of small animals which live in our fields and which take up their abode in our dwellings and elsewhere, is by no means small. Hence a device to effect their capture is of interest to the farmer, the housekeeper and the naturalist.

Lately a very neat and apparently effective device for entrapping small animals has been patented, and we give an illustration of it to-day. It consists principally of a revolving wheel operated by a spring in a suitable wheel-house, for catching the animal, and a box or cage for holding him after capture.



LORD'S IMPROVED ANIMAL TRAP.

The wheel is here represented with three wings, D, but some other number might be used. It is revolved inside of a suitable box or house, A, by means of a coiled or other suitable spring, coiled around the shaft or otherwise properly affixed. This spring may be wound up in the usual manner by means of a crank, C, a ratchet and pawl serving to retain the shaft after the spring has been wound up. The bottom of the wheel-house is curved. so as to allow the wings to sweep along it.

Attached at some suitable point on each of the wings, D, is a sliding bolt, *d*, which is operated by means of a small spring, *e*, to throw it out. On the curved floor is a catch, *f*, which catches the bolt, *d*, and thereby retains the wheel until released, as afterwards to be shown. A suitable lever, E, made in the form of a bell-crank, on each wing, has one arm passing through the wing and secured to the bolt, *d*, while the other arm extends upward on the opposite side of the wing, and has its end formed into a hook for holding the bait. The trap is set by winding up the spring, by means of the crank, D, and baiting the hooks.

The animal enters the wheel-house through the opening, F, and, as seen in the cut, by nibbling at the bait releases the bolt, *d*. The spring, B, then revolves the wheel and the descending wing strikes the animal from behind, forcing him inside the wheel, while the bolt on this wing catches at *f*, imprisoning the animal and setting the trap for another victim.

Attached to the wheel-house is a large cage or chamber, G, which opens towards the wheel, where there is an inclined gate, I, hinged at the upper end, and opening only on pressure from the wheel-house side. The animal, in its efforts to escape, will attempt to pass into the chamber, G, which he can do by running against the gate, I. Once in this chamber, however, he is securely imprisoned. A small sliding door, K, is arranged on the cage, G, through which the captured animal may be removed when desired.

By this device any number of animals may be secured without the necessity of resetting the trap each time. It is an improvement on that class of articles which has a universal use, and is at once a most ingenious and effective arrangement.

A patent has been granted to the inventor for this trap, through the Agency of the SCIENTIFIC PRESS. Applications for further information may be addressed to James H. Lord, San Francisco.

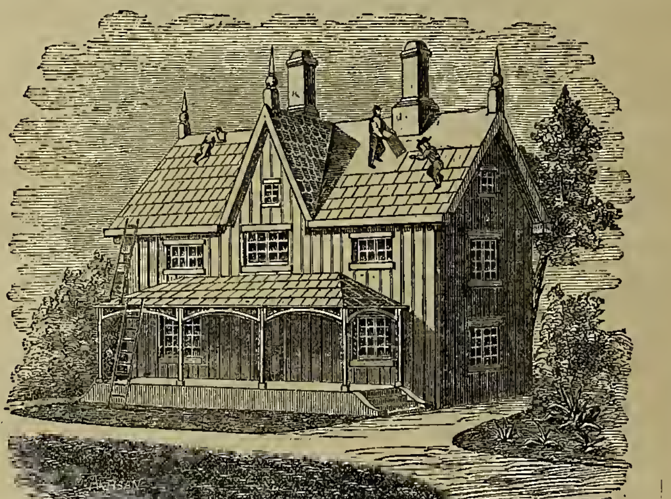
* * *

FOURTH OF JULY.—A most intelligent action is to be taken by the northern counties by combining for a grand coöperative celebration of the coming Fourth of July. Such meetings tend not only to the diffusion of general good feeling, but also to stir up people and keep them ever advancing in all their pursuits.

Hickcox's Corrugated Metallic Shingles.

The perishability of wood and the gradually increasing price of good qualities, as our forests grow continually thinner and thinner, are leading more and more to the substitution of the metals, and iron especially is ever extending its sway and encroaching on the domains formerly occupied by other materials.

The use of sheet metal for roofing purposes has been long familiar to us in the shape of tin (or, more properly, tinned) plates. The inventor of the present device has gone a step further, and combined, as he claims, all the advantages of the metal with those of the common wooden shingle, without any of their defects. This he accomplishes by the use of corrugated metallic shingles, so formed and arranged as to lap closely over one another and prevent all leakage, which has been so great a trouble in too many cases heretofore.



CORRUGATED METALLIC SHINGLES.

Fig. 2.

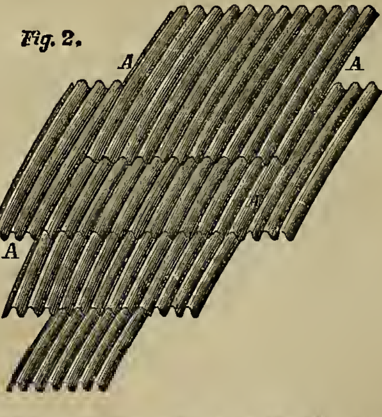
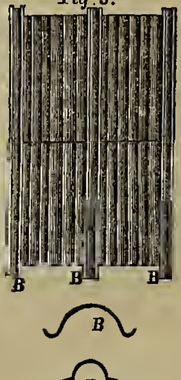


Fig. 3.



Sheets of iron or other suitable metal, generally with the dimensions of nine by fourteen inches, are corrugated longitudinally, as shown in Fig. 2. Moreover, in order to make these fit tightly into one another when laid, they are given a slight longitudinal curve, which may be seen by closely examining this figure. They are laid in courses on the roof after the general manner of laying the wooden shingles, each course overlapping the one next below, care being taken to break joints, and the corrugations of one row being fitted into those of the next. The single shingles are fastened in place by nails, which are covered up and protected from the influence of the weather by the overlapping pieces, which fit all the more closely since their curved shape gives them a spring-like action when tightly nailed in place. In the first figure a representation is given of the application of these shingles to the roof of a cottage. The shingles may be painted before being laid, and a coat of paint applied to them when in place, if desired.

The inventor does not confine the application of his shingles to the roof, but uses them also for protecting the sides of a house. In this case they are laid lapping but without breaking joints, and the continuous vertical joints are covered by sheet-metal battens, represented at B, Fig. 3. These battens are curved into any suitable form, specimens of the cross-section of two of these being given in the two diagrams, B, B, under Fig. 3.

A patent for this device was granted in February, 1870, to Thomas N. Hickcox & Co., of New York. Applications for further information may be addressed to T. N. Hickcox & Co., 280 Pearl street, New York.

Elevated Railways.

The New York Society of Engineering held their usual monthly meeting on the evening of March 20th, James A. Whitney, President. The regular paper by Mr. C. Williams treated of "Old and New Methods of City Transit," and in the main treated of elevated railways and the wire rope and pneumatic systems of propelling cars on such lines.

One of the earlier methods proposed for constructing elevated railways embraced the use of only one rail. It was patented in England in 1821. This was to be laid upon a horizontal sleeper carried by upright posts ranged in line. The car was to be made in two longitudinal sections, connected at the top, and carrying centrally, near the roof, two or more wheels running upon the track. The car was thus, as it were, placed outside of the track. Sixteen years afterwards a New Jersey inventor, one Uri Emmons, took up and improved upon the idea, by applying guide rails to steady the bottom of the cars by rollers attached to the same and running upon the guide rails, which were to be affixed to the sides of the posts. The shape of the car was objectionable, and it is doubtful if the cost, taking the guide rails into account, could be much less than that of a two-rail track like that of the West Side Elevated Railway in New York City. To this last-named line, however, the writer brought forward the objection that the rope system of traction adopted must necessarily jar the car in an inordinate degree in starting, and tend to the rapid deterioration of the working mechanism. He claimed that, inasmuch as the car, in recent public experiments, had not been stopped between the two ends of the line as now completed, no evidence had been offered to show the fallacy of the objection urged. He thought it possible, however, that one or all of the two or three plans made public in this country for gradually starting the car in its connection with the rope, might be made practicable. These are founded upon the use of pulleys affixed to the car and clutching the rope, the connection being complete when the motion of the pulleys upon their axes is stopped by suitably arranged friction brakes carried by the car. The writer advocated, for New York City, the substitution for the ordinary plan of a simple elevated track, the forming of an elevated street above Broadway, provided with sidewalks, having two tracks for cars and accessible by commodious stairways and lifting apparatus or elevators.

The various projected modes of driving the cars was considered at length with reference to the application of pneumatic or air pressure. Tanks holding air compressed to several atmospheres and arranged to operate the engines of the car, have excited sanguine hopes with some projectors, but their enormous bulk and great weight, if made capable of holding enough to propel the car for any distance without displacement, will prove an unsuperable obstacle to the adoption of the plan. That tried in England thirty years ago and given up, was constructed with a pipe through which a piston was forced by air pressure. In the top or upper side of the pipe was a slat which allowed the passage of a connecting bar uniting the piston with the car. The fatal defect with this was the leakage of air through the valve, which evaded the numerous ingenious expedients that were devised to prevent it. A pressure of nine pounds to the square inch upon the piston was readily obtained, and cars were run at the rate of seventy miles an hour on exceptional occasions. An improved valve might yet make this method a practical success, and that such an improvement would be thought of at no distant day, the writer thought quite probable. In the meantime, however, attention should be directed to another system of using air for the purpose indicated, which, while including tanks on the cars and a pipe laid along the track, theoretically at least, obviated the difficulties incident to the two methods previously referred to. The tanks, as the car moved upon the track, are to be brought into communication, at intervals, with the pipe charged by appropriate blowing apparatus with compressed air. This is to be done by automatic couplings, so that the tanks will be constantly kept filled to the required pressure to work the engines upon, and calculated to drive the car.

At the same meeting Mr. R. Chesebrough explained his plan of constructing an elevated railway with inclines of half a mile in length, the sections being steepest at their upper portions, and in lieu of ordinary construction, formed upon the principle of the suspension bridge with lateral supporting cables. At the foot of each incline was represented an hydraulic apparatus, intended to lift the car to the head of the next incline, and so on throughout the length of the line. Considerable discussion *pro* and *con* was had upon the merits of the proposed system, the chief objections being the probable retardation of the cars by head winds, the resisting action of snow and frost upon the rails, to the movement of the cars, and the unsteadiness possible from the suspension and consequent non-rigidity of the inclines.

◆

Coal Mines on Fire.

There are many instances of vast masses of coal which have been ignited and have been burning for years. When once well lighted and all communication with the external air is not entirely cut off (and some imperceptible fissures are quite sufficient to prevent this), then the devouring element pursues its course without interruption. It partially burns the coal, which has nearly the same chemical composition as the diamond, and a considerable degree of hardness, but without transparency or crystallization. It calcines the sandstones and adjacent schists, changing their colors to a sort of red, and altering their composition. At Brulé, near Saint-Etienne, there is a coal mine which has been on fire from time immemorial. The soil at the surface is baked and barren; hot vapors escape from it; sulphur, alum, sal-ammoniac and various natural products are deposited on it; it might be supposed to be a portion of the accursed cities formerly consumed by the fires of heaven and earth.

Other burning coal mines are cited in France; for example, those of Decazeville, in Aveyron, and of Commentry, in the department of Allier. The inhabitants have even, for a long time, kept up these fires for the sake of working the aluminous salts which are given off from the coal and are deposited on the surface of the soil as whitish efflorescences.

In the carboniferous basins of Saarbrück and Silesia there are likewise coal mines which have been on fire for a long time. In Belgium, between Namur and Charleroy, at a place called Falizolle, the fire has been alight for many years. The inhabitants formerly were in the habit of working the coal on their own account. Now it frequently happened that two parties came in contact, causing endless disputes and often sanguinary fights. A favorite way of keeping rivals or competitors at a distance was to throw pieces of old leather on a burning brazier, causing an insupportable stench. One day the fire extended also to the coal, since which time it has never ceased burning. The fire, which burns underground, is seen through fissures in the surface. Sulphur deposits itself round these vents and acid gases are evolved.

In England, especially in Staffordshire, the ignition of the coal has produced surprising effects of alteration in the measures containing coal. The sandstones have become vitrified, baked and dilated by the fire, the banks of plastic clay hardened and changed into porcelain.

In the environs of Dudley there was formerly a coal mine on fire. The snow melted in the gardens as soon as it touched the ground. They gathered three crops a year; even tropical plants were cultivated; and, as in the Isle of Calypso, an eternal spring prevailed. In another Staffordshire colliery, the firing of which dates many years back, and which is called by the inhabitants "Burning Hill," it was noticed, as at Dudley, that the snow melted on reaching the ground, and that the grass in the meadows was always green. The people of the country conceived the idea of establishing a school of horticulture on the spot. They imported colonial plants at a heavy expense and cultivated them in this kind of open-air conservatory. One fine day the fire went out, the soil gradually resumed its usual temperature, the tropical plants died and the school of horticulture was under the necessity of transferring their gardens elsewhere.—*Underground Life.*

Prospecting in Siberia.

Until almost thirty years ago, furs were the chief export article of Siberia, but since then the discovery of its rich auriferous deposits has made gold its most important produce. The precious metal is found on the western slopes of the Ural chain in West Siberia; but the most productive diggings are situated in East Siberia, where they give occupation to thousands of workmen and riches to a few successful operators.

The vast territory drained by the Upper Yenissei and its tributaries, the Superior and the Middle Tunguska, consists, for the greater part, of a dismal and swampy primeval forest. A journey through these sylvan deserts is said to be one of the most tedious and fatiguing tours which it is possible to make. Up-hill and down-hill, a narrow path leads over a swampy ground into which the horses sink up to their knees. The eternal sameness of the scene—day after day one constant succession of everlasting larches and fir trees—is as wearying to the mind as the almost impossible road to the body. But here and there the forest opens, a long row of huts extends along the banks of a rivulet, and hundreds of workmen are seen as busy as bees. These are the gold fields; the sands of these swampy lands are mixed with gold, and their fortunate possessors would not exchange them for the finest meadows, cornfields or vineyards.

Fedor Popow, a hunter of the province of Torusk, is said to have been the first discoverer of gold in Siberia; and government having granted permission to private persons to search for the precious metal, a few enterprising men directed their attention to the wild spurs of Sajan mountains. A brilliant success rewarded their efforts. In 1836 an exploring party discovered a rich deposit of auriferous sand near the banks of the Great Birussa; and in 1839-'40, similar deposits were found along several of the tributaries of the upper Tunguska, and still farther to the north, on the Oktolyk, a rivulet which flows into the Pit. The expenses of a searching-party amount, an an average, to $3,000; and as very often no gold whatever is found, these hazardous explorations not seldom put both the purse and the perseverance of their undertakers to a severe trial.

Of the difficulties which await the gold-seekers, a faint idea may be formed on considering that the whole of the auriferous region, which surpasses in size most of the European kingdoms, consists of one vast forest like that above described. Patches of grass-land on which horses can feed are of very rare occurrence and damp moss is the only bed afforded. As the gold-seekers are very often at work a long distance from any village, they are obliged to carry all their provisions along with them. Their clothes are almost constantly wet, from their sleeping in the damp forest, from the frequent rains and from their toiling in the swampy ground. Scarcely have they dug a few feet deep when the pit fills with water, which they are obliged to pump out as fast as it gathers, and thus, standing up to their knees in mud, they work on until they reach the solid rock, for then only can they be certain that no auriferous layer has been neglected in their search. When the winter, with its deep snowfalls, suddenly breaks in upon them, their hardships become dreadful. The frost and want of food kill their horses, their utensils have to be left behind; and, dragging their most indispensable provisions on small sledges, they are not seldom obliged to wade for weeks through the deep snow before they reach some inhabited place.

But even in winter exploring parties are sent out, but only for the more accurate examination of *very* swampy grounds which have been previously discovered, and where it is less difficult to work in the frozen soil than to contend with the water in summer. The hard ground has to be broken up with picks, and the sand, thus loosened, thawed and washed with warm water. They sleep on the bare ground in huts made of branches of trees. It requires the iron constitution of a Siberian to bear such hardships, to which, indeed, many succumb.

The fortunate discover of a gold deposit obtains the grant of a lot of ground 600x15,000 feet. Two adjoining lots are never granted to the same person, but subsequent purchase or amalgamation is permitted. At first, government laid a tax of 15 per cent. on the produce, then doubled this, but subsequently returned to the primitive tax or even to five per cent. for less productive mines. Besides this tax from five to eight dollars per pound, gold must be paid for police expenses. A lease is for 12 years only, when the diggings revert to the government, and a new lease must be purchased, As the climate limits the working to four months (May to September), the period of the concession amounts really to not more than four years.—*Dr. G. Hartwig.*

A Beautiful Site.—The site chosen for the grand park at San Francisco is altogether lovely. The natural sites of the New York, Chicago, Boston, Brooklyn, London and Paris parks, do not begin to compare with this in point of natural beauty. Here there are hills, lakes, valleys, and ocean, which require but a little labor to make them suitable for any park purposes. The sites of the other parks had all these advantages save the ocean—and this is the greatest of all. This San Francisco park fronts on the ocean 3,300 feet immediately south of the Cliff House, and runs into the sand hills towards the city three or four miles. The sand and winds have to be contended against while the park is being made and planted, but science aided by money will soon lay the shifting sand and cover it with perpetual verdure. The drives can be made the most picturesque on the continent—and the most renowned—but it will require time and money. There are natural lakes on that site which can be scooped out to any desirable size, and there is a splendid hill almost in the center, which should not be lowered by a single shovelful. The grounds are large, containing over 1,000 acres. San Francisco is to be congratulated on securing such a magnificent site, for no other town in America has its equal. And the ground has not cost her a dime. It is a gift, in fact, and San Francisco can well afford to spend a million of dollars in improving it.—*Sacramento Bee.*

A Beautiful Cave.—The celebrated alabaster cave is situated in the foothills of El Dorado, between the north and south forks of the American river, about 13 miles from Folsom, and can be reached from this place on the road by crossing the bridge at Mormon Island and taking Shaw's road, which winds on an easy grade among the high hills about Bear mountain, that attain an elevation of 2,500 feet, and amid which the scenery is truly grand and magnificent. To the east the eye rests upon the snow-capped Sierras, and upon intervening hills, clothed to their summits with dense foliage of every shade of emerald; while on the west and south lies spread out the beautiful panorama of the Sacramento valley, with the coast range and Mount Diablo in full view; while on the north the eye rests upon the Buttes and the intervening valleys. Taking in all at a glance, no more beautiful and exhilerating picture can be seen in the State. The other road, crossing the American river, runs through the wooded foothills of Placer crossing Gwynn's bridge—a fine suspension—at Rattlesnake bar on the north fork, the distance by either road being about the same. The cave is situated in a limestone hill, where excellent quarries exist, and was discovered about 15 years since while blasting out limestone. For many years it has been a favorite place to visit, and if it has lost the freshness of a new discovery, it still appears as beautiful as ever.—*Folsom Telegraph.*

Home Manufactures.—There is a great deal of truth in the following from an exchange, and we commend it to the attention of those who do not believe in home industry: "It is too much the habit of people to look with disrespect or distrust upon home products, and to cherish the idea that nothing can be good or reliable that has not a metropolitan endorsement. No town or village can prosper unless the business men, we do not mean merchants only, but mechanics and manufacturers of all kinds, are sustained. Every industrious mechanic is a blessing to the town. Every manufacturing establishment, however humble, is a public benefit. Every chair, table, bedstead, bureau, wheelbarrow, harness, pair of boots, or other article, made at home, keeps money from going abroad, and to just that extent helps the town generally."

The Deepest Mine in the World.—The Rose Bridge Colliery at Wigan, Lancashire, England, is 2,424 feet, or nearly half a mile, deep. The increase of temperature in going down through the strata is said to have been about 1° Fah. for every 54½ feet. At the bottom of the mine, the temperature is 79° Fah. in the open pit, and 93½° in the solid strata. There is plenty of coal reported much deeper, but it is an open question whether it will pay to mine it.

Mechanical Progress.

Determination of Carbon by the Colorimetric Process.

The following notes by J. Blodgett Britton, of the Iron Masters Laboratory, are taken from the *Journal of the Franklin Institute* for May:

"Professor Eggertz, of Fahlun, Sweden, called the attention of metallurgical chemists to the fact that when pure metallic iron is dissolved in nitric acid, the solution, if not too concentrated, is colorless; but when steel or iron containing carbon in combination is substituted the solution is colored, and the shade varies exactly in proportion to the amount of carbon present; and, based upon this fact, he suggested a method whereby carbon determinations, sufficiently accurate for many commercial purposes, could be made with facility.

A modification of this method affording exceedingly accurate results, has been in use at the Iron Masters' Laboratory. Instead of a single tube containing a standard solution for comparison, a number of tubes having solutions differently standardized, are employed. These are arranged in a walnut-wood frame, with spaces between for placing the tube containing the solution to be tested.

The tubes are ⅝ of an inch in diameter and 3¼ inches in length, filled with water and alcohol colored with roasted coffee, and hermetically sealed. The solution in the tube to the left has its color to correspond exactly with one produced by 1 grm. of iron containing .02 per cent. of combined carbon dissolved in 15 C. C. of nitric acid. The solution in the tube next to it has its color to correspond with one produced by the same quantity of iron, but containing .04 per cent. of combined carbon, and so with each of the other tubes, increasing .02 per cent. of carbon in regular succession to the right, the last reaching 30 per cent.

The process is conducted as follows: One grm. of the finely divided metal is put into a tube of about one inch and a half in diameter and ten inches long, and digested for fifteen or twenty minutes in 10 C. C. of nitric acid of a little more than 1.20 s. g., free from chlorine. The solution is then poured into a beaker, and a small portion of metal which remains undissolved, and adheres to the bottom of the tube, is treated with 5 C. C. of fresh acid, exposed to a gentle heat till dissolved, and added to the other. The contents of the beaker, when cool, are filtered into a tube 5 inches long and of precisely the same diameter as those in the instrument.

After the filtered solution has remained for some minutes of the temperature of the atmosphere, and its color become fixed, the tube is placed in the instrument and the carbon determined by a comparison of shades—the determination may be made readily as close as .01, or one-hundredth of one per cent."

Pulleys and Belting.—The smooth side, or hair side, of the belt, is placed next the smoothly turned cast-iron pulley, because the adhesion of these two smooth surfaces is a greater preventive against slipping than the friction of two rough surfaces would be. This is because a rough surface in rapid motion catches and carries in its inequalities sufficient air to prevent intimate contact with another surface. Another reason given for placing the smooth side of a leather belt next the pulley is, that the other side, or flesh side, is less liable to crack, and will best bear the greater amount of stretching to which the outer surface of a belt is of course subjected. Still more perfect contact is secured by covering the pulley itself with leather, smooth side out; and this is yet further improved by using castor oil as a dressing.

The "Sector" Magnet.—The *Artisan* of May 11th says: "We are informed on excellent authority of some improvements lately made in electro-magnets, which promise a step toward the successful application of electricity as a motive power. A magnet weighing but fifty pounds is said to have lifted one hundred and six pounds, at a distance from its poles of one and three-quarter inches, the battery used consisting of nine eight-inch Bunsen cells." The limbs of the magnet are of flat sector shape; hence the name. The journal aforesaid expects to give full particulars soon.

Utilization of Iron Sands.

Prof. T. Sterry Hnat gives some recent notes upon the Canada iron sands, from which we condense:

"The black sand may be separated into a magnetic and a non-magnetic portion, the latter predominating in the washed sand. While the magnetic part is nearly pure magnetic iron ore, the other portion contains from 30 to 35 per cent. of titanic acid, and consists in great part of titanic iron (menaccanite), with some admixture of garnet. Successful attempts have been made to work these iron sands at Moisie, where they are treated in bloomery fires, and are reduced without difficulty. The bar-iron produced is of excellent quality, and contains no titanium, while the slags hold a great deal of titanic acid as silicotitanate. The layers of iron-sand at the Moisie are very rich; but in many localities there are great quantities which yield by washing from 8 or 10 to 30 or 50 per cent. of heavy black sand. Attempts have recently been made to purify these by means of a magnetic separator. For some of the newly-proposed processes of direct conversion, and generally for ore intended for separation, it is deemed desirable to get pure magnetic iron ore. This, in the case of these sands, can only be attained by the use of magnets. Dr. Larne, Professor of Chemistry at the Laval University, Quebec, has contrived for this purpose a simple machine, which appears to be very efficient. This machine, which is fitted with batteries of permanent magnets, occupies a space 6 feet by 5 and 4 feet high. From three tons of sand holding one-third of magnetic ore, it will separate in an hour one ton containing over 99 per cent. of magnetic iron—or 24 tons in 24 hours. The wear and tear and the motive power required are very small, and two men can, it is said, tend ten machines. By proper adjustment this machine may be adapted to the preparation of lean massive ores for the bloomery fire, or for other direct methods of conversion into iron or steel. Meanwhile the deposits of sand, which may be utilized by means of this machine, on the north shore of the St. Lawrence, from the Saguenay to Newfoundland, are practically inexhaustible. Similar deposits have been observed on both shores of Lake Erie. The iron-sands of Taranaki, in New Zealand, are well known; and similar sands, according to Bruno Kerl, are worked in open hearths near Naples. Black magnetic iron-sands are found in greater or less abundance in numerous localities along the seaboard of Connecticut and Rhode Island. The utilization of these abundant deposits of an ore free from phosphorus and sulphur is a problem worthy the attention of metallurgists, and is already attracting considerable attention."

A Remarkable Watch.—The *Artisan's* reporter thus describes a watch made at the works of the American Watch Co., Marion, New Jersey: "It is a minute repeater, being made to tell the time in the dark by simply moving a little knob on the exterior, when it strikes the hours and minutes. It is a stem-winder, winding or setting the hands by turning the stem, and winding whichever way the stem is turned. It has also an independent train from the time-works, which carries a quarter and a sweep second-hand, with a stop-motion, for timing races, etc., and what is called a "magic case," making an open-faced or hunting watch at pleasure; and in the case there is a secret receptacle for a miniature. The case has exquisitely engraved upon it a view of the sea-fight between the Monitor and the Merrimac. The pendant represents two entwined serpents; and it, as well as the back of the case, contains valuable precious stones. This watch cost two thousand five hundred dollars."

Welding Metal Plates.—The *Mechanics' Magazine* describes an arrangement for welding boiler plates instead of riveting them. The furnace is so arranged with an overhanging girder that the heated boiler seam may be run under the steam hammer by means of a carriage, and the welding quickly effected.

Large Casting.—The Corliss Works, at Providence, have just turned out a propeller screw for the U. S. steamer Pompanoosuc, 18 feet in diameter. It is a solid casting of bronze, weighs 35,273 pounds, and is worth $20,000.

Scientific Progress.

Influence of Pressure on Chemical Phenomena.

C. Widemaan details some experiments on the subject in the *Journal of Applied Chemistry*. Zinc and hydrochloric acid are placed in a glass tube, which is connected by a capillary copper pipe with a cast-iron receiver, to which is attached a powerful hydraulic press. "The production of hydrogen decreases rapidly as the pressure increases; also the solution of carbonate of lime in nitric acid is stopped by pressure. The same phenomenon is noticed when iron, tin, aluminum, or the sulphuret of iron, are brought in contact under high pressure with acids; the decomposition of water by the means of an electrical current is also prevented by pressure. If an amalgam of sodium is inclosed with water in a glass tube, the oxidation of the sodium is nearly prevented in consequence of the pressure caused by the accumulation of the hydrogen.

We have tried whether the chemical phenomena taking place at our usual temperature and atmospheric pressure would not have their action increased if they were produced in a vacuum. Our experiments have confirmed this. M. Cailletet assimilates the production of gases in the decompositions to a simple phenomenon of ebullition 'which appears to demonstrate,' says he, that 'affinity is not a particular power, but that chemical combinations and decompositions are immediately under the dependence of mechanical phenomena.'"

Atmospheric Organisms.—The Boston *Journal of Chemistry* brings up several proofs that Prof. Tyndall's organic motes in the atmosphere are not a new discovery,—and says he has merely pointed out a striking method of showing the fact of their existence to the eye. Dr. Angus Smith, who has been for some years experimenting upon the subject, is quoted. In 1848, he made a report to the British Association, in which occurs the following paragraph: "Animalculæ are now generally believed to come from the atmosphere and to deposit themselves on convenient feeding places; that is, they only appear where there is food or materials for their growth, and they prove, of course, the existence of that continuation of elements necessary for organic life. At the same time, their presence is a proof of decomposing matter, as their production is one of the various ways in which organized structure may be broken up."

Dr. Smith also remarks that, although some of these organized germs are hurtful, it may be that others are required for the maintenance of healthy animal life, exactly as in vegetable fermentation.

Hydrate of Chloral.—This anæsthetic has been the subject of experiments by Dr. W. A. Hammond, which prove that its first effect is to cause congestion of the blood-vessels of the brain, although the directly opposite condition follows. The retina of a rabbit was examined with the ophthalmoscope immediately before the injection of hydrate of chloral into the cellular tissue, and found natural in appearance. Two minutes afterwards another examination showed congestion of the vessels of the retina, which increased for five minutes. In seven minutes, drowsiness came on, and the congestion became less. In ten, sleep was profound, and the retina almost pale. In two hours the ears were cold, and the retina bloodless. In nine hours the animal was found awake, and in every respect in a normal condition. This experiment was several times repeated with the same result.

Ozone and Explosives.—It is a singular fact of recent discovery, that nitro-glycerine, dynamite, iodide of nitrogen, chloride of nitrogen, and some other similar compounds, explode the moment they are brought in contact with ozone. The experiment may be tried by putting a drop of nitro-glycerine into a jar containing ozone. Ordinary gunpowder and picrate of potash gunpowder are very slowly decomposed by ozone.—*Boston Journal of Chemistry.*

Vanadium.—Prof. Roscoe, F. R. S., delivered a lecture on this subject at a late meeting of the Chemical Society. Berzelius found the atomic weight 68.5. It was afterwards observed by Rammelsberg that the mineral vanadinite, a double salt of lead vanadate, and lead chloride, is isomorphous with apatite and with mimetesite, the former containing phosphoric acid, the latter arsenic acid. From this crystallographic analogy it ought to have been concluded that the oxide of vanadium in the vanadinite has the formula V_2O_5, agreeing with the corresponding oxides of phosphorus and arsenic. But Berzelius representing the oxide in question by the formula VO_3, was compelled to regard vanadinite as an exception to the law of isomorphism. Professor Roscoe, having come into possession of a plentiful source of vanadium, determined to ascertain whether there really was such an exception, or whether Berzelius' formula was not erroneous. He proved that the substance supposed by Berzelius to be vanadium is not the metal, but an oxide, and that the true atomic weight of the metal is 51·3. Thus the VO_3 of Berzelius really becomes V_2O_5. The lecturer went on to demonstrate that vanadium, hitherto standing in no definite relation to other elements, must now be regarded as a member of the well-known Triad class of elementary substances, comprising nitrogen, phosphorus, boron, arsenic, antimony and bismuth.

French and English Nitrate of Silver.—R. J. Fowler writes from Paris as follows: "The English are said to dissolve the 'crude' silver in nitric acid, from which the silver is precipitated as chloride, either by chloride of sodium or hydrochloric acid, and this is reduced by chalk and powdered charcoal. The French are said to use the sulphuric acid system—the ingot of silver, containing, probably, copper and lead, is dissolved in *concentrated sulphuric acid;* the operation is performed by heat, and sulphurous vapors are disengaged. Now comes in a process for the production of pure silver which has just formed the subject of a patent. After the sulphate of lead has all separated, and whilst the solution is still warm, it is allowed to cool for twelve hours. During this time the sulphate of silver is deposited in very small crystals, which are also very pure. They are collected by decanting the liquid, and decomposed by being introduced into a strong solution of sulphate of iron. This is well stirred and the resulting metallic silver allowed to settle. This is collected, washed, dried, and melted in a crucible, and gives an ingot of *pure silver*, 1,000 per 1,000; and from this a pure nitrate can be readily obtained with pure nitric acid."

Oxalate of Silver.—We quote the following from a report of a recent lecture by Dr. Odling, F. R. S.: "This salt may be made by adding oxalate of hydrogen to nitrate of silver; oxalate of silver is then precipitated, and this white substance may be heated with impunity, so long as it is not allowed to dry. When it is dry it forms a greyish powder. Dr. Odling put a little of this dry powder in the bottom of a Florence flask, and applied heat. The result was a very slight explosion, and the puff of air thereby caused blew finely divided white metallic silver out of the mouth of the flask. The heat had decomposed the salt into metallic silver and carbonic acid, and the latter gas blew out the silver."

Amorphous Silicic Acid Hygroscopic. Experiments recently instituted result in the following conclusions: Amorphous silica is always hygroscopic after ignition; the degree of hygroscopicity differs greatly, according to the degree of heat the silica has been ignited. When silica has been only feebly ignited, its avidity for the absorption of water, even after the apse of a few minutes, is so great as to cause, if not taken into account, serious faults in the weighing and quantitative estimation. Crystalline silica, even when feebly ignited, is not at all hygroscopic.

Test for Alcohol.—Liehen states that one part of alcohol in 2,000 parts of water may be recognized by pouring a few drops of the liquid into a test tube with a small quantity of iodine and a few drops of caustic soda, and gently heating. If there is any alcohol present a characteristic yellow crystalline precipitate of iodide of formyle is produced.

Mining Summary.

THE following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Items.—*Miner*, May 14th: Brick are being hauled for the Leviathan furnaces.... The new furnace at the Silver Glance ventilates the works in a most perfect manner. ....Furnace ventilation for the Globe tunnel has been put in....The M. C. M. Co. will put up one of the Stetefeldt furnaces. ....Mr. Graff comes back from Mexico to take charge of the Schnectady Co's mine on the Tarshish....Mr. Harris is authorized to contract for the sinking of a shaft on the Fremont 300 feet.

Leviathan.—Mr. Heiligendorfer, a German metallurgist, graduate of Freiberg, and for several years in charge of works in Mexico, comes up to take charge of the smelting department.

AMADOR COUNTY.

Coney.—*Ledger*, 21st: The work of putting things in order at the mine was commenced Monday. It is the intention to sink the shaft deeper at once.

Keystone.—This mine can be worked at a trifling expense, and the rock is of uniform quality. Until recently they have been running but 20 stamps, and taking out from $30,000 to $35,000 per month, but now they have 40 at work.

The Wolverine.—This mine is near the Eureka. Last Saturday we saw a handsome chunk of retorted gold, the result of the last run. The rock pays from $12 to $15 per ton.

The Old Amador.—This mine is being worked vigorously. A large flume has been put in the creek to prevent the water from seeping into the mine. The last rock crushed paid over $34 to the ton.

The Ditch.—*Dispatch*, 21st: The new extension of the Butte ditch will be in running order in a few weeks.

BUTTE COUNTY.

Quartz.—Oroville *Record*, 21st: We have been shown by Mr. Hutchins very rich decomposed quartz from his ledge on Butte creek. He has organized a company to work it, under the name of the Golden Sun Co.

CALAVERAS COUNTY.

Palomo Mine.—*Chronicle*, 21st: The proprietors have concluded to erect an additional battery of 20 stamps, and work is already commenced. The main shaft is sunk 300 feet, disclosing throughout a well-defined lode of gold-bearing quartz. Numerous levels are being run from which the rock is being "stoped out" in large quantities.

Angels Camp.—We are informed that a recent clean-up in the mill showed 500 ounces of amalgam.

Hepburn Mill.—A. F. Burr is remodeling the mill preparatory to working rock by a process known only to himself. Mr. Burr is running the Petticoat mill, crushing custom rock, with results that astonish every one.

Railroad Flat.—Cor. of same: On the Bald Eagle lode, Gamble, Haines & Co. have sunk 80 feet, having had paying rock all the way down. They have run levels a hundred feet or more, with a good vein nearly the entire distance. The vein is 2½ feet in width, and 150 tons of the best quality of rock are piled up for crushing. Free gold can be seen in the ore, without a glass....The Wet Gulch Co. are still taking out rich rock. The extensions of several prominent mines are turning out well. Sinking deeper is all that is required.... In Independence, Sundermyer & Co. are driving things ahead....Reynolds & Co. are washing everything before them.

New Mill.—Amador *Ledger*, 21st: Mr. Knight, of Sutter Creek, has commenced the erection of a new mill at the Gwin mine, in Calaveras county.

DEL NORTE COUNTY.

A Nugget.—Yreka *Union*, 20th: A couple of miners on Indian creek took out, one day last week, a chunk of gold weighing 12 ounces. Miners generally in that vicinity are represented as doing well.

NEVADA COUNTY.

Pennsylvania.—*Transcript*, 18th: This mine, so long idle, is to be worked again, having been leased by the Bank of Nevada County to J. H. Helm.

Red Diamond.—This company, at the Cascades, on Deer creek, is running a tunnel through the bed-rock to reach the channel, which they propose to work by drifting. The ground prospects well.

Orleans.—Same of 19th: The first crushing, taken out 30 feet below the surface, yielded $22 per ton. They have had a crushing of nine tons from 60 feet below the surface, which paid $42 per ton. The ledge is of good size and better as they sink. We understand arrangements will soon be made for putting machinery upon the mine.

Scott's Flat.—Same of 22d: The hydraulic claims are pushed vigorously. They have plenty of water. Owing to the shortness of the season the miners are making the most of their time, running day and night.

Graniteville.—At the South Fork, Morris & Co. in a gravel claim are making from $12 to $14 per day to the hand....A German company is at work on the Baron ledge. They have expended upwards of $20,000 in prospecting....A new gravel claim has been opened between Graniteville and South Fork, which prospects very well....At Bowman's Ranch, the North Bloomfield Co. are rafting timber down to their dam.

Town Talk.—Grass Valley *Union*, 17th: The clean-up, after two weeks' run, shows well. The sum of $2,000 was realized, and the expense was $600.

West Eureka.—Same of 19th: The shaft is down 230 feet on the incline. A contract is to be let on Saturday to sink 100 feet deeper.

Eureka.—Same of 22d: Yesterday the clean-up gave $12,000 for a six days' run.

Gravel Deposits.—*Gazette*, 17th: Recent discoveries on the upper portions of Diamond creek, above Omega, lead to the conclusion that large gravel deposits extend through the ridge from the headwaters of the creek to Bear Valley.

Grant Ledge.—Grass Valley *Union*, 24th: A crushing of 40 loads of rock at Perrin's mill yielded $935.95.

Union Hill Mine.—The clean-up after a run of eleven days of mine and mill, gives $10,700.

Started Up.—The Coe mine started up yesterday. All the old scores have been paid off, and the new management starts in with an open field.

The Pittsburg.—*Transcript*, 24th: The rock averages $35 per ton. We learn that the result of last month's clean-up was $20,000. They give employment to over 100 men, and their expenses are $8,000 per month, leaving a clear profit of about $12,000.

Graniteville.—Cor. of *Gazette*, 23d: Black & Young's tunnel will soon be finished. The mine employs 30 men.

The Jim mine has been run all winter. The main shaft is down 300 feet, showing a ledge all the way from two to three feet thick. The rock pays $15 a ton.

The Dillon promises fair. In all probability there will be hoisting works put up this summer.

The Norfolk & Mohawk will soon be started up. The company intend sinking deeper and drifting.

The Birchville will soon start their incline down for another level. The ledge is two feet thick and pays $20 per ton.

PLACER COUNTY.

Ophir.—*Stars and Stripes*, 19th: The mine worked by R. G. Green and Mr. Lovely is paying well. One quartz boulder, weighing one hundred and fifty pounds, contained $250. The "Good Friday" is still worked with success by Cowan & Co., lessees. The "St. Patrick" promises a large dividend. The land owned by Andy Poland, known as the "Shed," was recently sold to Chinamen for $800. They have commenced mining operations in the ravine below.

Richer Than Ever.—As our paper was going to press, we learned that a clean-up has been made of a crushing of rock from the St. Patrick. The yield was $400 per ton. A number of rich specimens were taken out. A. B. Scott, Dutch ravine, had 85 tons of rock crushed, which yielded $16 per ton. Nelson and Erskine have discovered a ledge, a quarter of a mile north of Ophir, which prospects well.

PLUMAS COUNTY.

Sawpit Flat.—Quincy *National*: The New York Co. made a partial clean-up last week of about 200 ozs. None of the other companies have made any yet. Everything bids fair for a rich season. At Washington, the claims are paying $12 per day to the hand.

SAN DIEGO COUNTY.

Los Angeles telegram, May 19th: A 12-pound piece of rock brought up to-day from the Mount Vernon, Julian district, taken out 15 feet below the surface, is admitted to be the richest specimen yet seen from the surrounding mines. About half its bulk is free gold. Favorable news continues to be received from the principal leads in the Julian district. Mount Vernon adjoins the Washington and Mary Idivia; it was discovered in February by G. L. Turner. These three ledges on sinking show a width of about five feet.

SIERRA COUNTY.

Alleghany Consolidated Co.—*Democrat*, 19th: At the present time they employ but seven picks in the breast, but these seven pay all the expenses of twenty hands, timbers, lights, blacksmithing and all other outlays. Judge Sherwood, one of the managers, informed us that he expected to work from 60 to 100 hands in the mine before the expiration of the year, and take out monthly from $15,000 to $20,000, instead of, as now, from $1,500 to $2,000.

Bald Mountain Co.—This Co. will run an 1,800-feet tunnel from their 289-feet shaft, to drain the ground and enable them to work the immense bed of gravel under the flat. The tunnel will be large enough to allow them to work mules in it.

Forest City.—The Live Yankee claim is still paying wages. It has probably yielded more gold than any other in the State.

Alleghany.—The Packard, the Hook & Bull, and the Union have done well this spring. The last is a quartz claim.

Johnston Ledge.—Jim Johnston now owns the whole 1,400 feet. He took out $1,500 with a hand mortar on the top; and now has a 60-foot tunnel which strikes the ledge at a depth of 30 feet. He thinks he has struck it again there. He has before found several rich ledges that did not pay him well, and intends to hold on to this one.

New Mill.—The Sierra Buttes Co. are erecting a new 16-stamp mill, to be run by water.

A Nugget.—One day this week Parker & Co., of Slate Castle ravine, found a nugget of $50. This is the third piece they have lately found.

Items.—*Messenger*, 21st: The Union mining claim, at Port Wine, took out last week over 300 ounces....Watson & Ift, who are prospecting the Oro claim, on the Rock creek trail, have got their tunnel in a little over 20 feet.....The North America Mining Co., at Hepsidem, have their new tunnel in over 1,400 feet, and progressing at the rate of 50 feet per week. This company is taking out good pay through the old tunnel....Whisky Diggings is very lively this spring, reminding of the flush times of '56.

SISKIYOU COUNTY.

Happy Camp.—Yreka *Union*, 20th: We learn that the miners are generally doing well. Ambrose's claim is paying well, and Richardson's is supposed to be.

Sale.—E. Steele, has sold his "Steamboat" claim. The purchasers are Wm. Murray and Wm. Henry. We understand the amount to be paid is $40,000.

TRINITY COUNTY.

Dutton Creek.—*Journal*, 20th: The ditch is completed and the water turned in, but there will be a small head this summer. Dixon, Hurst & Co. have expended $1,000 in putting up a hydraulic. They have more than 200 feet of pressure.

Lower Trinity.—Hinds & Flynn are running a tunnel into the high peak opposite Big Flat, and have already found four or five feet of gravel containing gold. There are indications that they have struck an old river channel 500 feet above the present level of Trinity.

Northfork.—R. J. Holmes thought he would try a pan in his drifting claim the other day, and got $50. Holmes is used to it. Bill Ritterbush is cleaning up his winter's work. "Boys," says Bill, "its the first time I've been out of debt since I've lived at Northfork."

The Boy Miners.—The Gilzean boys at Cañon creek are still pegging away and doing better than the average of miners. They make about $60 per week—two boys 12 years old.

Minersville.—Little Mule creek is paying well, considerable coarse gold having been taken out. One specimen weighed four ounces, and another two and one-half.

The Prospects.—There will be more gold dust taken out this season than during the last.

Taylor's Flat.—B. C. Wattles writes that he has struck it big.

Arizona.

Big Bug.—Prescott *Miner*, May 7th: The mill is making a long run. A clean-up will soon be made.

Walker District.—The Eureka mill is producing bullion. A furnace to roast the sulphurets is in full blast....Last week, C. Y. Shelton rocked out of 800 pounds of decomposed matter from the Vernon lode $[illegible]6. He thinks the rock will pay $300 by mill process....The Accidental is yielding rich ore.

Hassayampa.—At the Sterling, Mr. Beseler is experimenting with the tailings. The placer miners are making fair wages.

Walnut Grove.—Fred Henry and others have been finding more rich ledges....Collier and Case arrived from Turkey creek with several sacks of ore from the Goodwin mine. They are to send some to San Francisco to have it tested. They will also try some of it here.

Wickenburg.—Vulture Co's 40-stamp mill running and paying, and lode looking well.

Castle Dome—Letter from Arizona City: The Butterfield Bros. and Jack Hamilton have opened two or three mines that yield argentiferous galena, about 40 to 60 per cent. lead, and from $40 to $60 per ton in silver. The ore is sold to Selby & Co. From 400 to 500 tons will be shipped during the spring. Dr. Phillips is prospecting a ledge at Eureka for a New York Co. Some 10 or 15 arastras are running at the old Picacho placer mines. The Cormorant Co., at Las Flores, are down 150 feet, and are troubled with water. Their mill will be started up soon.

Colorado.

Seaton Lode.—Central City *Herald*, May 18th: Mr. Topping is working on an 18-inch vein of good ore, at a depth of 60 feet. At a depth of 200 feet he is drifting on a good vein. The ore averages 200 ounces.

Old Mills Renovated.—The Lexington 24-stamp mill, which has been leased by Sulliven & Co., will start up on Tuesday. It has been thoroughly renovated. We hear of several other old mills which are to be overhauled and set to work.

Items.—*Register*, 18th: The engine on the Gilpin & Coaley mine will be started to-day for the first time....Mr. Hardesty has started his new 18-stamp mill in Nevada district....Frank Cramer is running his arastra on Coyote ore that shows free gold in almost every piece....Scott & Converse have 200 tons Freeland ore on dump. ....The Steil mill in Empire will soon start up....Thirty tons first-class Equator ore, shipped to Newark, assayed 800 ounces of silver per ton; 550 tons second-class assayed 137 ounces per ton. A test of third-class gave $43 per ton....Chas. H. Martin and Mr. Peters—a Freiberg graduate—have leased the mill and mine of the Fairmount Co., in Hukill gulch, for one year.

California Gulch.—Thos. Starr cleaned up his ground-sluice 10 days since, and realized over 25 ounces of fine gold—making 135 ounces since December.

Terrible Mine.—Approximate number of tons treated: First-class, 245; second-class, 225; third-class, 120; making a total of 590 tons, which have yielded $240,000—an average of $407 per ton. In addition, Clark & Co. and the Clark S. M. Co. have the estimated amount of 2,000 tons of second and third-class ore in the dump.

Idaho.

Golden Chariot.—*Avalanche*, May 14th: The ore house is full of quartz, and large quantities are piled outside. The richest is put in sacks. The greater portion now comes from the fourth level. In many places we were able to see black lumps of silver and particles of gold glistening in the light of the candle.

Ida Elmore.—There is about 200 tons of ore in the shute. The main shaft is 415 feet deep. Most of the work is now in the fifth level, where, for 100 feet, the vein is four feet in width.

Items.—Corduroy looks well. Work on the Peck & Porter will be resumed next week. France & Co. are taking out good ore from the Baxter. The Empire will erect a whim. There is a large quantity of ore ready for hauling at the Poorman. By the first of next month they expect to have 700 tons. The Bruce Bros. have purchased the old dump pile at the Oro Fino, and are sluicing it. P. McMahon is washing out the old Silver Cord dump.

Placers.—Not many clean-ups have been made, but we hear good reports from Slaughterhouse, Jacobs and Blue gulches. Miners in Wagontown are representing their claims. Florida mountain placers are worked night and day. The hydraulics are at work. Just before going to press a report of a rich strike comes from Florida mountain.

Flint.—The yield of Leviathan ore was $197 per ton, not $150 as stated. Rising Star will soon resume operations. Astor worked $168 per ton.

Snake River Mines.—One thing is now certain, there are very extensive moderate diggings along the river, above and below the great falls, that will last for many years.

Montana.

Silver Star.—Virginia City *Times*, May 14th: The Clipper lode is ahead of anything we have heard of. John Bryant from eight tons of ore in one week, on a single arastra and one stamp propelled by water, brought up 48 ounces of gold; assay value, $13 per ounce, equal to $624 in coin.

Summit.—Same of 16th: The How mill will start up to day on ore of the Chickamung. The McCluro mill will be started soon to try the barrel process on the How tunnel. Work on the leads and gulch claims of the district is progressing satisfactorily.

Items.—The Parker-Williams Co. are at work. The Highland Flume Co. expect to realize a good many thousand dollars the coming season. The Pine Grove Fluming Co. have expended $20,000, but are sanguine of a large paying yield. Southmayde & Hall are taking out gold in paying quantities. Spring gulch has paid from $5 to $7 per day to the hand. The drawback now is a scarcity of water. Rositer, Duncan & Co. are running the Frenchtown flume with success.

Outlook.—*New North-West*, May 13th: The bullion product of the placer mines this season will far exceed that of any previous year, and not fall far short, under any circumstances, of $20,000,000. Of this, Deer Lodge is good for $9,000,000 or $10,000,000, the Cedar mines $2,000,000 to $4,000,000; Beaverhead and Madison $3,000,000, and Lewis & Clark, Jefferson and Meagor $4,000,000. We found this belief upon former yields; the supply of water, unequalled for three years; the new mines opened; the ditches brought into older camps; the vigorous use of all facilities and the heavy addition to the laboring force of the Territory by immigration. Aside from Cedar creek, where work is retarded for the time being by excessive water, there is scarce an idle man in the Territory. Money is already becoming plentiful in the camps.

Blackfoot.—Every thing is lively. The ditches are full of water, and likely to keep so during the summer. Sixteen claims on Ophir bar, below Blackfoot, are paying from $8 to $18 per day. Above, six claims are worked with good results. On Carpenter'e Bar, Prairie Gulch, Stone Breaker and Snow Shoe, minere are doing well.

Philipsburg.—Two furnaces for emelting are nearly completed. Their success will, it is expected, give impulse to half a dozen other enterprises.

Cedar Creek.—The rush to Cedar etill continues, although it is well known that at present not one in ten can find employment on account of the high water.

Nevada.

COPE DISTRICT.

Mountain City.—Cor. Elko *Independent*, May 18th: A new district, 12 miles north, is known by the name of Fairweather. Most of the veins are of the base metal order, carrying from $30 to $50 in silver to the ton. The mill is running on Argenta ore and paying well. In the mine they are working 25 hands. The company ehipped to-day 5,000 pounds choice ore. Times are improving. Mr. Norton will have his mill running within 60 days. He has the promise of 1,000 tons of ore from the Argenta and Crescent mines.

ESMERALDA.

Dunderberg.—Carson *Appeal*, 21st: This mine is likely to prove one of the best. One ton of average rock worked in Aurora, a few days since, yielded $33, mostly gold. Some assays of ore from same drift, ehowed $1,800 to the ton, $300 of which was in silver.

REESE RIVER.

Magnolia Mine.—*Reveille*, 19th: W. H. Clark ie having the hoistings works overhauled, and operations will be resumed in a few days.

Metacom Mine.—The machinery some years since erected on the imaginary mine "Great Republic," has been bought by Mr. John Howell, who will place it upon the Metacom.

Strike.—A strike of rich ore wae made in the Buel North Star mine a couple of days ago.

WASHOE.

Yellow Jacket.—Gold Hill *News*, May 21st: Thie mine is yielding better than for many months. At the 900-foot level the body of ore recently developed is proving extensive. The daily yield of the mine is 360 tons.

Hale & Norcross.—The ore body at the lowest level already yields 130 tons per day of first-class ore, and the other levels some 60 more.

Occidental.—The connection of the lower tunnel with the winze will be made in three Weeks, at the present rate of progress.

Gould & Curry.—A new development of extra good ore at the 200-foot level in the old workings has caused a rise in the stock, but the extent is thought to be limited. The yield has decreased, being now 60 tons per day; average assay, $50.

Belcher.—Yielding 70 tons per day. Cross-cutting near the south line at the 730 foot level shows nothing encouraging.

Ophir.—Nothing encouraging at the upper levels. What pay-ore yield there was from the south shaft has fallen off materially.

Crown Point—The sinking of the incline from the 1,000-foot station is progressing, and 60 tons per day of low-grade ore is yielded from the upper levels.

Overman.—Daily yield 135 tons, from the 500 and the 226 foot levels. The ore paye well.

Daney.—Some fair ore is developed, and 30 tons accumulated on the dump. It will mill nearly $20

Virginia Consolidated.—Drift was 365 feet in from the ehaft. The rock is hard, but good progress is made.

Chollar-Potosi.—Daily yield 155 tons. Belvidere shows improvement.

Sierra Nevada.—Both mill and mine running at the same regular rate.

Hope.—*Enterprise*, 22d: About 40 tons has been the daily yield. Thirty-three tons have been worked in the company's mills, showing an average of $20. Everything progresses favorably.

Bullion.—The work of opening on the fifth level by driving north is diligently prosecuted.

Sutro Tunnel.—Less progress has been made during the past week. There is no increase in the volume of water. The tunnel is in 1,094 feet.

WHITE PINE.

Bullion Accumulation.—*News:* The Alsop Smelting Co. has 130 tons of bullion on hand, and other furnaces will probably swell the amount piled up to over 200 tons. Transportation for ore also is needed. The Erie and Elko (base) have each a contract with San Francisco parties to furnish 400 tons. These things suggest a railroad to Elko. Furnaces would be erected at once to turn out 100 tons daily. The average yield of the base ores is 50 per cent. of bullion. A later date of same says a meeting ie appointed to discuss the thing, and the citizens enter heartily into the matter.

Bullion shipments for week ending 16th, foot up $37,028.31—of which, $25,181.62 went West, and $11,846.69 went East.

Items—Silver Wedge has 200 tons ore on dump, and will lease a mill. Ore assays $620....Four Aces shows good ore in quantity....Hemlock and Wabash yields one ton daily to each man employed.... Davis mine has flattering prospects....Base Metal Consolidation ore assays $290—an average specimen from the dump....The White Pine Smelting Works are building another furnace....Mount Joy yields very rich ore from a 2-foot vein....Elko main shaft is down 40 feet....Trench mine is turning out ore that smelts $2,500 in silver to the ton.

Outside Districts.—In Cooper, the shaft of the Rappahannock is down 44 feet, at which level the ledge has been found to be 40 feet wide—28 feet of good milling ore. The ore is easily broken down. Gen. Grant has between three and four feet of good milling ore, at a depth of ten feet. Assays go above $200 to the ton. The Mollie Rutter has 75 tons of high-grade ore on dump, and commenced to ship to the Parsons mill at Silver Park. ....Three thousand pounds of ore from the Great Eastern mine in Patterson district, worked at the Big Smoky mill, gave a yield of $212 to the ton....Ely district sent in four bars of bullion, a few days since, valued at $1,600....Reports from Kern are favorable. The miners will develop extensively this season. New discoveries are continually making.

New Mexico.

Ute Creek.—*Press and Telegraph*, May 14th: The Montezuma mill has again shut down for eome reason, after a three days' run, cleaning up 25 ounces of retorted gold. The Atzec mill is at work, with moderate returns.

Grouse Gulch.—Pollock's and Bower's claims are averaging $15 per day to the man.

Items.—A new cut has been made near the Mereno by Little & Co. that pays $7 to the man, ground sluicing....At Orleans Flat and Last Chance two claims are being worked with large returne....On Willow gulch the pay is good, but the miners have no water....There is a fair supply of water on Spanish bar....The Humbug gulch folks have everything in readiness.

Oregon.

Baker City.—The mining season has opened brisk in Baker county. About $80,000 in gold dust and bullion was shipped, for the month ending May 10th. Water was plenty and claims paying well. One nugget worth $800 was taken out.

San Francisco Mining Stock Market.

The business of the Stock Board continues very much in the same apathetic condition as reported for some time past, the inactivity coming principally from the lack of legitimate dealers, as well as the absence of any very promising developments in the various mines, which, in most instances, give speculators an opportunity to engage in remunerative operations. Sales of a few leading stocks show a material recession, as compared with the previous week, while the majority have been quite well maintained. Transactions in three or four White Pine stocks have been free, obtaining very uniform rates.

Hale & Norcross—has not been active, though some improvement is apparent. During the week ending May 21st, the ore product of the mine has been as follows: 175 level, 301 tons; 300 level, 46½; 325 level, 90; sixth station level, 113½; and seventh station level, 1,147½—total, 1,698½ tons. The seventh level, both north and south, shows no change in the quality or width of the ore, and in breasting on the second floor, a few feet north of the shaft, they found the ore the same quality and the vein the same uniform width as on the floor below. On the 21st, they forwarded $50,640 in bullion to the office in this city. The aggregate bullion returns for the month of April foot up $125,849 against $107,057 in March, $145,203 in February, and $188,334 in January.

Chollar-Potosi—was in the market to a moderate extent, at uniform rates. For the week ending May 20th, the ore-yield amounted to 1,150 tons; the assay from car-samples showing $19 20 to the ton. The south portion of the mine exhibits some improvement, the ore coming down to the Potosi Tunnel, with prospects of extending far below. On the eighteenth floor, being the most southerly point, the ore is said to be about fifteen feet wide. At the first station of the New Shaft, 22 feet have been added to the "raise," making a total of 80 feet from the track floor. On the 20th inst. they sent forward $27,130 in bullion. A letter of the 24th states "that the south end of the mine continues good, and where the Potosi Tunnel intersects the body from above, it is about 250 feet from the surface."

Gould & Curry—continues to recede, under the usual sales. For the week ending May 21st, 416½ tons were extracted, showing an average assay-value of $40 48 per ton. No change of importance in the mine.——Kentuck has also changed hands at lower figures. During the week ending May 21st, 240½ tons were extracted, valued at $4,302—equal to $17 88 per ton.——Crown Point, under rather light sales, is lower. For the week ending May 20th, 181½ tons of ore were mined, showing a 65-per-cent. assay value of $3,196, or $17 51 per ton.

Belcher—has been in less demand than the previous week, selling at nearly the same figures. On the 23d inst., 56 feet above the 262 level, in drifting south from the "raise," they encountered a body of ore about eight feet thick, which assays $37 87 to the ton, and promises to be of some extent.——Imperial sold to a small extent at even rates. On the 24th inst., the winze had attained a depth of 44 feet, showing no particular change. Spots of ore continue to be scattered over the bottom of the winze.——Overman sent down $11,400 in crude bullion on the 23d inst.——Ophir was in the market to a less extent than last week. On May 24th, the Superintendent reported as follows: At shaft No. 1 soft ground made its appearance in the main drift, composed of a mixture of lime and porphyry. Both of the south-west drifts are progressing well, showing no change in amount of water.——Original Hidden Treasure (W. P.) sent forward $43,600 in bullion for May account up to the 24th inst.—*Commercial Herald.*

MINING STOCK QUOTATIONS, MAY 26, 1870.

	Bid.	Asked.		Bid.	Asked.
WASHOE.					
Alpha Con.	$ 11½	$ 11¾	Gold Hill Q M Co.	$ —	$—
American	—	—	Hale & Norcross	132	132½
Belcher	19	19½	Imperial	—	37½
Bullion	—	—	Justice	—	—
Crown Point	13¼	13½	Julia	—	—
Cole, Va.	—	—	Kentuck	52	52½
Confidence	—	—	Lady Bryan	—	3¼
Chollar-Potosi	27¾	28	Occidental	—	12½
Con. Virginia	11	11½	Ophir	12½	12⅝
Daney	—	6¼	Overman	—	80
Empire	—	17½	Savage	32¼	32¾
Exchequer	10½	11	Sierra Nevada	8¼	8½
Flowery	—	—	Seg. Belcher	—	6
Gould & Curry	116½	117	Yellow Jacket	45¾	46
WHITE PINE.					
Aurora Con.	$ 3¼	$ 3½	Noonday	3½	3¾
Brodt	—	—	Orig. Hidden Tr.	19½	20
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	50c	Silver Wave	4½	5
Mammoth	1½	1⅝	Virginia	4	4½
CALIFORNIA.					
Amador	$210	$212½	Eureka	$290	$ —
IDAHO.					
Golden Char't.	$ —	$ 15	Silver Cord	$—	$—
Rising Star	—	—			

◆

The Los Angeles and San Pedro Railroad investigation seems to ehow badly for those who had the management. Public aid to the amount of $225,000 was given for the road, which is nineteen miles long. With ewindling contracts and illegal purchases the city and county are now brought into debt on their stock, and assessments are demanded to cover the deficiency. The investigating committee appointed by the city charge the management with fraud, and advise that suit be brought to declare void the stock issued and to recover the money already paid thereon.

◆

Corinne is erecting water works for supplying its inhabitants with thie necessary article. The reservoir is built, the steam power is ready, and the pipes have been ordered in Chicago. Good for Corinne.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Aurora Cons., W. P., May 7, $4	June 14	July 7
Bromide Tunnel, W. P. April 20, 40c	May 35	June 13
Confidence, G. H., May 14, $10	June 17	July 8
Cherokee Flat B. G., April 14, $5	May 16	June 2
Cayuga Chief, W. P., April 29, 15c	May 31	June 21*
Empire M. & M., S. co., April 22, $10	May 27	June 18
Gold Hill Quartz, G. H., May 16, $20	June 20	July 11
Imperial, G. H., May 7, $5	June 10	July 2
Julia, Storey co., May 13, 75c	June 15	July 1
Mineral City, May 12, $1	June 15	July 2
Mountain City, Elko co., April 8, 60c	May 23	July 11*
Miser's Dream, W. P., April 14, 40c	May 17	June 14*
Noonday, W. P., May 10, 30c	June 15	July 7
Nevada L. & M., Elko co., May 3, 3c	June 7	June 28*
Oriental, Sierra co., April 22, 20c	May 26	June 16
Ophir, Storey co., May 6, $5	June 9	June 30
Placer G. & C., Placer co., April 9, $2	June 17	July 15*
Pinto, W. P., May 2, 10c	June 2	June 20*
Rising Star, Idaho, April 6, 50c	May 14	June 4
Silver Wave, W. P., April 21, $3	May 23	June 13
Savage, Storey co., May 3, $7.50	June 6	June 25
Silver Vault, W. P., May 3, 5c	June 9	June 29*
Siempre Viva, Mexico, April 25, 25c	June 2	June 20
Tallulah, Sierra dist., May 10, $2	June 25	July 18
Virginia, W. P., May 14, 50c	June 21	July 6

MEETINGS TO BE HELD.

Alpha	Annual Meeting June 20
Ascendant	Annual Meeting June 6
Bromide Tunnel	Annual Meeting June 6
Crown Point	Annual Meeting June 6
Hearst	Annual Meeting June 6
Mammoth	Annual Meeting June 6
Oneida	Annual Meeting June 6
Peytona	Meeting June 6
Silver Eagle	Annual Meeting June 2
Wheeler	Annual Meeting June 6

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable April 11, 1870
Eureka, div., $7.50	Payable May 7, 1870
Golden Rule, div., 50c	Payable March 26, 1870
Hale & Norcross, div., $6	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
North Star, div.	Payable May 5
San Marcial, div., 50c	Payable Jan. 10, 1870
Union, div., $10	Payable May 10, 1870

——*Advertised in this journal.

◆

Bancroft's Guide.—The May number of thie guide for travelers by railway, stage and steam navigation in the Pacific States, hae just been received. This is the largest and most complete publication of the kind on the coast. Such aids are a necessity to travelers, who do not wish to journey blindly, and save the possessor much more than their cost in avoiding anxiety and labor of body and spirit reeulting otherwise from the neccessity of asking numerous questions and receiving too often rude replies. The book in question contains, however, many other interesting facts and descriptions. For sale by A. L. Bancroft & Co., 721 Market street, from whom we have also received, just before going to press, "Lothair," a novel by Disraeli, which will be noticed next week.

◆

Another mining excitement at San Diego is reported, caused by the report of wonderfully rich gold mines in Lower California. Specimens of very rich quartz have been brought, and nine or ten large, well defined ledges are stated to crop out in the locality whence the rock comes. A company of twelve have secured the services of the discoverer and chartered a yacht, to proceed immediately to the place. Another party is said to intend following in order to get a share of the epoils, and a third party to have started out overland for the same purpose.

◆

Washed Gravel in a Strange Place. We should like to hear something further with regard to the following, which we find in the Grass Valley *Union* of the 17th inst.: The miners in the 10th level of the Empire mine have come across a deposit of gravel which has been washed by water, at some period, until it is quite smooth. This gravel ie under the ledge and in the gouge. How much of it there is, and whether it is going to have washed gold mixed up with it, we cannot say; but we would not be surprised to hear any day of a rich strike in gravel in the depths of Ophir Hill.

◆

Another Atlantic Cable.—It is reported that a combination has been formed under the auspicee of the General Credit and Discount Company, of London, to lay a telegraph cable from England direct to Narragansett Bay, Rhode Island.

◆

The foundation work of the new hall for the Gold Hill Miners' Union is being energetically pushed forward. The building is to be 70 feet long, 39 feet wide, and one etory high.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

The Interests of the Farmers.

The farmers of California are beginning to awaken to the necessity of doing something more than herding wild stock over thousands of wild acres, and of venturing all upon a single crop of grain. While repeated failures are constantly punishing such improvident ventures, the success attending intelligent and diversified farming is yearly proving the wonderful fertility of our soils, the favorable effect of our climate, the adaptability of, and the ways of adapting, the various parts of the State to a reliable, profitable and extended culture. Of the thousands of useful productions of the vegetable kingdom, California may, and should, cultivate the majority.

It is the province of a good agricultural paper to note the failures and the successes attending the industrial interests; to discover the wrong way and to advocate the right; to encourage the introduction of every useful and profitable thing; to recommend the best in material and in method, and to enter into the real interests of the producing public with honest intelligence and a spirit of enterprise equal to the age of progress now before us.

Since the SCIENTIFIC PRESS has undertaken, in connection with the other leading industrial interests of the Pacific coast, to make itself a leading agricultural journal, the encouragement that we are constantly receiving is gratifying to the proprietors, and we shall strive to merit such continued and increasing patronage by an untiring devotion to the material, practical and real interests of farming in all its diversified branches. We are aware that no one set of editors can, unassisted, make an agricultural paper all it should be. The farmers, the horticulturists, the gardeners, all who feel a liberal interest and take a proper pride in their occupations, should give the result of their experience for the general good. There is enough of diversity in soil and climate; there is room enough in our broad area of agricultural lands, and there should be numbers of interests and of useful products on this coast to furnish material for the *best agricultural paper in the world!* But unless the people, the individual farmers and culturists enter into the spirit of inquiry and discussion, the best efforts, the most ardent, determined and honest exertions of the editors can but partially meet the wants of the times. Every intelligent farmer is in possession of facts which would benefit somebody else if given to the light.

We are aware of how capitalists, through corruption and fraud, have monopolized and attempted to control much of the public lands in this State; we know that our County and State Agricultural Fairs have languished beneath selfish and partial interests, instead of growing in usefulness and power and grandeur through worth, enterprise and just and honest means; we see that middle men and rings and speculators —big and little—are seeking by deceit, by false reports, by confidence, by baseness and villainy, to defraud the farmer and pocket the profits of honest toil. But with any of these, and with all of these, we assert, we have no sympathy. We stand confidently and determinedly upon principle and right. We expect to at least enjoy the satisfaction of doing our humble duty. Upon our agricultural progress and success the other interests and the welfare and advancement of California must mainly depend.

Suffering, as we surely are, beneath an accumulation of grievous evils, social, political and speculative, staggering beneath stagnation in business, and dreading the possible turn of events, we recognize the need of honor, of integrity, of justice. No towering intellect is needed to startle the people with a panacea of marvelous power—a cure, a sudden cure, for all our woes!

We require the simple virtues upon which the real success of a people rests; the honesty that begets confidence; the legitimate enterprises that depend upon energetic and intelligent industry—not strategy and idle speculation. We require economy. We should open the avenues which selfishness, speculative greed and corruption have closed against the entrance of settlers to our agricultural lands; we should encourage the industry of our own people; we should import nothing from other lands that we can better produce at home; we should neither import nor especially encourage a class of immigrants to our shores that cannot be equalized, that cannot assimilate with us, and whose interests are not our interests.

Whatever fosters distinctions and aristocracy of money over labor is not in accordance with the true spirit and interest of American government. Every man here is a capitalist according to the extent and character of his power, whether physical strength, mental ability, educational attainments, intellectual aspirations, moral worth or mere dollars and cents, constitute that capital. It is the honest use that one makes of his capital that constitutes good; the real good to himself and to the world.

It is with the industrial classes that we hold communion. To their interests the SCIENTIFIC PRESS is devoted, as its face and its contents indicate. The business integrity and enterprise, the balance of mental and moral worth, the patriotism and pride of country, the hope and vindication, and the honor and success of our affairs all rest with the interests, material, educational and moral of our industrial citizens—our friends indeed.

The industrial interests of every community are, or should be, mutual interests, when equal law, equal rights and privileges are regarded. But any element of discord, such as slavery or its parallel, is disintegrating. We shall work faithfully for the best, hope for the best, and trust for the reward of the just and the deserving.

TO GET RID OF THE GREEN FLY, OR APHIS.—The best way to avoid attacks of the aphis upon plants is by thorough pruning—thinning the vines or bushes so that the sun, air and wind can have free access to the leaves, and thus render them uncomfortable habitations for these little pests. If, however, in spite of pruning, they will still remain, make a decoction of tobacco water—the liquid about the color of tea—and syringe the plants well; or prepare an instrument so that you can burn tobacco therein, and puff the smoke out among and under the leaves. If either plan is thoroughly carried out, you will not be likely to have much further trouble for that season.

PROFITS OF SHEEP RAISING.—To convey some idea of the profit that can be made in California by raising sheep, the Amador *Dispatch* relates the experience of a gentleman in that county who recently sheared 3,300 head of sheep, the clip averaging seven and a quarter pounds of wool per head, making a total of not far from 24,000 pounds in all, which he sold for $4,545.75. Besides this, he raised 5,325 lambs, which he considers worth $2 apiece, making a grand total realized from his sheep of $9,995.75—say $10,000. His profits, clear of expense, in the item of sheep raising, will not fall short of $8,000 for the year.

FOUR TONS OF BLACKBERRIES TO THE ACRE.—Mr. Nichols, of Alameda county, from a quarter of an acre sold a ton of blackberries, and used a large quantity in his family. Mr. Nichols believes with well skilled and proper management a man can make a good living on two acres by raising small fruit.

Flowers and their Organs.

There are many things of interest in relation to the stems, leaves and appendages of plants, with which the younger portion of our readers, and possibly many of the older ones, may not be familiar; but which are, nevertheless, of much importance to be understood. The office of the *leaves* is to put the plant in such communication with the atmosphere and the sun, as to secure the chemical action necessary for growth. How this is done will form the subject of a future article.

The onward or upward growth of a plant, in its stem or branches, usually continues until the terminal development consists of a flower bud alone, without its usually accompanying leaf bud. When that happens, as it does in a few weeks in the case of annuals, the vegetative or growing energy of the plant has usually reached its fullest development, and the reproductive principles then commence to develop the seed, preparatory to the death of the individual. It is to this particular form of development to which we propose to call the attention of the reader in the present article.

The flower of a plant is simply a short branch bearing upon its apex a collection of organs which may be considered as leaves, more or less modified in form, color and office. Flowers generally have four sets of organs; the *pistil*, occupying the center, the *stamens*, surrounding it, the *corolla*, surrounding the stamens, and the *calyx*, embracing the whole at the lower extremity.

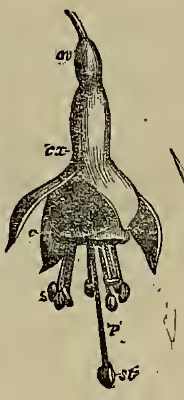


FIG. 1.

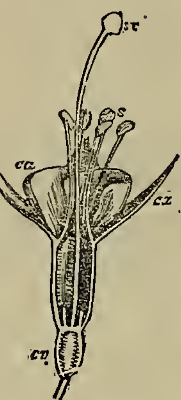


FIG. 2.

The numbers of the pistils, stamens and parts of the corolla vary greatly in different flowers. For our present purpose of illustration we have selected the fuchsia, one of the most beautiful and graceful of all cultivated plants. Fig. 1 shows a perfect flower; Fig. 2, the same in section. The different organs are correspondingly marked in both—P, pistil, *s*, stamens, *c*, corolla (sometimes called crown), and *c x* calyx, or cap.

The *pistil*, or *pistils* occupy the center of the perfect flower. They vary greatly in form, but always have at their base the seed-vessels or *ovaries (ov.* in the figures), in which are found the *ovules* (little eggs) or rudimentary seeds. In fruit-bearing plants the ovary becomes the fruit. The pistil is generally composed of two parts—the stem or tube, and the little knob shown upon its summit, which constitutes the stigma. The stigma is destitute of the outer covering or epidermis, which envelopes all other parts of the plant, while the stem or tube is hollow, as shown in Fig. 2. The object of the nakedness of the stigma, and the hollow form of the stem, will be apparent when we come to describe the mode of fertilization, which we shall do next week.

The *stamen* or *stamens*, *s* in the figures, are generally quite similar in appearance to the pistils, and are also terminated at the top by little knobs or sacks, called antlers, which, at maturity, discharge the pollen. The stamens and pistils are called the *essential* organs of the flower, because it is by the means provided in them that the seeds are produced and the plant perpetuated.

The *corolla* is usually made up of one or several series of leaves, inclosed within the calyx, and usually of some other color than green. It forms the crown or most attractive part of the flower, and is often marked with great delicacy of structure. When the corolla is divided into separate leaves they are termed *petals*. The fuchsia has four, the cultivated rose has an indefinite number; but in its natural or wild state only five.

The *calyx*, it will be noticed, is the outermost envelope. In most flowers the color of this organ is green. When it consists of several distinct leaves they are called *sepals*. In the fuchsia it is a single organ divided into four lobes.

Some flowers, as the buckwheat, have no corolla. In the grasses, which have no flowers, the calyx and corolla are represented by scale-like leaves, which subsequently form the "chaff" of the grain or grass.

In some plants the stamens and pistils are found on separate flowers; corn, the squash and melon families, and some trees (the oak and birch) are examples of this kind. In corn the stamens are on the tassels and the pistils on the silk.

Again, some plants have the stamens on one individual and the pistils on another—in such the former is known as the male plant, the latter as the female. The willow tree, the hop-vine and hemp, are examples under this head, and some varieties of the strawberry.

We are indebted for the accompanying cut to Prof. Johnson's "How Crops Grow."

We shall next week endeavor to describe, by use of an illustration, the process of the fertilization of flowers, with brief reference to hybridizing.

Farming Profits in the Foot-Hills.

Mr. J. D. Reese, residing in the foot-hills of Placer county, has furnished the following interesting items to the Auburn *Stars and Stripes:* Mr. R. has a vineyard and orchard of peaches, apples and pears, covering seven acres of ground, the soil of which most people would think too poor to justify the belief that it would produce black-eyed peas. The gross proceeds of his crop of last year from the seven acres sold in market amounted to $2,100; cost of cultivation, picking and marketing, $250; net proceeds, $1,850.

He also furnished the following figures detailing the average product of his vines, ascertained by actual weighing:

Common Los Angeles, per vine	30 lbs.
White Cerian, per vine	60 lbs.
Muscat, per vine	60 lbs.
Malsga, per vine	60 lbs.
Black Vinsindall, per vine	60 lbs.

Eight hundred of these vines may be planted on an acre of land, and, estimating thirty pounds to the vine at the age of five years—at one cent a pound—the product would be the almost incredible sum of $240 per acre. Does any one doubt that lands capable of producing so much are worth two dollars and fifty cents per acre, or that they will not soon be in demand?

THE ALAMEDA FARMERS' CLUB—GOPHERS AND SQUIRRELS.—At a late meeting of the Farmers' Club of Alameda county the subject of killing gophers and squirrels was discussed, and it was unanimously resolved that strychnine, administered in soaked barley, was the most effectual way to kill rodents of all kinds. Phosphorus was voted as dangerous and not fatal in its effects.

COLLEGE OF AGRICULTURE.—The Building Committee of the Board of Regents of the University of California have got so far along in their labors as to be prepared receive bids for the erection to of the Agricultural College building at Berkeley.

A Model Fruit Farm.

Between the town of Santa Clara and the bay, I chanced, in my travels, upon the small-fruit farm of Mr. J. A. Wilcox. This gentleman has some sixty acres in small fruits, all planted within two years, which he calls his experimental gardens; not that it is an experiment in this State or county to cultivate such fruits, nor yet that he lacks experience in such culture. One of the original fruit-growers in Fruit Vale, Alameda county, he has now settled on what he considers a superior location; has procured a great variety of fruits, some of them from the East, at great expense; and by an impartial trial and comparison he expects to arrive at the relative merits of every variety. He designs also to experiment in the various methods of training, cultivation, irrigation, etc.

With a mind singularly clear of mere theories, a large accumulation of facts and data from the experience of years in California, has only created a relish for more on which to correctly form opinions.

It is the apparent nature of most men to be very positive in theory, in spite of truth, and to regard facts as illusions, rather than yield a point; but it is refreshing to meet, occasionally, one that has the modesty to admit the superiority of every principle over inferences. With much information as to the policy to pursue for profit, as well as for pleasure and knowledge, his designs exhibit a system and an economy quite commendable. Nowhere in my journeyings have I been more agreeably entertained and interested than while accompanying Mr. Wilcox over his grounds.

Of currants and gooseberries he has out some 30,000 of each, fine plants, making a beautiful showing of fruit for plants so young. The Houghton Seedling—the well known American gooseberry—he has the most of, and considers that the only reliable variety.

The cherry currant and the *Fertile de Paluau* he is testing side by side. He has the most confidence in the former, though many in this county favor the latter as the best. His 40-acre blackberry field he takes special pride in, and with good reason. The Lawton, Kittertinny and Early Wilson varieties make a splendid show. His system of training, though somewhat varied, is generally low, branching and shortening-in. He cultivates with horse but one way, and occupies the space in the rows by close planting. His soil is a fine, rich, dark adobe, and it is, in my opinion, not so suitable for small fruits as a lighter alluvial soil would be. But he plants on back-furrowed ridges, which will undoubtedly tend to correct the heavy and, in dry times, contracting and cracking tendency of such soil. S. H. HERRING.

[The balance of our correspondent's notice of Mr. Wilcox's Model Fruit Farm will appear next week.]

THE FECUNDITY OF FISHES IS ENORMOUS. Mr. C. G. Atkins, Commissioner of Fisheries of Maine, has been making some calculations of this subject. By examination he found that a perch, weighing 3¼ozs. produced 9,943 eggs at one litter, a river smelt, weighing 2 ozs., 25,141 eggs; a fresh water smelt, weighing 10 ozs., 80,000 eggs. Sea or river salmon (migratory) yield on an average a little less than 1,000 eggs for each pound weight, and shad not less than 50,000 per fish. Taking a salmon (one of the least fecundative of fishes, but whose productive powers and rate of growth are better known than those of most other species) and assuming that a female will at the age of four years produce 7,000 eggs at one spawning (a very moderate estimate), that all the eggs hatch, that all the young arrive at maturity and that the sexes are equally divided, he finds the following results: The first brood, at the end of four years, numbers 7,000; the second brood at eight years will number 24,500,000. At the end of 12 years there are 85,750,000,000 fish; and the fourth brood, at the end of sixteen years, numbers 300,125,000,000,000—salmon enough to cover the whole state of Maine a hundred feet deep.

AN agricultural school has been lately established at Milan, Italy. The city and the general government contribute for its support a large sum annually, with a goodly amount to start the institution.

A New Pursuit Badly Needed.

There are in the United States hardly less than twenty millions of persons interested in and subsisting by agriculture The number of farms can fall little short of four millions, and they are rapidly increasing in number through the breaking up of Southern "planteries" and far western ranches. The census of 1880, if properly taken, will probably return not less than four millions of farms, whereof three-fourths will range from forty to three hundred and sixty acres in area; most of them from eighty to one hundred and sixty acres.

The men who own and work these farms have generally received a common-school education; not a tithe of them have gone further. They know how to plow, to sow, or plant, to till and harvest, as well as their grandfathers did—some of them better—but their average crops are no heavier than those of eighty years ago—nay; they are probably lighter, if we regard only the region which has been so many years in cultivation, because of the exhaustion of the soil. Last year, because of the drouth, Virginia and the Carolinas produced less than half their average corn crop of eighty years ago.

Those years have witnessed signal progress in agricultural implements and machinery. Our farms are seeded and tilled—above all, our crops are cut and housed—with far less labor than of old. Apart from this, the great body of our farmers stand where their grandfathers did, unheeding that the world has moved on. An excess of water long since converted their level lands into sour bogs and stagnant ferns; and thus they still remain. Rain falls capriciously, and for the most part at seasons when they least need it, leaving the uplands parched and thirsty, throughout weeks and even months, when their need of moisture is greatest. The water that is badly needed in July and August, runs off unheeded and worse than useless in spring, because it carries away the best ingredients of the soil. In short, while civilization has stamped its living impress on our manufactures, commerce and navigation, our agriculture remains too generally in the rude, barbarian stage which it should have long since outgrown.

A chief need of our times is a class of thoroughly capable, qualified practical agricultural engineers. They should be ready to give a reason for the faith that is in them, but they should be known as workers, rather than as talkers. Each of them should be able, after thoroughly traversing an average farm, to tell its owner how to increase the product not less than one hundred dollars per annum henceforth, by a present outlay of five hundred dollars. He should be able to say, where the draining of its soil should begin, and in what order field after field should be subjected to this renovating process. He should be able to point out the ravines and steep acclivities or rocky ridges that should be planted to choice timber, and the points at which water should be held back in spring, to irrigate and fertilize the lower slopes and vales during the scorching blasts of summer. He should be able to decide at a glance, just where buildings and yards should be located, and to give a lucid reason for his choice. One such man in each rural county would immensely increase the annual product of our fields, the average recompense of our farmer's efforts, while slowly creating a useful career for himself. When shall we have him? and how shall he be distinguished from the swarm of quacks and shallow pretenders who disgust our discerning farmers by loud talk made up of conceit and emptiness?—*H. G. in the Technologist.*

LOOK TO YOUR HORSES' FEET.—Few men who handle horses give proper attention to their feet and legs. Especially is this the case on farms. Much time is spent of a morning rubbing, brushing and smoothing the hair on the sides and hips, but it is seldom the feet are examined and properly cared for. The feet of a horse need quite as much attention as the body. They need more, in fact, for in one respect they are almost the entire horse. All the grooming that can be done won't avail anything, if the horse is forced to stand where his feet will be filthy. In this case the feet will become disordered, and then the legs will get badly out of fix, and with bad feet and bad legs there is not much else of the horse fit for anything. Stable prisons generally are terribly severe on the feet and legs of horses, and unless these buildings can afford a dry room, where a horse can walk around, lie down, or roll over, they are not half so healthy and comfortable to the horse as the pasture, and should be avoided by all hostlers.

What I Know of Farming—No. 19.

Soils and Fertilizers.

A farmer is a manufacturer of articles wherefrom mankind are fed and clad; his raw materials are the soil and the various substances he mingles therewith or adds thereto in order to increase its productive capacity. His art consists in transforming by cultivation crude, comparatively worthless, and even noxious, offensive materials into substances grateful to the senses, nourishing to the body, and sometimes invigorating, even strengthening to the mind.

I have heard of lands that were naturally rich enough; I never was so lucky or perchance so discerning as to find them. Yet I have seen Illinois bottoms whereof I was assured that the soil was fully sixteen feet deep, and a rich, black alluvium from top to bottom; and I do not question the statements made to me from personal observation that portions of the strongly alkaline plains or swale on which Salt Lake City is built, being for the first time plowed, irrigated, and sown to wheat, yielded ninety bushels of good grain per acre. I never saw, yet on evidence believe, that pioneer settlers of the Miami valley, wishing, some years after settling them, to sell their farms, advertised them as peculiarly desirable in that the barns stood over a creek or branch, which swept away the manure each winter or spring without trouble to the owner; and I have myself grown both wheat and oats that were very rank and heavy in straw, yet which fell so flat and lay so dead that the heads scarcely bore a kernel. Had I been a wiser, better farmer, I should have known how to stiffen the straw and make it do its office, in spite of wind and storm.

[And let me here say, lest I forget it in its appropriate place, that I am confident that most farmers sow grain too thickly for any but very poor land. If one thinks it necessary to scatter three bushels of oats per acre, I tell him that he should apply more manure and less seed—that land which requires three bushels of seed is not rich enough to bear oats. He might better concentrate his manure on half so much land and save two-thirds of his seed.]

I do not hold that the remarkably rich soils I have instanced needed fertilizing when first plowed; I will presume that they did not. Yet, having never yet succeeded in manuring a corn field so high that a few loads more would not (I judge) have increased the crop, I doubt whether even the richest Illinois bottoms would not yield more corn, year by year, if reinforced with the contents of a good barn-yard. And, when the first heavy crop of corn has been taken from a field, that field—no matter how deep and fertile its soil—is less rich in corn-forming elements than it was before. Just so sure as that there is no depletion or shrinkage when nothing is taken from nothing, so sure is it that something cannot be taken from something without diminishing its capacity to yield something at the next call. Rotation of crops is an excellent plan; for one may flourish on that which another has rejected; but this does not overbear Nature's inflexible exactions of so much for so much. Hence, if there ever was a field so rich that nothing could be added that would increase its productive capacity, the first exacting crop thereafter taken from it diminished that capacity and rendered a fresh application of some fertilizer desirable.

Years ago, a western man exhibited at our farmers' club a specimen of the soil of his region which was justly deemed very rich, taken from a field whereon corn has been repeatedly grown without apparent exhaustion. A chemical analysis had been made of it, which was submitted with the soil. It was claimed that nothing would improve its capacity for producing the great Illinois staple. Prof. Mapes dissented from this conclusion. "This soil," said he, "while very rich in nearly every element which enters into the composition of corn, gives barely a trace of chlorine, the base of salt. Hence, if five bushels per acre of salt be applied to that field, and it does not thereupon yield five bushels per annum more of corn, I will agree to eat the field."

Many men fertilize their poor lands only, supposing that the better can do without. I judge that to be a mistake. My rule would be to plant the poorest with such choice trees as thrive without manure, and pile the fertilizers upon the better. It seems to me plain that of two fields, one of which has a soil containing nine-tenths of the elements of the desired crop, while the other shows but one to three-tenths, it is a more hopeful and less thankless task to enrich the former than the latter. If you are required to supply to a field nearly everything that your proposed crop will withdraw from it, I do not see where the profit comes in; but if you are required to supply but a tenth, because the soil as you found it stood ready to contribute the remaining nine-tenths, it seems to me that the margin for profit is here decidedly the greater.

How many tons of earth ought a farmer to be obliged to turn over and over in order to obtain therefrom a hundred bushels of corn? Two hundred? Five hundred? A thousand? *Five* thousand? Other things being equal, no one will doubt that, if he can make the corn from one hundred tons of soil, it were better to do so than to employ five hundred or five thousand. It seems clear to my mind that, though other conditions be unequal, it is generally well to endeavor to produce the required quantity from the smaller rather than the larger area.

I fully share the average farmer's partiality for barn-yard manure in preference to most, if not all, commercial fertilizers. In my judgment, almost any farmer who has cattle, with fit shelter and winter fodder, can make fertilizers far cheaper than he can buy them. I judge that almost every farmer who has paid $100 or over for guano (for instance), might have more considerably enriched his farm by drawing muck from some convenient bog or pond into his barn-yard in August or September and carting it thence to his fields the next fall. If he can get no muck within a mile, let him cut, when they are in blossom, all the weeds that grow near him, especially by the road-side, cart them at once into his barn-yard, and there convert them into fertilizers. In autumn replace the hay-rack on the wagon or cart, and pile load after load of freshly-fallen leaves into your yard, taking them, if you may, from the sides of roads and fences, and from any place where they may have been lodged or heaped by the winds, your own wood lot excepted. Plow the turf off of any scurvy lot or road-side, and pile it into the barn-yard; nay, dig a hundred loads of pure clay, and place it there if you can get it at a small expense, and your average soil is gravelly or sandy. The farmer who is unable or reluctant to buy commercial fertilizers should apply his whole force every autumn to replenishing his barn-yard with that material which he can obtain most easily, which the trampling of his cattle may readily convert into manure. A month is too little, two months would not be too much, to devote to this good work. Some may seem obliged to postpone it to winter; but that is to run the risk of embarrassment by frost or snow, and encounter the certainty that your material will be inferior in quality, or not so well fitted to apply to grain crops the ensuing fall.

I close by reiterating my belief that no farmer ever yet impoverished himself by making too much manure or by applying too much of his own manufacture. I cannot speak so confidently of *buying* commercial fertilizers; but these I will discuss in my next.—*Horace Greeley.*

Brigham Young is making arrangements to set out 200,000 fruit trees at Salt Lake.

San Francisco Market Rates.

Wholesale Prices.

THURSDAY EVENING, May 26, 1870.

Flour, Extra, ⅌ bbl	$5 50	@$6 00
Do. Superfine	4 50	@ 5 00
Corn Meal, ⅌ 100 lbs	2 25	@ 2 50
Wheat, ⅌ 100 lbs	1 65	@ 1 90
Oats, ⅌ 100 lbs	1 40	@ 1 90
Barley, ⅌ 100 lbs	1 15	@ 1 30
Beans, ⅌ 100 lbs	2 50	@ 3 50
Potatoes, ⅌ 100 lbs	50	@ 1 25
Hay, ⅌ ton	12 00	@18 00
Live Oak Wood, ⅌ cord	9 00	@14 00
Beef, extra, dressed, ⅌ lb	7	@ 12½
Sheep, on foot	2 50	@ 3
Hogs, on foot, ⅌ lb	5	@ 9
Hogs, dressed, ⅌ lb	8	@ 8½
GROCERIES, ETC.		
Sugar, crushed, ⅌ lb	13¾	@ —
Do. Hawaiian	8	@ 11
Coffee, Costa Rica, ⅌ lb	—	@ 19
Do. Rio	—	@ 19
Tea, Japan, ⅌ lb	75	@$1 00
Do. Green	50	@ 1 25
Hawaiian Rice, ⅌ lb	8	@ —
China Rice, ⅌ lb	5½	@ 7
Coal Oil, ⅌ gallon	40	@ 42½
Candles, ⅌ lb	15	@ 18
Overland Butter	20	@ 30
Ranch Butter, ⅌ lb	20	@ 35
Isthmus Butter, ⅌ lb	25	@ 28
Cheese, California, ⅌ lb	12½	@ 18
Eggs, ⅌ dozen	22½	@ 35
Lard, ⅌ lb	15	@ 16
Ham and Bacon, ⅌ lb	15	@ 15
Shoulders, ⅌ lb	9	@ 10
Retail Prices.		
Butter, California, fresh, ⅌ lb	35	@ 50
do. pickled, ⅌ lb	—	@ —
do. Oregon, ⅌ lb	—	@ —
Cheese, ⅌ lb	20	@ 25
Honey, ⅌ lb	25	@ 30
Eggs, ⅌ dozen	40	@ 50
Lard, ⅌ lb	18	@ 20
Hams and Bacon, ⅌ lb	22	@ 25
Cranberries, ⅌ gallon	1 00	@ 1 25
Potatoes, ⅌ lb	2	@ 3
Potatoes, Sweet, ⅌ lb	—	@ 2
Tomatoes, ⅌ lb	—	@ —
Onions, ⅌ lb	3	@ 5
Apples, No. 1, ⅌ lb	4	@ 5
Pears, Table, ⅌ lb	5	@
Plums, dried, ⅌ lb	10	@ 12
Peaches, dried, ⅌ lb	10	@ 15
Oranges, ⅌ dozen	50	@ 75
Lemons, ⅌ dozen	—	@ 1 00
Chickens, apiece	75	@ 1 00
Turkeys, ⅌ lb	—	@ 25
Soap, Pale and C. O.	1	@ 12
Soap, Castile, ⅌ lb	15	@ 18

Scientific Press.

W. B. EWER............................SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance.................$4 00
One copy, six months, in advance................. 2 50
Delivered by city carriers, per month............ 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month.......................... 3 00
One column, one month.......................... 40 00
One column, one year........................... 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, May 23, 1870.

Table of Contents.

Hickcox's Corrugated Metallic Shingles—Ill...353
Improved Animal Trap.353
Elevated Railways,.....354
Coal Mines on Fire.....354
Prospecting in Siberia..354
A Beautiful Cave.......354
A Beautiful Site........354
Educated Mining Engineers..................360
Manufacturing Spoked Wheels—Ill..........361
A New Concentrator....361
Full List of Patents....361
Notes of Recent Patents.361
S. F. Stock Market......367
S. F. Metal Market..... 366
New York Metal Market.367
S. F. Shareholders' Directory..................357
FARMING AND GARDENING.—Flowers and their Organs—Ill; A Model Fruit Farm; Farming Profits in the Foot-hills; A New Pursuit Badly Needed; What I Know of Farming; S. F. Market Rates, etc....................358
MECHANICAL PROGRESS.—Determination of Carbon by the Colorimetric Process; Pulleys and Belting; Utilization of Iron Sands; A Remarkable Watch, etc........355
SCIENTIFIC PROGRESS.—Influence of Pressure on Chemical Phenomena; Atmospheric Organisms; Vanadium; Hydrate of Chloral, etc...........355
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Idaho, Colorado, Montana, Nevada, New Mexico and Oregon...356
READING FOR THE HOUR.—Ants at Play; Singular Climatic Effects; When is a Farmer Rich, etc....364

Notices to Correspondents.

ARTISAN, Millbrae, San Mateo county.—It would. The "inertia" of a body resists any change in its condition of rest or motion; that is, if at rest, force must be applied to move the body, or, if moving, to stop it. In practice the resistance of the atmosphere is a principal opposing influence to the progress of a body moving through the air. Were this and other obstacles removed, a body once started would ever continue in motion, and the power being continuously applied, the velocity of the body would be continuously increased.

M. S.—The "Litigant Act," to which you refer, is "an Act for the Protection of Litigants," a misnomer for an act passed by the last legislature, requiring all "legal notices" to be published in an official paper, whereby litigants, instead of being "protected," are greatly overcharged for the legal notices they are required to publish. Mining advertisements are not "legal notices," in the sense contemplated in the "Litigant Act."

UTILIZING BONES.—We shall endeavor to make reference to the communication of our Weaverville correspondent on the utilization of bones in our next issue.

ASPHALTUM ROOFING.—Asphaltum roofing, properly manufactured, is a protection against fire to a very considerable degree.

J. J.—Bull Run.—Your article was received too late for publication this week, but will appear in our next issue.

RAILROAD TIME-TABLE.—By reference to our advertising columns it will be seen that two hotel trains arrive from New York and depart from San Francisco on the Western Pacific and Central Railroads. The evening train also arrives here at an earlier hour than formerly, which is quite favorable for local and through passengers on the line, who wish to enjoy the whole evening in the city.

* * *

WE hear that the Messrs. Comer have gone into trout-breeding on a large scale. They have constructed ponds, hatching-houses, etc., at a place four miles above the town of Truckee, and have 100,000 spawn on hand. They get an abundant supply of water from the Truckee river.

* * *

WE see that the Globe Foundry at Stockton has received large orders for machinery, principally patent blowers, pipes, &c., from Salt Lake City.

Educated Mining Engineers.

It seems strange that in the present age it should be necessary to put forth a plea for education in any profession. And yet it cannot be denied that there is among our mining communities a strong prejudice against educated engineers, which finds expression in the columns of many of our interior papers, which, in most respects, are characterized by their good, sound common sense. There must, then, be some ground for this feeling, which is so directly opposed to the spirit of the age.

Those who reside any length of time in a mining camp will soon perceive what these reasons are. First, every now and then some quack appears, and with many glib words, gives himself out as a scientific man, although he may have not the least smattering of science. He talks himself into the confidence of those who are unable to detect the real from the spurious article, and after a brief career, during which he perhaps draws freely on the pockets of his victims, "sluffs away," to use Thoreau's expressive phrase, "leaving merely a grease spot," which dirties the garments of real science.

Another injury is done by persons of really good attainments in some similar profession, but who have never studied *mining*. Because they are good chemists, or perhaps well read in the geology of other lands, people expect that they will be able to give prophetic information with regard to special localities, of which they have not the slightest knowledge, and where they make a merely superficial and hurried examination.

Such men are by no means mining engineers, nor does a knowledge of chemistry alone, or of geology alone, although good as far as they go, entitle them to the name of such. Mining engineering is as much a special branch and demands as much special study as any other profession, and mining by no means deserves to be considered the last refuge of uneducated quacks, retired sea-captains or broken-down stock-speculators.

A third class is comprised of persons who, having been at a place where a good mining school exists, therefore lay claim to be considered educated men, although they may never have attended properly a single course of lectures. We know of several in this State or adjacent Territories, who set themselves up as engineers on the strength of having resided a few months or even a few years at Freiberg, where, to our personal knowledge, they have done anything but study. As everything is expected of them, they, of course, fail to satisfy expectations, and are pointed at as proofs of the folly of a scientific education.

Again, any failure of a "scientific" person, whatever his grounds for the title, is marked and remembered, while the thousands of failures of uneducated men are passed by without comment. The mistakes in any locality of one person who has studied the theory of mining is enough to prejudice all inhabitants of that place against the whole profession, while "practical" men may go on, year after year, committing the most egregious blunders, and no deduction is drawn therefrom.

The object of a mining school is not to turn out a finished engineer. This is not claimed by any thinking man. The course of study merely enables one in a few years to learn what the *practice* of long periods of time has taught the world. Theory may be considered as the condensation of practice. A purely "practical" man knows only what he has learned by his own personal experience, which must of necessity be extremely limited. A student at Freiberg, or some similar school, has the advantages of the experience of thousands of practical men, attained from the first days of mining up to the present time. Whether he profits or not by the advantages offered, depends entirely on himself. That many of the young men do not do so, is an unfortunate fact, but one which militates against themselves personally, not against the schools.

Theory and practice must go hand in hand. The young graduate of Freiberg, who has earnestly studied his profession, comes forth rich in knowledge, which will enable him to avoid many pitfalls into which he knows a host have fallen before him. But yet he has much to learn. He has still to find out how to manage men who may be placed under his charge, still to study the financial side of the profession, still to examine the particular points in the place where he may be called upon to labor. With his many advantages, however, he is enabled to make in practical life, in a short time, those advances which uneducated men can make only in the course of years. Put him in a new position, and his reasoning powers and studies, already cultivated, will show him much more quickly the why and wherefore than is possible with a man of equal powers but of less cultivation. His proper place is at first in a subordinate position, where he may learn the details, being already acquainted with the generalities.

Practical men, so-called, are all theorists to a certain extent. We have yet to find one of these, who does not have his pet theories as well as the most "scientific" individual. Their weak point is, that their theories are generally founded on too limited experience. But we never found a successful "practical" man who did not *regret his want of theoretical education*, and acknowledge that such would have been a great help to him. What more convincing practical proof of the value of education do we need than this?

Education never hurts a man for practical life. A true student is a hard-working man, and his education leads him to ever-renewed exertions. That it unfits him for practical life, is a totally wrong idea. It is only those who are too lazy to get education, who make the loafers and "door-step roosters," as our friend of the White Pine *News*, we think, calls them.

It is our endeavor to do something towards educating the practical man, who cannot go abroad for knowledge, by bringing to his notice facts and experiences of others elsewhere. And in return he can teach us very much by giving us the result of his own experience, which we will publish for the benefit of others. By an interchange of ideas and a more general dissemination of facts, each individual is personally helped in his work. For no man can labor intelligently for any length of time without learning something, getting some education, while no man can hope to make any great progress unless guided and instructed by the lessons others have been taught. Our practical men are, and must of necessity be, educated men, to a certain extent, in this sense. Far be it from us to slander them by calling them otherwise. But rather than deduce from their success the uselessness of education, it is more reasonable to conclude that they would have been more successful in their business, had they known more about it.

* * *

HOTEL AT YOSEMITE.—A grand hotel is to be built at the Yosemite Valley, facing the Bridal Veil Falls, by a company of French and English capitalists, it is said. We do not know exactly how Messrs. Hutchings & Lamon have located their claims, but suppose that the hotel will be on their land, if their title is affirmed.

* * *

THERE is a bill being considered by Congress for the construction, preservation and repair of fortifications. For this purpose it is proposed to appropriate $1,264,000, and of this amount to apply $250,000 for the forts on our bay.

THE NEW BRANCH MINT.—On Wednesday the corner-stone of the new mint was laid with appropriate ceremonies, under the auspices of the M. W. Grand Lodge of Free and Accepted Masons, in the presence of a large number of people. The oration was delivered by Judge J. H. Hardy. There was singing by a chorus of male voices, and the bands of the 12th and of the 2d artillery furnished instrumental music. The following are the names of the persons connected with the erection of the building, as contained in the list placed in the casket with other articles: Hon. George S. Boutwell, Secretary of the Treasury; Hon. Alfred B. Mullett, Supervising Architect Treasury Department; Hon. J. C. Rankin, Assistant Supervising Architect; W. P. C. Stebbins, Superintendent; Henry Baker, Clerk; Henry Eagles, Master Mechanic; John Higgings and Francis Lorondes, Contractors for Excavation; James McDevitt, Contractor for Rock and Concrete; J. C. Tobin, L. P. Myers & Co., Griffith & Co., and James Emery, Contractors for Stone; W. S. Phelps & Co., Blacksmiths; Hanscom & Co., Foundrymen, Pacific Rolling Mills Company; Thos. H. Selby & Co., Iron; G. Healy & Co., Stonecutters; Chas. C. Bromau, Sand.

* * *

THE STOCKTON SHIP CANAL.—A company has been organized to undertake the construction of this canal, which is to connect Stockton with the San Joaquin river at Venice. This is to be 14½ miles long, 150 feet wide at the top and 70 feet at the bottom, and 25 feet deep. The estimated cost of the excavation is about $1,700,000. The scheme embraces the reclamation of some 25,000 acres of swamp land; the leasing or cultivation of land acquired along the route; the building of docks, wharves and warehouses; and the maintenance of a tug-boat service. It is hoped to get aid by the private grants of land to the amount of ten to twenty thousand acres, and foreign capital will be invited to subscribe. The capital stock is fixed at $3,500,000. The Directors are: William Henry Knight (the originator of the canal project), President; Captain Thomas K. Hook, Vice-President; Charles G. Hubner, Treasurer; H. H. Bancroft and Samuel Eldridge.

* * *

COAL OIL EXPLOSION.—By the upsetting of a coal-oil lamp on the 20th inst. two young ladies of this city were so fatally injured that they died soon after. A sample of the oil has been assayed by the State Assayer, Mr. Louis Falkenau, and declared extremely dangerous, giving off inflammable vapors at 84° Fah., whereas all such oils evolving the vapors at a temperature below 100° are unfit for use. Coal-oil explosions are becoming fearfully frequent, owing to the adulterations with other dangerous mixtures. The manufacturers of these murderous compounds deserve to be tried for manslaughter. The purchaser, who buys the article for use, cannot be expected to test it, but must rely on the honesty of the seller. To allow one's greed for money to endanger the lives of people is dastardly and criminal in the highest degree.

* * *

PROPOSED RAILROAD TO HAMILTON.—Our wide-awake neighbors at White Pine held a large and enthusiastic meeting last Saturday for the purpose of taking steps towards the building of a railroad to connect that district with some point on the Central Pacific Road. A committee of six was chosen to collect and report statistics, showing the amount and kinds of freights incoming and outgoing from this and the adjoining districts.

* * *

THE WOOLEN MILLS.—It is stated that a large portion of the stock of the new woolen mills, to be erected at the Potrero, has already been taken. Great confidence is felt in the concern, which will be under the able superintendence of Mr. D. McLennan, the founder of the woolen business on this coast.

Manufacturing Spoked Wheels.

The use of iron-hubbed wheels is continually increasing, and their advantages over those with wooden hubs are being generally recognized. Especially valuable is the iron hub in our climate, and we see that it is becoming quite popular among farmers and others who have occasion to use heavy wagons. A manufacturer who, several years ago, did considerable business in this State, had his attention called to this point, and has constructed a machine for the purpose of improving the manufacture of this class of spoked wheels; and we illustrate the device as an invention of value to our coast.

The machine occupies space on two floors. At equal distances around a strong circular plate of cast iron, placed horizontally, are a number of levers, B, equal to the number of spokes to be set in the wheel, and fastened securely to the plate. The short arms of the levers, which extend towards the center, are formed into cams, which act upon sliding pins of cast iron, moving freely in a radial direction in guides. When these short arms are lowered, the pins can easily be pressed outward; when the arms are raised, the pins are thereby pressed inward, and the spokes of the wheel, which is shown in the cut, are firmly forced into place.

The longer arms of the lever are worked by means of wrought-iron rods, C, which converge downwards to a central column, D. On this column is cut a screw, on which works a nut, E, whereby the levers are all raised or lowered simultaneously, with any required power. This nut is moved by means of beveled gears and a belt with fast and loose pulleys. These, in connection with a shipper, F, and shipping rod, G, are so arranged that by throwing the belt automatically at the proper time on and off a loose pulley the motion of the nut and levers is stopped and reversed.

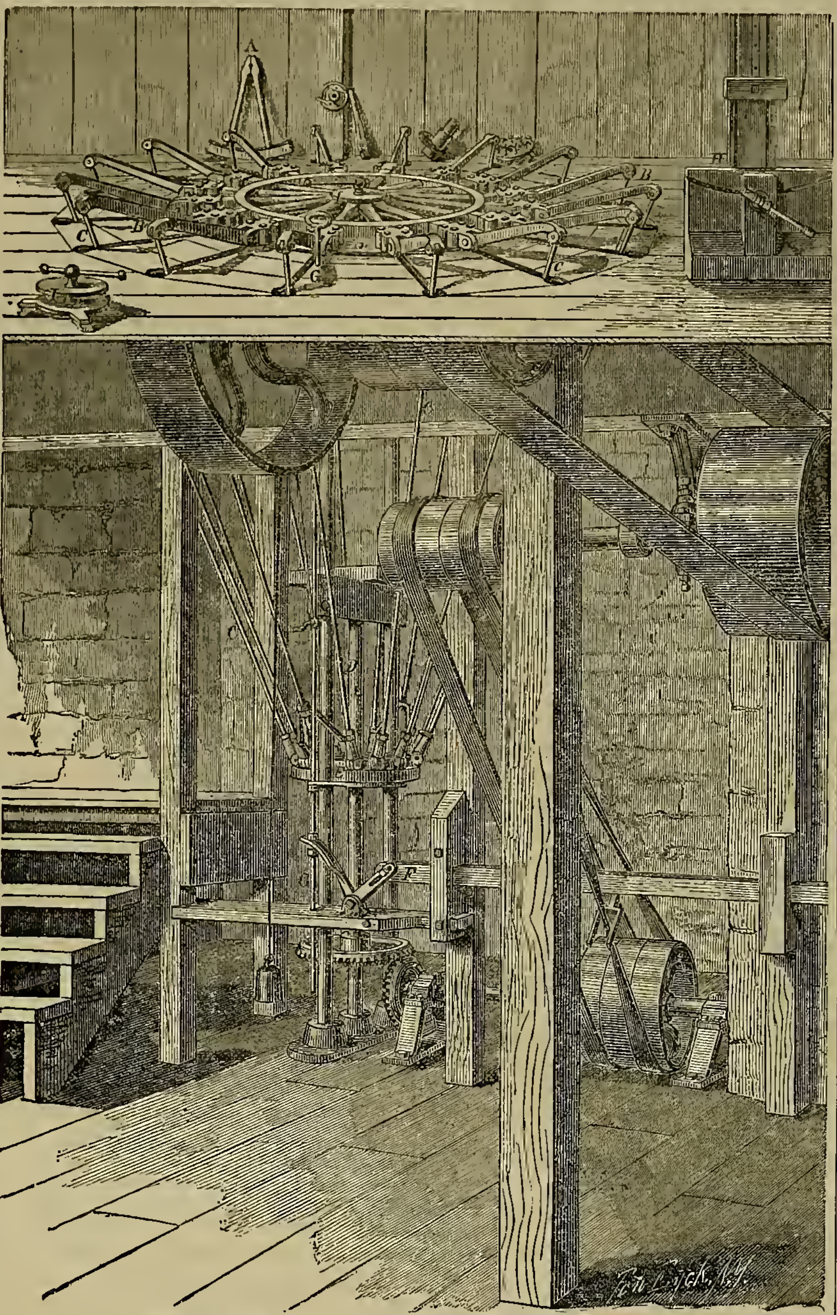
The fellies and spokes, which have been shaped and finished by machinery, are first put together by driving two spokes into a felly, one at a time, the felly being firmly held by a vise, H, specially constructed to prevent the splitting of the felly or the twisting of the spoke. Eight fellies with their sixteen spokes are then placed in the press, and here temporary hub-plates, I, one above and one below, with a powerful screw in their center, hold the ends of all the spokes in the plane of the circular plate, while undergoing the press of the levers. This pressure is put on till the joints of the fellies close up, its extent being ascertained by marks made previously and subsequently. The hubs are firmly bolted together while the wheel is in the press and hold the spokes securely. The fellies spring apart a little, but only a little; and this is remedied by the tire.

The great point is the thorough compactness of the hub-end of the spoke in a wheel made in this manner. Moreover, by using a much greater pressure than the wheel will ever be subjected to in practice, the spoke and felly are so compacted that, if the tire is properly set, it will remain tight until worn out, it is claimed. The whole process is so simple that a workman can learn in a very short time to operate the machine, and one man with an assistant can easily put together six sets of four wheels each in from six to seven hours.

With wooden hubs the spokes are weakened at the hub, where they need to be strongest, while with iron hubs this is reversed. A wheel made on this plan can be subjected to any required pressure, will [illegible] it is claimed, and is turned out perfectly round and true. We see no reasons why such wheels should not prove very superior in our State, with our long seasons of continued wet and of continued dry weather, and where often the wagons are left out the whole time in the open air.

We learn that Messrs. Treadwell & Co., of this city, have these wheels, which may be seen on Hoadley's portable engine, and have ordered a large lot of engine wagons from the inventor, who says that his process lessens the cost of manufacture over fifty per cent.

Any communications with regard to obtaining further particulars may be addressed to the patentee, E. A. Archibald, Methuen, Mass.



MACHINE FOR THE MANUFACTURE OF IRON-HUB WHEELS.

* * *

Last December a party left this city for Cocos Island to get possession of a hidden treasure which their guide knew all about. Having performed a large amount of labor in digging up the earth for seventeen days, they lost confidence in their conductor, and have now returned. Having become accustomed to handle the shovel, they have received at least this much benefit from their trip.

* * *

An Important Move.—The *National Gazette* of Nevada City has been informed that the immense slide on the claim of Mr. Ashburne, of Scotch Flat, is still moving forward as regularly as a glacier. The mass thus moving is about 2,000 feet long by 500 feet wide; depth unknown. The moving mass occupies about twenty-four [illegible]

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending May 17th.

Thorough-Brace Spring.—John Goller, Los Angeles, Cal.
Manufacture of Illuminating Gas.—Edmund P. McCarthy, San Francisco, Cal.
Breech-Loading Ordnance.—Abiather Fales Potter, San Francisco, Cal.
Machine for Jointing Staves.—John Westley Alesworth, Santa Cruz, Cal.
Anchor.—Albert H. Law, San Francisco, Cal.
Frame for Street Lamps, Etc.—Jacob Radston, San Francisco, Cal.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

* * *

Gold Saving Apparatus.—The Grass Valley *Union* speaks of two recent inventions, now being tried at that place, for saving the gold in the sand which is ordinarily allowed to run into the creek. One is described as being the application of millstones to this purpose, and is said to work very well, saving large amounts of the precious metal which have been previously thrown away. We are glad to see that more attention is being given in this direction. There is nothing new, however, in using millstones for pulverizing ore.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Improved Anchor.—A. H. Law, S. F. This improvement relates to that class of anchors in which the arms or flukes revolve simultaneously from side to side of the shank, turning in the crown piece or end of the shank. It consists, first, in an improved device for stopping the revolutions of the flukes when they have turned to the proper position for taking hold of the ground; secondly, in constructing the shank in two pieces and joining them together; thirdly, in an improved construction of the flukes or holding palms. The arrangement permits the flukes to take a deeper hold on the ground by shortening the length of the shank; and when the strain is on the cable it will stand at an angle to the shank and consequently give a downward pull on the flukes and not a lifting pull, as is the case where a solid shank is used. There is an arrangement of chains which serves to hold upon the main portion of the anchor, in case the bolt, uniting the two shank pieces, should break, and to prevent the vessel from being turned loose. There are links constructed so as to serve in securing the anchor to the cat-head, as a means of raising it to a more convenient position; and the danger of fouling is avoided, as there are no projections to hinder the free movement of the cable.

Manufacture of Illuminating Gas.—E. P. McCarthy, S. F.—This subject is attracting much attention at the present time, being one of great interest to almost every person in our country. The present device relates to certain improvements in the manufacture of gas from crude petroleum and other hydro-carbon oils, by which the inventor claims to be able to produce a gas of superior illuminating qualities and to obtain practically the best results from a given quantity of the crude material. By it nearly all the condensed bituminous vapors, which form tar in the ordinary process, are converted into a gas which produces a light equal to 46 74-100 candles. The advantages, then, are very important in an economical point of view. By increasing the brilliancy of the light and utilizing so much of the material used, not only are the direct results of great value, but also the indirect results. Thus there being but little refuse, the labor of cleaning out the retorts is rendered much less, and there are many other similar advantages which will readily suggest themselves to the mind of the manufacturer of the articles.

* * *

A New Concentrator.—The Central City (Colorado) *Register* gives the following description (which is rather too concise for a good understanding of the machine) of a concentrator recently devised by C. Hawley of that place: The machine is simply a wooden cylinder lined with India-rubber cloth, and rests upon and is revolved by friction rollers. The pulp from the stamps, well diluted, is fed into the cylinder a little above its lowest point. The machine revolves away from the pulp, with the effect that the pyrites settle upon the rubber and sticking to it, are carried away from the sand. When fairly away, doors in its periphery are opened automatically and the heavy particles are washed through by fresh water, and fall on the outside. The whole machine is very simple, and of comparatively slight cost. We were shown concentrations that compare favorably with the best from automatic machines, and show a saving of much finer iron than the common buddle will allow.

* * *

Illustrations on Hand.—Illustrations of the following will appear in the Press in due season: Shaw & Justice's dead-stroke hammer; Henderson's patent direct-action steam pump; patent double-action force pump; combined balance wheel, steam pump and steam engine; new boiler feeder; deep well and mine pump; Solomon Barber's device for steaming rovings; P. C. Ball & Co's rail-car mortising machine [illegible]

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.

No. 612 MERCHANT STREET. 5v20-3m

J. S. PHILLIPS. M. E.,
CONSULTING ENGINEER

Examiner of Mines, etc.,

423 Washington street.............................San Francisc (Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

JAMES M. TAYLOR,
Attorney and Counsellor at Law,

Court Block, 636 Clay Street

SAN FRANCISCO.

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to

540 Washington street,

East of Montgomery.

Surveying Instruments made, repaired and adjusted 22v17-3m

GILES H. GRAY. JAMES M. HAVEN.

GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,

In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,

27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,

Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

DR. D. T. MORGAN'S
Eye Infirmary,

REMOVED TO

526 Kearny Street, San Francisco.

All Surgical Operations on the Eye skillfully performed. Pieces of Steel or other substances removed with care. Granulate Eye-lids, and Inflammation of the Eyes cured speedily and permanently. Opacities of the Cornea, from all causes, successfully treated.

REFERENCES.—Rev. J. E. Barnes, Silveyville; Wm. Dillon, Vancouver, Oregon; Ira Collier, Santa Rosa; Dr. James Stone, Sebastopol; Wm. H. Haskell, 712 Market street; B. Ernst Tittel, Samuel R. Dyer, David Kanary, San Francisco; John Kerr, Davisville; John Dixon, Reno, Nevada. 9v20-3m

Dr. J. H. PAINE, Dentist,

Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,
DENTIST.

OFFICE, 313 BUSH STREET, NEAR MONTGOMERY.

Is a regular graduate, with twenty years experience in practice. 14v20-3m

DR. MABON,
ORTHOPÆDIST,

(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the

MOST EFFICACIOUS INSTRUMENT

Yet invented for the cure of

RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment.

Office, No. 128 Kearny Street, near Sutter,

SAN FRANCISCO. 11v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,

No. 430 Montgomery Street,

SAN FRANCISCO. 16v19-qy

C. B. FETY,
SEAL ENGRAVER

AND LETTER CUTTER.

Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 CLAY STREET, bet. Kearny and Montgomery, San Francisco. 11v203-m

Farmers and Mechanics
BANK OF SAVINGS,

No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.

H. DUTTON, President.

GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.

N. GRAY & CO.,
UNDERTAKERS,

641 Sacramento St., cor. Webb, San Francisco.

☞ Sole Agents for Barstow's Metallic Burial Cases and Caskets. 25v14tf

THE GIANT
POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 25v19

J. HOOVER,
PUBLISHER,

And Wholesale Dealer in

Fine Chromos and Lithographs.

The Largest Assortment in Philadelphia.

WHOLESALE DEPOT:

No. 804 Market Street, Philadelphia, Penn.

9v20-6m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.

BARTLING & KIMBALL,
BOOKBINDERS,

Paper Rulers and Blank Book Manufacturers.

505 Clay street, (southwest cor. Sansome),

15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry,

S. E. Corner of Mission and Fremont sts.,

6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,

Manufacturers of Boxes,

Market Street, bet. Beale and Main.

For sale—Mahogany, Spanish Cedar, and other Woods.

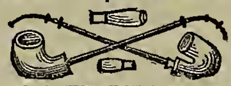
J. F. PAGES,
SEAL ENGRAVER,

AND LETTER CUTTER.

Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER

Meerschaum Pipe Manufacturer,



No. 341 KEARNY STREET,

Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

H. G. STILLEY,
PLANE MAKER.

PLANES of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 BELDEN PLACE (near Bush street), below Kearny, San Francisco. 11v20-3m

D. BOYLE. JOHN BENN. M. BURKE.

AMERICAN MILLS,
Nos. 30 and 32 California Street.

Job work of all kinds in the Drug and Spice Line promptly attended to.

SECOND DEPARTMENT.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,

26 611 and 613 Front street.

F. SCHOENER,
METAL SPINNER.

All kinds of Metal spun to order. Give me a call at No. 10 STEVENSON STREET, fourth story Pioneer Mills. 14v20-3m

NOTICE.

HYDRAULIC HOSE MANUFACTORY.
Hose made to stand any pressure—from 100 to 300 foot fall. Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

A. J. HAIGHT,
Gold Pen Manufacturer,

315 Montgomery Street,

Room No. 16, up stairs, San Francisco.

GOLD PENS REPAIRED. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

SAN FRANCISCO
PIONEER SCREEN WORKS,

JOHN W. QUICK,

No. 203 Fremont Street, near Howard.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 25v19-3m

California File Manuf'g Co.
437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J. BURKE.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

M. M. COOK. H. N. COOK.

M. M. COOK & SON,
MANUFACTURERS OF

LEATHER HOSE,

Belting, and Horse Collars,

801 Battery street, Corner Broadway,

SAN FRANCISCO.

☞ Belt Leather for sale. 26v19-3m

OSCAR LEWIS. J. H. CULVER.

LEWIS & CULVER,
Pattern and Model Makers

20 Fremont street, over Phœnix Iron Works.

Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

"ENTERPRISE"
SAWING AND PLANING MILL.

D. A. MACDONALD, J. H. MACDONALD,
JOSEPH MCGILL, H. CHAPMAN.

D. A. MACDONALD & CO.,

Manufacturers of DOORS, SASHES, BLINDS AND MOULDINGS, 217 to 225 Spear street, and 218 to 226 Steuart street, between Howard and Folsom, San Francisco. ☞ Finishing Work for buildings constantly on hand and got up to order. 20v20-3m

Metallurgy and Ores.

A. T. GREEN,
COMMISSION MERCHANT,

No. 3 Front Street. San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

MORRIS & WHITE,
Practical Assayers and Metallurgists,

No. 30 and 36 Fremont Street,

SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.

☞ Gold and Silver Ores and Sulphurets bought. 12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET,

One door west of Montgomery.

H. H. LAWRENCE.............................Manager.
J. A. MARS..Assayer.

Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.

G. W. STRONG & CO.,
Metallurgical Works,

No. 10 Stevenson Street, near First.

Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

W. T. ATWOOD,
PURCHASER OF

COPPER ORES, BARS, MATT, Etc., Etc.,

505 Montgomery street, San Francisco.

The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

CRUCIBLES! CRUCIBLES!
EUGENE DE SABLA,

COMMISSION MERCHANT,

AND SOLE AGENT FOR

J. H. GAUTIER & CO'S CELEBRATED

American Blacklead Crucibles,

No. 310 DAVIS STREET,

SAN FRANCISCO. 20v20-3m

DR. F. SCHULTZ,

NO. 114 KEARNY STREET,

SAN FRANCISCO.

OFFICE HOURS—From 8 to 11 A. M. and from 2 to 6 P. M,

PARTICULAR ATTENTION GIVEN TO

SORE EYES, NEURALGIA,

RUNNING SORES AND RHEUMATISM.

16v20-3m

H. S. CROCKER & CO.,
Importing Stationers,

DEALERS IN

BLANK BOOKS,

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM

PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

The California Powder Works
No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

PURIFY your Blood with Hall's Sarsaparilla, Yellow Dock and Iodide of Potass, the best Spring Medicine in use. For sale by all Druggists.

MITCHELL & BELL
Carpet Dealers
606 Clay St.

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞ Can compete in prices with any other dealer. 11v20-3m

THE CALIFORNIA
Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:

JAMES T. DEAN.......................................President.
JAMES MILBURN.....................................Secretary.
RODGERS, MEYER & CO..........................Treasurers.

Company's office, 121 POST STREET, San Francisco.

12v20-3m

Carmen Island Salt Works
MANUFACTURE AND OFFER FOR SALE

TABLE, DAIRY. COARSE-FINE,

CARMEN ISLAND ROCK,

AND LIVERPOOL COARSE AND FINE

SALT.

Dealers and Packers supplied in quantities to suit, at the lowest market prices.

MILL, 249 STEWART STREET.

HOLLADAY & BRENHAM, Agents,

11v20-3m 325 Front Street, San Francisco.

THE FIREMAN'S FUND INSURANCE COMPANY.

OFFICE,
S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL	$500,000 00
SURPLUS	267,115 63
TOTAL ASSETS	$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.
13v20-3m

OCCIDENTAL Insurance Company

OF SAN FRANCISCO.

Cash Capital, - - - - - - - $300,000
GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 20v17

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2.500 secured for $6.

HOWARD & HOWE,
General Agents for the Pacific Coast.
No. 338 Montgomery street, corner California, Room 7.
☞Agents Wanted.☜ 14v20-3m

Pacific Bank.

PETER H. BURNETT	President.
FORD H. ROGERS	Cashier.

REMOVED

To its new Banking House, northwest corner of Sansome and Pine streets.

O. P. SUTTON, Secretary.
San Francisco, March 30, 1870. 15v20-3m

SOMETHING NEW

— FOR —

MINERS AND FAMILIES.

EAKINS' EGG SUBSTITUTE.

One Can equal to three dozen Eggs,

And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.

Price, 35 Cents per Can.

MANUFACTURED BY ADAMS & CO.,
423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

---

WONDERFUL Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor: I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years You are quite at liberty to use this intimation as you please. Yours truly,

John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 19v20-2m

---

Scientific Press.—Dewey & Co. are the publishers of this sterling paper It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican*.

By authority of a Special Act of the Legislature of the State of California, approved February 19, 1870, the Trustees of the Mercantile Library Association have the pleasure to announce that a

GRAND GIFT CONCERT

IN AID OF THE

Mercantile Library Association

— WILL BE GIVEN AT THE —

MECHANICS' PAVILION,

SAN FRANCISCO, CAL.,

THURSDAY, SEPTEMBER 1st, 1870,

Under the direction of Distinguished Artists, and embracing selections from the most Favorite Masters. Programme of Concert to be hereafter announced.

Tickets of Admission, $5 Each, Gold Coin

Each Ticket consists of Five Coupons. The holder of a whole Ticket, or five coupons, will be entitled to admission to the Concert, and to the whole amount of the Gift awarded to it. The holder of each coupon will be entitled to admission to the Concert, and to one-fifth of any gift that may be awarded to such ticket.

To provide funds for this MAGNIFICENT ENTERTAINMENT,

200,000 Tickets will be Sold

At Five Dollars Each, Gold Coin.

TREASURER.......THE BANK OF CALIFORNIA.

During the Entertainment, the sum of

$500,000, U. S. Gold Coin,

Will be returned to the holders of tickets by the distribution, by chance, of the following

GIFTS:

1 Gift of	$100,000,	Gold
1 Gift of	50,000	"
1 Gift of	25,000	"
1 Gift of	20,000	"
1 Gift of	19,000	"
1 Gift of	18,000	"
1 Gift of	17,000	"
1 Gift of	16,000	"
1 Gift of	15,000	"
1 Gift of	14,000	"
1 Gift of	13,000	"
1 Gift of	12,000	"
1 Gift of	11,000	"
1 Gift of	10,000	"
1 Gift of	9,000	"
1 Gift of	8,000	"
1 Gift of	7,000	"
1 Gift of	6,000	"
1 Gift of	5,000	"
1 Gift of	4,000	"
1 Gift of	3,000	"
1 Gift of	2,000	"
1 Gift of	1,500	"
10 Gifts of $1,000 each	10,000	"
20 Gifts of $750 each	15,000	"
20 Gifts of $500 each	10,000	"
30 Gifts of $400 each	12,000	"
50 Gifts of $300 each	15,000	"
50 Gifts of $200 each	10,000	"
425 Gifts of $100 each	42,500	"
628 Gifts in all	$500,000	

After paying the expenses of the entertainment, and making the distribution of the gifts as above announced, the balance will be applied to extinguishing the present indebtedness of the Mercantile Library Association.

The Concert and Distribution will take place under the immediate direction of the Board of Trustees of the Mercantile Library Association, assisted by a Supervisory Committee, selected from State, City and County Officers and well-known citizens of San Francisco.

Holders of Tickets to which Gifts may be awarded, will receive the same on presentation of such Tickets or Coupons to the Business Agents of the Board of Trustees, at their office,

No. 318 California Street, San Francisco.

Orders for Tickets, post paid, accompanied by remittances, will meet with prompt attention.

Tickets for Sale June 1, 1870, only at the Office.

The Trustees have appointed MAURICE DORE and CHARLES R. PETERS, 318 California street, Business Agents for the sale of the Tickets and for the transaction of all business connected with the Entertainment, to whom all communications may be addressed.

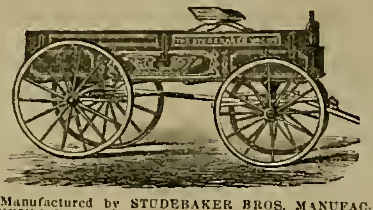
ROBERT SWAIN, President M. L. A.
WM. C. RALSTON, Treasurer "
W. H. L. BARNES, Vice-Pres. "
THOS R. HAYES, Rec. Sec'y "
DAVID WILDER, Cor Sec'y "

Trustees M. L. A.—Wm. Ashburner, Isaac Wormser, J. M. McNulty, Alfred P. Elfelt, Arthur M. Ebbets, Wm. G. Badger, Wm. E. Wood, F. B. Reynolds, Samuel Hubbard.

☞ NOTICE TO MECHANICS.—A premium of $500 will be given for the best model of two Wheels of Glass and Iron, for this distribution. The Trustees reserve the right to reject any and all models.

POST OFFICE BOX, 1089.

The Celebrated Studebaker Wagon,



Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

First.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover.

Second.—They are made by experienced mechanics.

Third.—The lightest running and most durable Wagon in the market.

Fourth.—Their Thimble Skeins never break, while all others do.

Fifth.—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not

Sixth.—The only Wagon in which the Slope Shoulder Spoke is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying.

Seventh.—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction.

Eighth.—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road.

Ninth.—Last, but not least, Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others. Sold by

COPELAND & DEFREES,
K street, bet. Seventh and Eighth,
SACRAMENTO, CAL.

☞ Pioneer Agents for the Pacific Coast. 15v20-3m

AMES & WOOLVERTON,

General Agents for the Pacific Coast

FOR THE CELEBRATED

STUDEBAKER Farm and Team Wagons,

Manufactured at South Bend, Indiana.

OFFICE AND GENERAL DEPOT
— WITH —
THE KIMBALL MANUFACTURING CO.,
SAN FRANCISCO, CAL.

☞Orders and correspondence solicited. 15v20-3m

E. A. ARCHIBALD,

MANUFACTURER OF

Cast Iron Hubbed Wheels,

BY HIS PATENT PRESS PROCESS.

— ALSO —

Axles and Team Wagons of every Description.

METHUEN, MASS.

Particular attention given to Wheels for Portable and Fire Engines.

All my Wheels have my name cast on the hub, and are made by my Patent Press Process. By this new method the wheel is so compressed in every part that shrinkage or yielding of the part with all its attendant evils is wholly obviated, even in the driest climate. Any one understanding my process will be convinced of this. ☞Send for illustrated circular.

20v20 E. A. ARCHIBALD.

BULL'S HEAD STOCK MARKET,

JUNCTION OF

Hayes, Ninth and Market Streets.
SAN FRANCISCO.

H. B. PURDY & CO.,

— DEALERS IN —

CATTLE AND HORSES.

Work Oxen always on hand.

WAGONS AND HARNESS BOUGHT AND SOLD ON COMMISSION.

☞ Good Barns, Sheds, Corrals, and all other necessary accommodations. 21v60-3m

---

San Pascual Plantation,

NEAR LOS ANGELES.

For the Cultivation of Raisins, Semi-Tropical Fruits, etc.

FOUR THOUSAND SHARES AT $50 EACH.

Ten Dollars to be paid at date of subscription, and $5 per year afterwards till paid.

Maps, etc., furnished at the office, 344 Montgomery street. 18v20-1w

---

ICE. ICE.

On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.

AMERICAN RUSSIAN COMMERCIAL CO.
D. E. Martin, Superintendent,
16v20-qy 714 and 716 Battery street.

WHOLESALE DEALERS IN

DRUGS, CHEMICALS,

Patent Medicines,

DRUGGISTS' SUNDRIES

TILDEN & CO'S

SOLID AND FLUID EXTRACTS,

Machine Oils, Paints, Acids,

In short, a complete stock of such goods as are usually kept at first-class Drug Stores, which we propose to sell at such low prices as to defy competition. Dealers are invited to send orders or call in person and judge for themselves.

R. H. McDONALD & CO.,
Cor. Pine and Sansome streets,
San Francisco.

SAPOINE

FRAGRANT SAPOINE FOR THE TEETH

THE GREAT MEDICAL DISCOVERY!

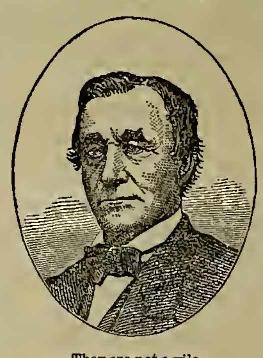
Dr. J. Walker's California

VINEGAR BITTERS.

More than 500,000 Persons

Bear testimony to their wonderful Curative Effects.

WHAT ARE THEY?



FOR FEMALE COMPLAINTS, whether in young or old, married or single, at the dawn of womanhood or the turn of life, these Tonic Bitters display so decided an influence that a marked improvement is soon perceptible in the health of the patient. PIN TAPE, and other WORMS, lurking in the system of so many thousands, are effectually destroyed and removed. ☞ Send for a Circular.

They are not a vile

FANCY DRINK,

Made of Poor Rum, Whiskey, Proof Spirits, and Refuse Liquor, doctored, spiced, and sweetened to please the taste, called "Tonics," "Appetizers," "Restorers," etc., that lead the tippler on to drunkenness and ruin, but are a true Medicine, made from the native roots and herbs of California, free from all alcoholic stimulants. They are the GREAT BLOOD-PURIFIER and LIFE-GIVING PRINCIPLE, a perfect Renovator and Invigorator of the System, carrying off all poisonous matter, and restoring the blood to a healthy condition No person can take these Bitters according to directions and remain long unwell.

They are a gentle Purgative as well as a Tonic, possessing, also, the peculiar merit of acting as a powerful agent in relieving Congestion or Inflammation of the Liver, and all the Visceral Organs. In Bilious, Remittent and Intermittent Fevers, these Bitters have no equal. For full directions, read carefully the circular around each bottle, printed in four languages—English, German, French and Spanish.

One Hundred Dollars will be given for an incurable case, provided the bones are not destroyed by mineral poisons or other means, and the vital organs wasted beyond the point of repair.

For Inflammatory and Chronic Rheumatism, and Gout, Dyspepsia or Indigestion, Bilious, Remittent and Intermittent Fevers, Diseases of the Blood, Liver, Kidneys and Bladder, these Bitters have been most successful. Such Diseases are caused by Vitiated Blood, which is generally produced by derangement of the Digestive Organs.

Cleanse the Vitiated Blood whenever you find its impurities bursting through the skin in Pimples, Eruptions or Sores; cleanse it when you find it obstructed and sluggish in the veins; cleanse it when it is foul, and your feelings will tell you when. Keep the Blood pure and the health of the system will follow.

J. WALKER, Proprietor.

R. H. McDONALD & CO.,
Druggists and General Agents, corner Pine and Sansome streets, San Francisco, Cal., and 32 and 34 Commerce street, New York. 10v20-12t

☞ SOLD BY ALL DRUGGISTS AND DEALERS.

Reading for the Hour.

Singular Climatic Effects.

Fruits grown in the temperate, if transferred to the torrid zone, generally become evergreens, and, for want of their natural winter repose, cannot bring their fruit to perfection. For this reason the apple, peach, plum, grape, etc., cannot be produced in tropical climates. The orange, lemon, banana, etc., are evergreens, and are capable of showing blossoms, and fruit in every stage of growth, at all seasons of the year; they do not require rest—in fact, rest seriously interferes with their existence, and absolute rest, whether accompanied with excessive cold or not, is certain death to them.

The peculiarity mentioned with regard to northern fruits has been overcome, to some extent, with certain kinds, especially with the grape, by laying its roots bare at certain seasons, and exposing them to the strong heat of the sun. This process arrests the circulation of the sap, by which an artificial repose is secured, and two crops of grapes are thus produced each year in a tropical climate.

Little effort has been made to improve indigenous fruits in the torrid zone; but the few experiments that *have* been made, go to prove that much might be accomplished in this direction by intelligent culture. Very little, comparatively, is yet known with regard to the wide adaptability of vegetable products of all kinds, when scientifically treated. California seems to be an appropriate field for such experiments, and we doubt not important advances will be made here within the next twenty years in this interesting department of horticulture.

Chinese Immigration.—A few days ago the heads of the six Chinese companies in this city held a meeting and prepared a circular for distribution throughout China, with a view to stop Chinese immigration to this State. They state that California no longer offers such inducements as formerly, that the placer mines do not repay the labors of those engaged in working them, that there are more here now than can find work to do, and hence many are suffering, and that their people are not respected, but are exposed to violence. Hence they deprecate the policy of sending any more emigrants hither. They add that the Chinese women who have come here have only disgraced their land and they advise all females to remain at home.

A Specimen.—One of those humbugs who roam about the mining districts with loosely-hinged tongues, and by setting up as "scientific" doctors and professors, bring real science into disrepute, is thus feelingly spoken of by the Central City (Colorado) *Register:* In the "note" which follows, all the old residents about Black Hawk will recognize a certain double-thumbed professor of the gold-saving art, one of the first of the line of benefactore in that field. Speaking of the difficulty of saving the gold in the Running lode ore, he said: "The particlee of gold are coated with the gas of lead, and cannot be amalgamated without reduction to a palatable powdor, and not even then without the application of hydraulic and secetic acids."

Arrivals from the East.—We are having a large influx of Eastern visitors, some of whom come to expend their money here and others to take away a part of what we possess. Among the more important of the latter class, now here or expected, may be mentioned Adelaide Phillips, Levy—the cornet player—and Bayard Taylor. P. T. Barnum is here to humbug us, and Major-General-Rear-Admiral Jimmy Fisk is coming to look at our city, and, if satisfied, to buy it.

Sacramento is going to have a street railroad.

Ants at Play.

It is not generally known that some of the smallest insects enjoy themselves in sports and amusements, after their ordinary toils, or, satiating themselves with food, just as regularly as is the case with many human beings. They run races, wrestle with each other, and, out of fun, carry each other on their backs, much in the same manner as boys. These pleasing characteristics are particularly observable among ants, which are remarkable for their sagacity.

Bonnet, a French author, says he observed a small species of ants which, in the intervals of their industry, employed themselves in carrying each other on their backs, the rider holding with his mandibles the neck of his bearer, and embracing it closely with his legs. Gould, another writer on ants, mentions that he has often witnessed these exercises, and says, that in all cases, after being carried a certain length, the ant was let go in a friendly manner, and received no personal injury. This amusement is often repeated, particularly among the hill ants, who are very fond of this sportive exercise. It was among the same species that Huber observed similar proceedings, which he has described with his usual minuteness.

"I approached," he says, "one day to the formicary of wood ants, exposed to the sun, and sheltered from the north. The ants were heaped upon one another in great numbers, and appeared to enjoy the temperature on the surface of the nest. None of them were at work; and the immense multitude of insects presented the appearance of a liquid in a state of ebullition, upon which the eye could scarcely be fixed without difficulty; but when I examined the conduct of each ant, I saw them approach one another, moving their antennæ with astonishing rapidity, while they patted, with a slight movement, the cheeks of other ants. After these preliminary gestures, which resembled caressing, they were observed to raise themselves upright on their hind lege by pairs, struggle together, seize each other by a mandible, foot, or antennæ, and then immediately relax their hold to recommence the attack.

They fastened upon each others shoulders, embraced and overthrew each other, then raised themselves by turns, taking their revenge without producing any serious mischief. They did not spurt out their venom as in their combats, nor retain their opponents with that obstinacy which we observed in their real quarrels. They presently abandoned those which they had first seized and endeavored to catch others. In one place two ants appeared to be gamboling about a stalk of grass; turning alternately to avoid or seize each other, which brought to recollection the sport and pastime of young dogs, when they rise on their hind legs, attempting to bite, overthrow, and seize each other, without once closing their teeth."

Origin of the Guinea.—It is among the things generally known that the guinea obtained its name from the gold from which it was made having been brought from the Guinea coast by the African company of traders. The first notice of this gold was in 1649, during the Commonwealth of England, when on the 14th of April of that year the Parliament referred to the Council of State a paper presented to the House concerning the coinage of gold brought in a ship lately from *Guiny*, for the better advancing of trade. But it was in the reign of Charles II. that the name was given to this coin. It is among things *not* generally known that, when the guinea was originally coined, the intention was to make it current as a 20-shilling piece; but from an error, or rather a series of errors, in calculating the exact proportions of the value of gold and silver, it never circulated for that value. Sir Isaac Newton, in his time, fixed the true value of the guinea, in relation to silver, at 20s. 6d., and by his advice the Crown proclaimed that for the future it should be current at 21s. A curious question arises out of the fact alluded to: How many millions of money has the English public lost by the payment of a guinea when a 20-shilling piece would have sufficed had the costly error never have been fallen into? *Exchange.*

Fenian Raid.—If the telegraphic suspicions are correct, the Fenians are moving in armed bands towarde the frontiers of Canada. The President has issued a proclamation warning citizens of the United States against the commission of overt acts against a friendly power.

When is a Farmer Rich?

Somebody answers the above question as follows: "The best evidence that a farmer is rich will be a pleasant bedroom in his house, containing a spare bed; and there will be such conveniences that the guest will come out ready for the breakfast-table. This room not only represents several thousand dollars, but also good furniture, carpets, and shade in summer. In most families this room is not obtained before the oldest girl has had a beau, or the oldest boy gets the mitten. Moreover, the folks have early cucumbers; and, from July till frost, sweet corn. Every morning the fire is built of dry wood; twice a day, the year round, there is milk to strain; the horses are not heard stamping in the night; the hogs cannot run; nobody eats poor butter, or drinks coffee without cream; pickles are taken out of cider vinegar; if a child has a sore throat, there is no running to a neighbor's for honey; even in September, a few hens are kind enough to lay; if the old man suddenly starts for the country seat, a package of cake and cheese is handed him, and he does not mutter because a clean shirt is not ready; in May, some apples can be found in the bottoms of barrels, and in August, there is lard in crocks and pork in the brine. After breakfast, the father will be likely to read a chapter in the Bible, and then bow before the Creator, confessing His tender mercies.

We care not how many fat cattle a farmer may have, nor how many dairy cows; nor hogs, in a yard four rails high, fed with whey and bran from barrels which steam in the sun; nor how many acres running off toward a river; nor how many thousand dollars are at interest; nor how much folks may stand aside when he goes into the store; if there is not a spare bed in his house, he is a poor man.

The Aldine Press.—The number of more or less praiseworthy art-journals, which are brought to the notice of the public is large. We do not ever remember, however, to have seen any superior production to the *Aldine Press*, published by Sutton, Browne & Co., 23 Liberty street, New York. In fact, we may say that we have never seen any publication in this country which could compare with it. Its illustrations are of the highest order of art, and most beautifully executed, while its literary features are highly commendable and its typography is excellent. We have before us now the March number, which is a credit not only to the publishers, but also to the country where such an artistic production can be sustained. How it can be furnished at its low price ($2 per annum) is something of a financial puzzle.

Mines in New South Wales.—Diamond mining is now an established industry. The principal scene of operations is about 150 miles westward of Sidney, where nearly 2,000 stones have already awarded the efforts of those engaged in the search. The largest gem yet found weighs 5¼ grains, and is almost perfect in form and color. We have also a cinnabar mine, but no person understands anything about it. Iron mines, but no one to work them, and a lead mine, which is more fortunate, inasmuch as it is a genuine success. Our gold yield ie steadily decreasing. The quantity of gold received by escort from the various gold fields during last month exhibits an increase on the receipts during January. The returns for both months show a considerable falling off as compared with the corresponding period in 1869. During the latter period 35,222 ozs. were received, against 24,027 ozs. received during the first two months of 1870.—*Alta.*

Mining in Japan.—The Japanese government has decided to allow foreigners to be employed, under certain regulations, in working the mines of that country. But the restrictions are such that no great influx of "outside barbarians" can be expected just yet.

The Pacific Methodist College, at Vacaville, is closed, for the present at least. Santa Rosa has offered large inducements for its removal thither, and the Trustees are reported as favorably inclined thereto. Vacaville objects.

Reports are again current that the Central Pacific has bought up the California Pacific Railroad.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.
Thomas Poyzer—California.
F. B. Alderson—Nevada.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hudson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

To Advertisers.

After January 1st, 1870, the latest hour for receiving mining and other advertisements for the M. and S. Press will be during Thursday evening, as our paper will be printed for the interior mails on Friday morning.

A Civil Engineer

Of thirteen years standing and highest Eastern, South American and Pacific coast references, tenders his services at moderate rates. Can present attractive inducements to capitalists. Address W. S. C., Box 1,036, San Francisco. 20v20-1m

☞Maravilla Cocoa.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

To Miners, Millmen and Metallurgists. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

We call attention to the new portable gas burner—the only one that can be regulated to any size, flame, and burn without smoke or smell. Equal to any gas at one-fourth the cost. P. J. Philips & Co., 650 Market street, have county rights for sale for this valuable invention; also lamps for sale. No one should be without them who wants a good, cheap and safe light. 21v20-4w

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Co-Operative Union Store.—This is becoming one of the most useful Institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block

To Farmers.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no recounting. 20v20-3m

Mason's Bread of Life, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis and Sore Throat. Price, 25 cents per box. These lozenges are free from all dangerous properties. Compounded and put up by Dr. J. H. Mason, 750 Howard st. 16v20-3m

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

At the age of forty or thereabouts the eyesight requires the aid of magnifying glasses. Muller's Brazilian spectacles are acknowledged to be the best in use. *

Thomas O'Neil Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Microscopes for Scientific Investigation and Educational Purposes. Price list sent free. T. H. McAllister, Optician, 49 Nassau street, New York. 15v20-3m

Drs. Martinache & Smith, Oculists and Aurists, 313 Bush street, between Montgomery and Kearny. Hours for consultation, 12 to 3. 16v20-3m

F. Gruber, Naturalist, No. 626 California street, between Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

New Mining Notices.

Marcelina Mining Company.—Location of

Works: Eureka Mining District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of May, 1870, an assessment of forty (40) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at 325 Sansome street, San Francisco.

Any stock upon which said assessment shall remain unpaid on Thursday, the twenty-third day of June, 1870, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on Tuesday, the nineteenth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. C. PALMER, Secretary.

Office, 325 Sansome street, San Francisco. m28

Office of the Placer Gold Mining and Canal

Company.—Location of Works: Township No. Six (6), County of Placer, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the ninth day of April, 1870, an assessment (No. 1) of two dollars ($2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 802 Howard street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Friday, the twentieth day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the tenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. S. HALEY, Secretary.

Office of Company, 802 Howard street, San Francisco, Cal. Office hours: 6 to 8 P. M. apr16

Postponement.—The day for deeming stock delinquent on the above assessment is hereby postponed until the seventeenth day of June, 1870, and the sale thereof until Friday, the fifteenth day or July, 1870. By order of the Board of Trustees.

m28 C. S. HALEY, Secretary.

Mining Notices--Continued.

Cayuga Chief Mining Company.—Location

of Works: White Pine Mining District, County of White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-ninth day of April, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the thirty-first day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-first day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room No. 5 No. 302 Montgomery street, San Francisco, Cal. my7

Land Purchasers' Association.—Notice.

At a meeting of the Board of Trustees of the Land Purchasers' Association, held May 3d, 1870, the following resolution was adopted by unanimous vote:

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers thereto; being for the monthly installment falling due and payable May 1st, 1870. Said assessment is payable on or before the thirtieth day of May, A. D. 1870, to James F. Crosett, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of May, A. D. 1870, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before, will be sold at the office of the Secretary, on the twenty-eighth day of June, A. D. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.

Office, 304 Montgomery street, San Francisco. m7-4w

Nevada Land and Mining Company.—Location of Works:

Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of May, 1870, an assessment of three (3) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the seventh day of June, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-eighth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. my7

Pinto Mining Company.—Location of

Works: "Silverado," Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of May, 1870, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, No. 426 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the second (2d) day of June, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twentieth (20th) day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. B. ARROWSMITH, Secretary.

Office, 426 Montgomery street. 1Lv20

A Valuable Book for Inventors and Artisans.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Press office, postpaid, for $1.—*New Age.*

Silver Vault Tunnel and Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third (3d) day of May, A. D. 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 23 Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the ninth day of June, A. D. 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the twenty-ninth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOSEPH L KING, Secretary.

Office, Room No. 23 Hayward's Building, No. 419 California street, San Francisco, California. my7

The large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of Dewey & Co., publishers of the Scientific Press. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

The Latest, Cheapest, and Most Durable.

CRANDALL'S

PATENT SPRING BED.

This invaluable Spiral Spring Bed combines all the good without any of the bad features of the common spring mattrass. It consists of a framework of springs resting on a bed of stronger springs, thus giving it nearly double the elasticity of any other bed. The springs are self-supporting, each pair being independent of the others, and consequently the tendency to sag or incline toward the middle is avoided. Unlike other spring beds, they require no upholstering, and, of course, afford no harbor for fleas or dust. The medical faculty have pronounced it the best Bed in use. It commends itself to those who have examined and used it. They invariably pronounce Crandall's Patent the best Spring Bed ever offered to the public.

These Beds are on exhibition and for sale at the Cabinet Warerooms of

JOHNSON & BEST,

No. 413 PINE STREET, RUSS BLOCK,

Between Montgomery and Kearny. Also at

639 Market Street, near New Montgomery.

Beds guaranteed to give satisfaction

Or the money will be refunded.

Refer, by permission, to the following, among the many using our Beds, who are willing to testify to their superiority:

San Francisco and Vicinity—J. B. Pierce, Esq., residence Sixteenth and Capp streets, office 315 California street; J. H. Rogers, Esq., residence Oakland Point, office 16, 17 and 18 California Market; W. Zelbeer, Esq., residence 613 Geary street; James Doxter, Esq., office 430 Sansome street; John A. Roth, Esq., residence 106 Silver street. James Connor, Esq., Alameda.

N. B.—Responsible persons can have one on trial.

S. B. SNEDAKER & CO.,

21v20-6w Agents for San Francisco.

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology, and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. v16-1y16p

CANVASSERS WANTED for a New Book: THE CHEMICAL FORCES—HEAT, LIGHT, ELECTRICITY; Their Application to Important Modern Inventions and Scientific Discovery, by Thomas Ruggles Pynchon, Professor of Chemistry and the Natural Sciences, Beautifully Illustrated by 259 Engravings and by many entertaining experiments. The work is elegantly printed. All experienced agents should send for descriptive circular and terms. F. DEWING & CO., 612 California street, San Francisco. 19v20-5w

Scientific Press.—The Mining and Scientific Press, which has been a faithful exponent of the scientific, mechanical and industrial interests of our western coast, entered upon its twentieth volume on the first of January, and at the same time adopted the shorter and equally comprehensive title of Scientific Press. This journal has, for some time past, maintained a department specially devoted to agricultural matters, and has filled it with useful and interesting information.—*Contra Costa Gazette, Jan.*, 1870.

New Advertisements.

SAN FRANCISCO

STARCH WORKS.

LAVERY'S SNOW-FLAKE

YEAST POWDER.

Corner Eighth and Brannan Streets.

Office, 302 California street, up stairs.

22v20-3m **W. J. LAVERY & CO.**

MINING SCHOOL.

Mosheimer's Practical Mining School

Will be reopened by the FIRST OF JUNE, and practical instruction given in all branches of Assaying, Crushing, Amalgamating, Concentrating, Smelting and Refining Ores; also Erecting Furnaces and Reduction Works of every kind. To give all miners a chance to learn Assaying of Ores (what everyone ought to) I have reduced my former charge for

Assaying Ores	$ 50.00
To work Gold and Silver Ores	100.00
Smelting and Refining, including Assaying	150.00

Many gentlemen who have been taught in my establishment will bear testimony that in a few days they learned more than they expected to learn in a month. Before going into mining, every man ought to know how to test ores, and then he will go to work with prudence and never fail to be successful. Apply to

J. MOSHEIMER,

Office, 328 Montgomery street; Works, 2,005 Powell street, San Francisco. 22v23-3m

CRANDALL'S PATENT SPRING BED.

COOLEY & GREEN, Proprietors.

Manufactory, corner Front and M streets, Sacramento. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. Orders receivd at our manufactory, or at our agencies, as follows.

S. B. SNEDAKER, 413 Pine street, S. F.
W. H. SARLES, San Jose.
MR. NICHOLS, Stockton.
IRWIN & GARNETT, Oakland.
MR. MURPHY, Vallejo.
22v20 E. A. TOMPKINS, Grass Valley.

CHOICE POULTRY.

Light Brahma and White Leghorns.

We are now booking orders for a few trios of the above named fowls, bred from choice imported stock. Will commence delivering in July. All orders filled in rotation, as received.

☞ A few clutches of eggs for setting from the above named breeds.

NICHOLS & WILLARD,

Importers and Breeders of Choice Poultry, Fruit Vale Avenue, Brooklyn, Alameda county, Cal.

20v20-3m

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES f

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

HAMMERED IRON

Of every description and e.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number.

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 60 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, tc., etc. Promp execution and reasonable prices.

DEWEY & CO.,

No. 414 Clay street, S. F.

Central and Western Pacific Railroads.

Time Schedule, May 16, 1870.

EASTWARD.		Express Train Daily.	Hotel Monday Thursd'y	Mail, Sunday excepted
San Francisco	Leave	8.00 A M	8.00 A M	4 10 P M
Oakland	"	8.30 A M		4.30 P M
San Jose	"	8.35 A M		3 25 P M
Stockton	"	12.07 P M		8.15 P M
Sacramento	Arrive	1.50 P M	1.50 P M	10.00 P M
				Emigr'nt
Sacramento	Leave	2.10 P M	2.10 P M	9.00 A M
Junction	"	2.55 P M		10.30 A M
Marysville	Arrive	4.00 P M		1.15 P M
Colfax	Leave	5.00 P M		4.00 P M
Cisco	"	9.00 P M		8 45 P M
Reno	"	1.15 A M	1.15 A M	5.45 A M
Wadsworth	"	2.50 A M		9.45 A M
Winnemucca	"	9.10 A M		10.15 P M
Battle Mountain	"	12.00 M		3.50 A M
Carlin	"	3.10 P M		10.00 A M
Elko	"	4.40 P M	4.40 P M	12.30 P M
Kelton	"	1.30 A M		7.45 A M
Corinne	"	4 52 A M		2.50 P M
Ogden	Arrive	6.00 A M	6.00 A M	5.00 P M

WESTWARD.		Express Train Daily.	Hotel Thursd'y Saturd'y	Emigr'nt Daily.
Ogden	Leave	6 00 P M	6.00 P M	5 00 P M
Corinne	"	7.15 P M		7.25 P M
Kelton	"	10 42 P M		1.30 A M
Elko	"	8 45 A M	8.45 A M	7.15 P M
Carlin	"	10 15 A M		9.45 P M
Battle Mountain	"	1.25 A M		3 05 A M
Winnemucca	"	4 05 P M		9.00 A M
Wadsworth	"	10.45 P M		9.00 P M
Reno	"	1.00 A M	1.00 A M	11.30 P M
Cisco	"	5.35 A M		8.15 A M
Colfax	"	8.45 A M		11.37 A M
Marysville	"	4.00 P M		4.00 P M
Junction	"	10.30 A M		5.05 P M
Sacramento	Arrive	11.25 A M	11.25 A M	6.30 P M
				Mail, Sunday excepted
Sacramento	Leave	11.45 A M	11.45 A M	7.00 A M
Stockton	"	1.40 P M		8.45 A M
San Jose	Arrive	6.30 P M		12.45 P M
Oakland	"	5.30 P M		12.10 P M
San Francisco	"	6.00 P M	6.00 P M	12.40 P M

"Local Trains."

From San Francisco.	From Oakland.	From Brooklyn.
B 6.50 A. M.	B 5.40 A. M.	B 5.30 A. M.
D 8 00 "	B 6,55 "	B 6.45 "
9.00 "	8.00 "	7.50 "
D 10 00 "	9 00 "	
11 00 "	10.00 "	9.50 "
D 12.00 M.	11.00 "	
2.00 P. M.	12.00 M.	11.50 "
D 3 00 "	2.00 P. M.	
4.00 "	3.00 "	2.50 P. M.
5.15 "	4.00 "	
6.30 "	5 20 "	5 10 "
B 11.30 "	6.40 "	6.30 "

From San Francisco.	From Alameda.	From Haywards.
B 7.20 A. M.	B 5.25 A. M.	B 4 30 A. M.
C 9.00 "	B 7.36 "	B 7 00 "
BE 9 30 "	C 9.06 "	C 8 30 "
CE 11.30 "	B 9.36 "	B 9.00 "
E 1.30 P. M.	C 11 36 "	C 11.00 "
4 30 "	1.35 P. M.	
6.00 "	4.35 "	
	C 6 05 "	

B Sundays excepted. C Sundays only.
D To Oakland only. E To Alameda only.

A. N. TOWNE, Gen'l Sup't C. P. R. R.,
T. H. GOODMAN, Gen'l Pass'gr Agent, Sacramento.

SHORT ROUTE.

The following time will take effect

Sunday .... April 24, 1870.

GOING NORTH—Daily (Sundays Excepted).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
7:00 A. M.	11:45 A. M.	11:20 A. M.	1:00 P. M.
4:00 P. M.	7:15 P. M.	8:20 P. M.	9:30 P. M.
ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M

GOING SOUTH—Daily (Sundays Excepted).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M.	6:45 A. M.	6:15 A. M.	10:30 A. M.
1:15 P. M.	2:45 P. M.	3:15 P. M.	7:30 P. M.
ON SUNDAYS.			
10:15 A. M.	3:00 P. M.	2:30 P. M.	6:45 P. M.

TICKETS for sale at 313 Montgomery street, or on board steamer New World R. S. MATTISON, Superintendent.

L. C. FOWLER, General Freight and Passenger Agent.

N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf.

Vallejo, April 24, 1870. 13v20-1y

Pacific Mail Steamship Company.—For

New York, via Panama. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

June 3 .... COLORADO,

Connecting with Alaska.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanillo.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

June 1—Steamer JAPAN, Captain Freeman.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.

13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation

COMPANY,

Steamer CAPITAL .... CAPT. E. A. POOLE
" CHRYSOPOLIS .... CAPT. A. FOSTER.
" YOSEMITE .... — —
" CORNELIA .... CAPT. W. BROMLEY
" JULIA .... CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE,
Presiden

13v12

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, May 26, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℔ 100 lbs.; Bar, 1@1½c ℔ lb; Sheet, polished, 3c ℔ lb; common, 1½@1¾c ℔ lb; Plate, 1½c ℔ lb; Pipe, 1½c ℔ lb; Galvanized, 2½c ℔ lb.

Scotch and Eng. Pig Iron, ℔ ton	$30 00	@$32 00
White Pig, ℔ ton	28 00	@ — —
Refined Bar, bad assortment, ℔ lb	— 03	@ — —
Refined Bar, good assortment, ℔ lb	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½

Copper.—Duty: Sheathing, 3½c ℔ lb; Pig and Bar, 2½c ℔ lb.

Sheathing, ℔ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22

Tin Plates.—Duty: 25 ℔ cent, ad valorem.

Plates, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℔ lb	— —	@ — 42
Steel.—English Cast Steel, ℔ lb	— —	@ — 15
Quicksilver.—℔ lb	— —	@ — 65
Lead.—Pig, ℔ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℔ lb	— 10½	@ — 11
Borax	— 35	@ — 38

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

THE RISDON

Iron and Locomotive Works.

INCORPORATED............APRIL 30, 1868.
CAPITAL............$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	Wm. Alvord,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON............President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD............Secretary.
24v17-qy

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

San Francisco Wire Works,

No. 665 Mission Street, near Third.
SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,

Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

---

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. CONNER.

MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,
Between Howard and Folsom, San Francisco.

— ALL KINDS OF —
High and Low Pressure Boilers Built.
Sheet Iron Work, Etc., Etc.
☞ Repairing promptly attended to.
17v20-6m WM. W. CANTY, Manager.

THOMPSON BROTHERS,

EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO.

IRA P. RANKIN, A. P. BRAYTON,

GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY.

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of Iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

---

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,

13 and 15 Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connecions of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery,

16v16q No. 28 Fremont street. San Francisco.

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in tin cans only, with full directions. Take no other. Giant Cement and Miners' Rubber Cement are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

HIBBERD, SANBORN & CO.,

STAIR BUILDERS.

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Greatest Discovery Ever Made.

MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has been the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would be to those afflicted with this painful disease, he with great difficulty and expense obtained the secret of preparing the Plaster; and during the many years MR. MAC has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will be convinced by referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street: Michael Gorman, No. 6 Front street; Mrs. W. S Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository merican Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 A. M., 2 to 4 P. M. and 7 to 9 P. M.

18v20-3m

PARIS

Scouring and Blanket Cleaning

ESTABLISHMENT.

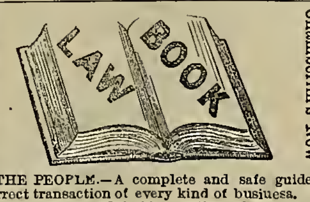
Blankets are cleaned in such a manner as to give them their original elasticity and gloss. Flannels of all kinds are cleansed and scoured *without fulling.* Ladies' Dresses and Wearing Apparel of all kinds are scoured and cleansed after the latest Paris style, for which Mr. Weyer's father was awarded a Medal at the Paris Fair. Silk Dresses are prepared so as to have their original gloss and appearance. Furs neatly cleaned. Curtains are washed and done up in a superior manner. Gent's Clothing of every description scoured and cleaned so as to look as well as new. Samples can be obtained at the Powell street establishment and in the branch offices, showing that my work is done in a superior and skillful manner that will suit the most fastidious. Orders called for and delivered without extra charge.

Parties in the country can have their work done well and promptly by sending their goods with orders by express.

A. WEYER, proprietor, No. 1719 Powell street; branch offices, 122 Fourth street, and 862 Folsom street. ORDER BOXES, 740 Washington street, corner Sutter and Powell, corner Fifth and Howard, corner Powell and Bush. 10v20-3m

---

Agents Wanted for Chamberlin's New



FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

---

REMOVAL.

GEO. MILNE CLARKE & CO.,

PLUMBERS AND GASFITTERS, respectfully announce the removal of their business to No. 715 Market street, south side, near Bancroft's, 19v20-1m

---

USE

DR. S. GIRARD SMITH'S

ARAMIRACULAS

— FOR —

RHEUMATISM, GOUT AND NEURALGIA

CURES GUARANTEED.

Has cured Thousands. Has never been known One bottle will relieve you.

OFFICE, No. 121 POST STREET

Agents Wanted in every City and Town.—Terms Liberal.

Dr. S. Girard Smith, 621 *Kearny street.*—Dear Sir It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Ayer's Sarsaparilla,

FOR PURIFYING THE BLOOD.

The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this *SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears,* and other eruptions or visible forms of *Scrofulous* disease. Also in the more concealed forms, as *Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia,* and the various *Ulcerous* affections of the muscular and nervous systems.

Syphilis or *Venereal* and *Mercurial Diseases* are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. *Leucorrhœa* or *Whites, Uterine Ulcerations,* and *Female Diseases,* are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. *Rheumatism* and *Gout,* when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also *Liver Complaints, Torpidity, Congestion* or *Inflammation* of the *Liver,* and *Jaundice,* when arising, as they often do, from the rankling poisons in the blood. This *SARSAPARILLA* is a great restorer for the strength and vigor of the system. Those who are *Languid* and *Listless, Despondent, Sleepless,* and troubled with *Nervous Apprehensions* or *Fears,* or any of the affections symptomatic of *Weakness,* will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R.H. McDonald & Co., Sacramento, General Agents. 7v20cow-4m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, May 16, 1870.

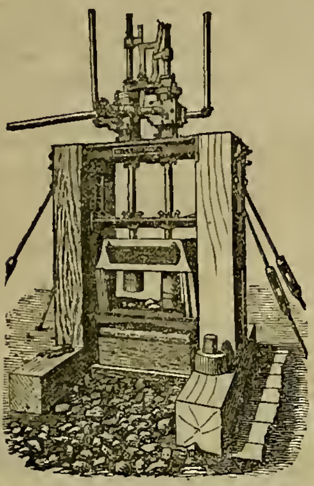
IRON.

Pig, Scotch, No 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No 2	38 00	@	39 00
Swedish, ordinary sizes...........	140 00	@	155 00
Common...........................	87 50	@	92 50
Refined	95 00	@	— —
Rods..............................	100 00	@	155 00
Horse-shoe........................	115 00	@	— —
Hoop	125 00	@	180 00
Scroll............................	110 00	@	145 00
Nail-rods, per lb.................	— 8½	@	— 9½
Spring	— 9½	@	— —
Tire..............................	— 9½	@	— —
STEEL.			
Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast..................	— 23	@	— —
Sheet, second quality.............	— 20	@	— —
Sheet, third quality..............	— 18	@	— —
Saw-plates, circular..............	— 27	@	— —
Double-shear, warranted...........	— 23	@	— —
Single-shear......................	— 19	@	— —
Montague & Co. (cast bars)........	— 18	@	— —
Machinery, round	— 16	@	— —
German, best......................	— 16	@	— —
German, goat......................	— 13½	@	— —
German, eagle.....................	— 12	@	— —
Blister, warranted................	— 16	@	— —
Blister, common...................	— 15	@	— —
Jessop & Sons', common............	— 17	@	— —
Double-refined....................	— 26½	@	— —
Stone-ax shapes...................	— 26½	@	— —

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficisncy,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilvor, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, **229** Fremont street, San Francisco.
1v1

TO MILLMEN.

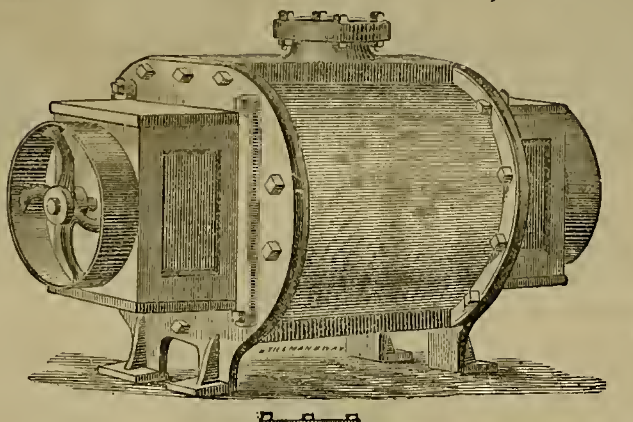
FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30-inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

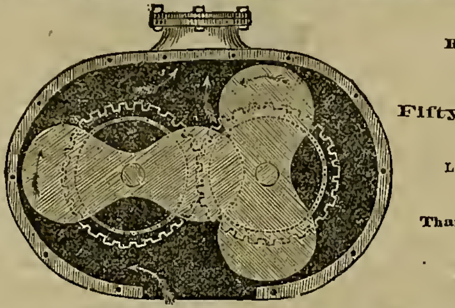
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES Fifty Per Cent. LESS POWER **Than any Blower** Now in use.

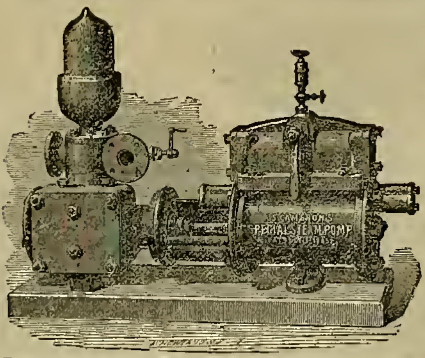
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

MARINE

ENGINES.

SURFACE

CONDENSERS.

DAVID STODDART,

BEALE STREET.

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

Machinery for Sale.

One (1) small Engine, eight (8) inch bore sixteen (16) inch stroke, with tubular boiler twelve (12) feet long and thirty-two (32) inches in diameter, with thirty (30) two and one-half (2½) inch tubes, all complete and in running order.

One (1) engine, ten (10) inch bore, twenty (20) inch stroke, with tubular boiler, eleven (11) feet long and forty (40) inches in diameter, with thirty-eight (38) two and one-half (2½) inch tubes, all complete and in running order, with reverse motion alternative, at option of buyer, with complete hoisting and pumping machinery.

One (1) large engine, twelve and one-half (12½) inch bore, thirty-two (32) inch stroke, with tubular boiler fourteen (14) feet long and four (4) feet in diameter, (with fire box) and forty-eight (48) two and one-half (2½) inch tubes, all complete and in running order, with governor and reverse, and alternative, at the option of buyers, with hoisting machinery.

For further particulars apply to F. W. ROBINSON, at Union Hotel, Nevada City, Nevada Co., Cal. 21v20-4w

ECONOMY AND CLEANLINESS
Are to be found in the use of the
PATENT SPRING BED.

They are the cheapest and best in the market. Manufactory on Twelfth street, bet. C and D, Sacramento. Caveat filed Aug. 9, 1869. [15v20] G. B. DEAN.

SILVER-PLATED AMALGAMATED PLATES

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

☞The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞All work done at the lowest prices. 1v20-3m

ARCHITECTS AND BUILDERS

Are invited to examine an invoice of

Marbleized Slate Mantels.

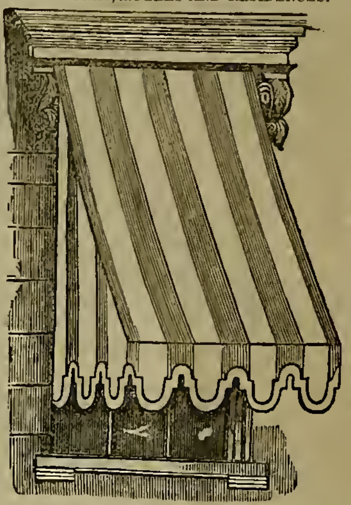
As these mantles are so perfect an imitation of the most costly Italian Marble, and can be furnished at so much less cost, they are being placed in the finest houses in New York and other Eastern cities.

J. D. HUNT.
No. 716 Montgomery street, San Francisco.
May 5th, 1870. 19v20.

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.

COMFORT AND ELEGANCE COMBINED.



KEEPS COOL AND SHADY

Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

DR. D. E. DUDLEY, OCULIST.

Dr. Dudley, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: No. 12 Montgomery street, opp Lick House. Hours from 10 to 3. ☞Se habla Español. On parlo Français.

MARTIN'S

Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil,

PATENT CANS.

5v17-tf **414 Front street, San Francisco**

FROM $65 The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO $500

LAND! LAND! LAND!

YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

40,000 Acres in Fresno County;
7,000 Acres in Sonoma County;
3,680 Acres in Tulare County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above.

YOUNG & PAXSON,
16v20-3m 424 Montgomery street.

DEWEY & CO.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

- Patents Obtained Promptly.
- Caveats Filed Expeditiously.
- Patent Reissues Taken Out.
- Patents Secnred in Foreign Lands.
- Assignments Made and Recorded in Legal Form.
- Copies of Patents and Assignments Procured.
- Examinations of Patents made here and at Washington.
- Examinations made of Assignments Recorded in Washington.
- Examinations Ordered and Reported by Telegraph.
- Rejected Cases taken up and Patents Obtained.
- Interferences Prosecuted.
- Opinions Rendered regarding the Validity of Patents and Assignments.
- Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.

Illustrated Circulars Free.

DEWEY & CO.,
Pnblishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of sll kinds of

Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES hsve nniform quality, never crsck, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty ponrlugs.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in prefereuce to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th Msrch, 1869—Messrs. A. S. Hsllidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper thsn sny Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hsllidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO,,
Csllfornia Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S. Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound ss when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street. San Francisco

BARTON & RUTTER,

Importers and Dealers in

Guns, Pistols, Fishing Tackle

Pocket Cutlery, Etc.

SPORTING APPARATUS OF EVERY DESCRIPTION.

609 Clay Street, near Montgomery.

— SOLE AGENTS FOR —

Alexander's Celebrated Pocket Cutlery

For the State of California.

JNO. C. BARTON. R. A. RUTTER.
16v20-3m16p

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes.
H. M. RAYNOR,
57 Bond street, New York.
Platinum Scrap and Ore purchased. 15v20-1y16p

Agents! Read This!

We will pay Agents a salary of $30 per week and expenses, or allow a commission, to sell our new and wonderful inventions. Address M. WAGNER & CO., Marshall, Mich. 21v20-2m

---

Patents on the Pacific Coast.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast we say, subscribe for the Scientific Press, published by Dewey & Co., San Francisco, Cal., at $4 per year. The opening of the railway across the continent has given to all patents a much higher value in that portion of our country known as the Pacific slope, and all interested will find the paper above alluded to a valuable reference.—*Mechanic and Inventor Detroit, Michigan.*

WIESTER & CO.,

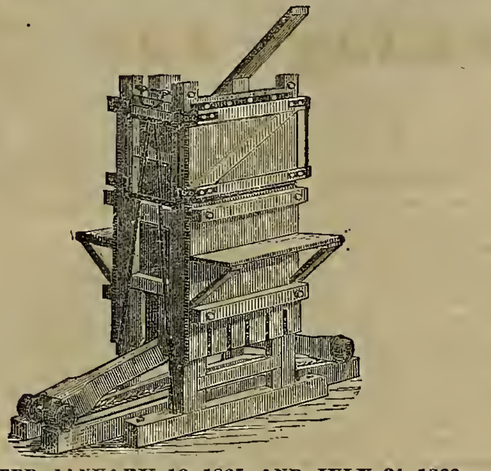
PATENT BROKERS,

No. 314 Bush Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the vsluable Patents which we have in our office. It may be well to stste here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom esch is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

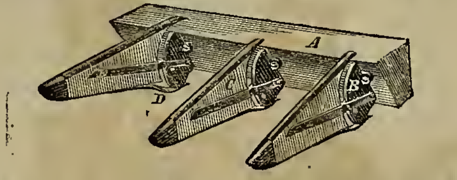
EAGLE HAY PRESS.



PATENTED JANUARY 10, 1865, AND JULY 24, 1866.

Here is an invention that we take pleasure in recommending. There is probably no farming implement more perfect in its line than this Press. It has advantages over any and all other Presses now in use. It costs only $300 snd weighs only 1,500 pounds, which is $100 lower in price and 1,500 pounds less in weight than any other good Press on the Pacific coast Three men and a pair of horses with this Press can bale from ten to fifteen tons per day, each bale weighing from 250 to 350 pounds. The power is applied by means of two levers acting on the principle of the toggle-joint, and the pressure acquired ss they approach a vertical position can scarcely be estimated. On sccount of the great power obtained in this Press, it is well adapted to baleing hides, rags, wool, cotton, etc. They can be built at any blacksmith and wsgon shop. They cost to manufacture $150 less than any other firs-class Press in the United States. A large number have already been sold, and all are giving good satisfaction. The Right to California, Oregon and Nevada will be sold in States or counties. We keep on hand woll built sample Presses to furnish to parties huying territory. Any informstion in regard to tho Press or territory can be obtained by addressing WIESTER & CO., 314 Bush street, Ssn Francisco.

BONNEY'S IMPROVED GRAIN LIFTERS.



Patented July 21, 1868, and September 28, 1869.

Mr. O. BONNEY, Jr., of San Francisco, has invented and patented a simple and practical device for raising fallen down grain, that it may be secured by the knives of the header. Practical farmers and those whose interests are closely allied with them, can testify to the great amount of grain that cannot be gsthered by the heading machines in use, and which is annually lost to themselves and the country.

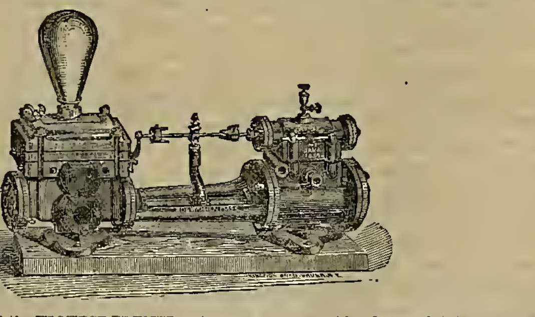
It has been estimated that with the ordinary Harvester one bushel to the acre, on an average, is annually wasted in the State of California. Taking this estimate, which we think is very low, by the use of BONNEY'S IMPROVED GRAIN LIFTERS there would be annually saved to the people of this State more than 700,000 bushels of whest, 400,000 bushels of barley, snd 40,000 bushels of oats. In the above cut three Lifters are represented. A is the header beam, b sn iron shank firmly bolted to tho beam, to which the finger or lifter, c, is fastened by means of a joint bolt through the iron and the back part of the shank, b. The lifter has an iron point, and is bound with iron, which makes it very durable. They sre smooth, affording no chance for grain to hang and burden a team. D is a strip of spring steel, and draws the point of tho finger downward. By means of a stop-bolt through the front part of the shank, b, any angle can be given to the Lifter. They can be varied from one inch to two feet from the ground. By elevating the Lifters, they become a complete substitute for what are termed "trinklers," allowing the knives to run close to the ground. The hinge motion of the Lifters prevents them from injuring the header-beam in passing over rough ground. The entire weight of a full set of eight Lifters is forty-eight pounds. One minute is sufficient time to put on or take off each finger.

We claim that this auxiliary for harvesting is much superior to anything else of the kind ever invented, and are prepared to prove the same in the field. A single Lifter will be sent (C. O. D.) at the retail price—five dollars—to any person who may wish to exsmine them either with a view to buy territory or to purchase Lifters for his own use. If the Lifter is not satisfactory, it can be returned, and we will refund the money, less express charge on the Lifter. We will furnish Lifters at what they cost to manufacture to any person who buys a County or State Right. They can be made at any blacksmith shop, and allow a handsome profit. For Lifters or Rights address WIESTER & CO., 314 Bush Street, San Francisco.

☞ We have for sale the Right of A NOVEL AND VALUABLE LITTLE INVENTION for the city of San Frsncisco. One machine will go with the right. The machine can be attended by a man or small boy, and will yield to the owner a net profit of from two to four dollars per day. The present owner has built up a paying business, but is induced, at the request of friends, to relinquish it snd go East. The Right and tho Machine will be sold for the small sum of $175.

WIESTER & CO.,
314 Bush Street, San Francisco.

KNOWLES' PATENT STEAM PUMP.



This Pump has received the HIGHEST PREMIUM at every Fair where it has been exhibited. It is of superior make and finish; has sll ground joints; no packing required. It is positive in its action. It is impossible to stop it on centers. It will always start without using a starting bar. We have two hundred different styles and sizes adapted for Factories, Steamships, Sugar Refineries, Breweries, Distilleries, Gas Works, Oil Works, Soap Works, Paper Mills, Tanneries, Bleacheries, Laundries, Railroad Purposes, Quarries, Petroleum Minea, Drainage, etc. Large Pumps for Water Works. Fire and Wrecking Pumps. ☞ Pumps guaranteed for every situation.

E. T. STEEN & V. CUSHING,
Sole Agenta for the Pacific Coast,
No. 9 FIRST STREET. SAN FRANCISCO.

NEW AND SECOND-HAND ENGINS, BOILERS, and MACHINERY OF ALL KINDS, constantly on hand.

W. T. GARRATT & CO.

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, mado and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —
HARDWARE,
BAR AND SHEET IRON,
Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and
RAILWAY SUPPLIES.

— ALSO AGENTS FOR —
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY
54 K Street, Sacramento.
7v20-ng

WILCOX'S

PATENT STEAM

WATER LIFTER.

Requiring no Engine.

Send for circnlar containing full explanations, price list, testimonials snd references.

M. & A. WILCOX,
15v20-3m-nhxh 74 K street, Sacrsmento.

N W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURES OF
SPAULDING'S
Patent Tooth Circular Saws;
They have proved to be the most durable and economical Saws in the World.
Each Saw is Warranted in every respect,
Particular attention paid to construction of
Portable & Stationary Saw Mills.
MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, Made of Fullen Rawhide, Factory, South Park Mills, Brsnnan street, bet. Third and Fourth, San Francisco.

☞ **Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** ns

---

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capitsl Stock	$1,000,000 00
Amount in excess of Capital avsilable to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estats and Collaterals worth $2,420,000	1,056,996 21
Cssh in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner Cslifornia and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.
9v20-qy16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, June 4, 1870.

VOLUME XX.
Number 23.

DOUBLE SHEET—24 PAGES.

Progress of the Silk Business in California.

The silk business of this State is steadily progressing, and is already giving employment to a goodly number of persons, and employing no inconsiderable amount of capital. The California Silk Manufacturing Company has been fully organized. A factory building, 50x125 feet, two stories high, is to be erected on a lot near the new woolen mills, on the flat just beyond Islais creek. The heavy machinery for the factory will be built in this city—the lighter and more complicated portions being imported from New York. George T. Crowther, an experienced silk manufacturer, has been secured as the manager. Mr. C. is also a large stockholder in the concern.

Many are of the opinion that within a few years the silk business of this State will be more important than either our gold, wheat or wine. However that may be, there seems to be a steady advance in the business, such as is very encouraging for important results in the early future.

The first silk-worms in this State were hatched in 1860, and were only 500 in number. Since that time the increase, from year to year, has been reported about as follows: 1,000, 2,000, 4,000, 30,000, 100,000, 300,000, 500,000, 2,700,000, 3,500,000; the number for the present year is estimated as high as 25,000,000. Much experience has been gained, and many heretofore causes of loss will be successfully guarded against in the future.

The market for eggs continues undiminished; in fact, there appears to be no limited to such demand, although their offering in large numbers may have a tendency to reduce the price somewhat.

The silk manufacturers in New Jersey are looking forward with much confidence to the time when their looms will be largely supplied with raw silk from California. Some of the leading manufactures have sent agents to this State to examine carefully into the condition and prospects of the business here. Mr. William Angus, who recently visited California, with this object in view, has made a most favorable report at the East. He considers the specimens of raw silk produced here equal to the best of India or Japan—the fiber being very strong, fine, free from impurities, and remarkably smooth and glossy. Mr. Ryle, of Patterson, New Jersey, has also been here on a similar errand, and made equally flattering reports.

Mr. R. says all that is wanting to make the culture of silk successful in California is machinery for reeling the cocoons in the districts where they are produced. Without machinery for reeling, it will be difficult to do anything else with the cocoons than to employ them for the production of eggs. We think Mr. Ryle is mistaken in supposing that it will be necessary to procure such machinery at the East. There is no doubt but that it could be made here cheaper than it can be imported, and most effective and perfect in construction.

The New York *Tribune* says that "negotiations are being made by Mr. R. with persons in California who desire to embark in the enterprise for setting up the necessary machinery for reeling in California, and purchasing the entire product of cocoons. A new machine has been completed and is now at the Ryle silk mill in Patterson, for reeling cheaply and speedily, and it is probable that it will be tried on an extensive scale in California. The subject is interesting the silk manufacturers of Patterson, who see in the new enterprise advantages to the nation, and particularly to its great silk manufacturing center, that cannot easily be estimated."

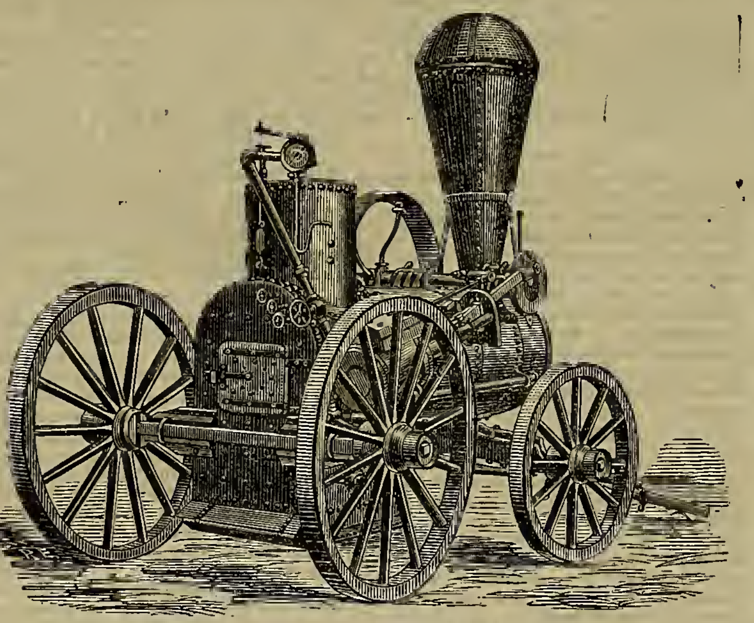
An opinion seems to have obtained at Macclesfield, the chief seat of silk manufacture in England, that it would be preferable for manufacturers there to import the cocoons rather than the reeled silk. They think they can better protect themselves from certain serious frauds by doing their own reeling. If this idea should be found practicable and put in progress by the Macclesfield manufacturers, on terms which would give a fair margin for profit to our cocoon producers, it would no doubt give a great impetus to the business here, as hundreds would raise cocoons, provided a ready and profitable market could be obtained for them, who would not go into the more difficult or delicate processes of producing the eggs or raw silk.

◆

ODD FELLOWSHIP IN GERMANY.—Mr. F. B. Austin, the able editor of the *New Age*, and one of the oldest of the California Odd Fellows, is to go to Europe with Dr. J. F. Morse, to organize and establish the fraternity in Germany.

Steam Engines for Field-Threshing.

Ten years ago in the town of Napa there was constructed the first of these engines of which the cut is a representation. It was the pioneer of the State and its introduction was an important fact in the history of farming upon the Pacific coast. The first having proved a success, the proprietor was soon enabled to place a second in the field, which fully sustained the reputation earned by its predecessor and opened the way through which has flowed a gradually increasing demand for the California Steam Thresher until, in the place of confining himself to the manufacture of a limited number yearly, the proprietor has made their construction a specialty in his business, and is now prepared to fill orders to any extent. Having had ten years' practical experience in the harvest field, using many different kinds of engines, he feels confident, as he says, of having produced one better adapted to the wants of the farming community than any other in the market, and offers it to the public as a complete machine with all the modern improvements, at a very reasonable price. Some of the advantages claimed by Enright's Cal. Steam Thresher Engine are, its lightness, compactness and great durability; its low price; its furnishing an abundance of power, while consuming but little fuel; and its requiring no protection from the weather. Its best recommendation, however, is the growing favor with which it is received by the public. Many testimonials have been received from parties owning and running these engines, of which we give the following: Messrs. Ricker and Elkins, writing from Half Moon Bay, under date of April 21st, 1870, say: "We are using two of your thresher engines, one of which is the first you made in this State. It is the pioneer of the coast, and we have used it for ten years with perfect satisfaction. The second one was four years old when we purchased it three years ago. It has also given good satisfaction. They are both made of the best material, as is conclusively proved from the fact that we have been to but trifling expense for repairs on either of them, and as old as the *pioneer* is, we would not exchange it for any Eastern machine that we have ever seen. We take great pleasure in recommending your thresher engines to the public, and any one desiring information as to particulars is at liberty to apply to us personally or by letter." We have been shown copies of other letters which corroborate the statements with regard to the good qualities of the thresher. The application of steam to agricultural instruments is effecting a revolution in farming, and we sincerely hope that this is as successful a beginning as it seems to be, of machines made on, and therefore specially adapted to, our coast. Our engraver has given in the cut a good general idea of the device; and for further particulars our readers may be referred to the manufacturer, Joseph Enright, of San José, California.



ENRIGHT'S CALIFORNIA STEAM THRESHER ENGINE.

◆

THE NEW YORK ELEVATED RAILWAY.—An accident has happened on this road, which will have the effect of making the public suspicious of its safety. To test its strength, a train loaded with twenty thousand pounds of pig iron was lately run over the track, and thereby several weak points discovered and strengthened. Another test was made by running a car carrying nearly twelve tons of iron, when the track gave way, precipitating the car to the pavement below. Fortunately a passenger car attached fell without overturning, and but one person was injured, and he not very severely. But the possibility of being dropped some fourteen feet upon a hard road will frighten passengers, and the chance of having a train come tumbling on wagons and pedestrians who may chance to be traveling on the public street will prejudice people against the project. The directors on the road, however, propose to immediately repair the broken span and have another test.

◆

MR. BIERSTADT, the well-known photographer of Buffalo, and a brother of Bierstadt the artist, has left California for the East. He has obtained a great number of fine stereoscopic views in various parts of the State—about seventy of which were obtained at the Yosemite. He will further increase his collection with views of all the principal points of interest on the line of the overland railroad. Mr. B. is accompanied on the trip by his brother-in-law, Captain Edwin Thompson, late of New Bedford.

◆

THE Canadian *Illustrated News*, published by G. E. Desbarats, Montreal, Canada, is one of the most welcome of our exchanges. Finely printed on tinted paper, beautifully and profusely illustrated, and containing much well-written matter, it is a great addition to the parlor table.

Communications.

Jottings in Santa Clara County.

[Written for the Scientific Press.]

Saratoga is the name of a little village scattered along a beautiful stream at the foot of the Santa Cruz Mountains, in the Santa Clara Valley, some ten miles west of San José. As the name appears to indicate, it is a watering place, or near one—the soda springs which produce the celebrated Pacific Congress Water.

The Springs

Are about a mile and a half above the village, in a broad, deep ravine or cañon, filled with magnificent trees that revel in the wildest scenes of undisturbed Nature; a beautiful retreat, one to be enjoyed and not to be forgotten. The hotel and several cottages near the springs were not occupied at the time of my visit, and why not was beyond my conception; for truly I know of no pleasanter resort. At the springs I found two men busily engaged in bottling the water, under a pressure of gas collected in gasometers directly from the spring. Mr. F. L. Darling, the conductor of this department, convinced me that there was no deception as to the genuine natural gases collected and used in putting up the water. As to the water satisfying thirst I am very doubtful. I was not thirsty when I commenced drinking of it; but one taste was so little gratifying that I continued pouring it down to the very limit of my capacity, the only obstruction to my appetite for it.

Caldwell Spring.

About one mile to the north of this spring, on the stock ranch of Mr. A. S. Caldwell, is a small spring, the water of which, to my notion, quite equals in excellence the Congress waters. It breaks out in a ravine through rock identical in formation with the conglomerate cement about the Congress Springs. No public mention has ever been made of Caldwell's spring, and probably not fifty persons even know of its existence.

New Almaden Springs.

I might add here that I also took occasion to visit the New Almaden Springs, where the "Vichy water" is obtained. In formation of surrounding rock, in appearance of spring and taste of the water, it exactly resembles the two previously described, only it lacks the strength and sprightly sweet *twang* or flavor of the Congress water. As my taste has never been vitiated by whisky and tobacco, I considered myself fully qualified to express an opinion. I found two men here who informed me that they were engaged in putting up "Vichy Water."

Bad Management.

To the north of Congress Springs are a beautiful range of rolling hills, admirably adapted to the cultivation of the grape, which are now laying nearly worthless for the want of culture. At Saratoga, where some excellent land is easy to cultivate and to irrigate, I saw a vegetable wagon from beyond San José, twelve miles distant, retailing garden vegetables, of all sorts. Even the farmers in San José valley, as a rule, buy the common vegetables that they might grow in abundance at their very doors, and that, too, with the time that many of them idle away or foolishly spend in town.

The Saratoga Paper Mill

Was erected about two years ago at a cost of some $50,000. It daily converts three tons of starw into 200 reams of paper, averaging twenty-eight pounds to the ream. The power is supplied by two of Hinkley & Co's Fulton Foundry Works engines. The pulp-room engine is a 75-horse power machine, and the exhaust steam cooks the straw. Two large boiler tanks, each holding three tons of straw, are charged alternately. It takes twenty-four hours to finish the steaming. The steam is supplied on a principle, and operates similarly to the automatic boiler. The process is a beautiful one. Four barrels of lime are used in this, which is termed the "bleaching process," at each charge. Hoisting works attached to a movable bottom, raise the bleached straw out of the tanks. It is then ground for four hours in the pulp troughs, of which there are two, gradually supplied with water till thorough maceration fits it for the

Machine Room,

Where it is evenly conducted to the cylinders. A 15-horse power engine drives the cylinders—a long row of them—and the other machinery. The exhaust steam supplies the cylinders with the heat necessary to dry the paper, which is finally wound upon bolts, to be again unwound and cut with a gauged machine into sheets, measuring about 20x30 inches, ready for wrapping paper.

Rye vs. Wheat Straw for Paper.

Mr. King, the foreman, informed me that he was paying $3.50 per ton for wheat straw, and $8 per ton for rye straw; and that he used the former only because of the impossibility to get sufficient of the latter. He had furnished several farmers this season with seed rye, and agreed to pay $8 per ton for the straw.

The Growth of Rye.

I have seen several of the patches of rye thus sown, and have noted the growth. That which was sown early stands six to eight feet high, on an average, and shows not the least sign of drouth. If it had been cut for hay it would have paid better than any other crop sown for that purpose. Indeed, rye makes good hay alone, and when mixed with barley and oats makes the very best of hay. I noticed particularly one piece plowed and sowed at the same time, and immediately alongside of a piece of wheat. The whole was put in late, but treated the same. The wheat will prove a total failure, by reason of the drouth, not standing above seven inches, on an average, blighted, and not fit even for hay. The rye stands five feet high, and promises an abundant yield of seed, and a fair quantity of straw.

Rye as a Grain

Is not much used for food on the Pacific coast; but it is certainly delicious, when mixed with corn meal and baked into a genuine "Boston loaf." For fattening stock it is very excellent, when mixed and ground with other grains, as wheat, barley, oats, peas, etc. One thing is sure, its growth is prodigious under favorable circumstances. It will also succeed where wheat will fail from drouth. For a general culture all over this State, it deserves more attention than it has heretofore received.

Pasteboard Manufactory.

Summerville & Co., of Saratoga, are erecting and have nearly completed a mill for the manufacture of pasteboard—the first mill of the kind on this coast. The capacity of the mill will be one ton of board per day. A water-power will be employed to run the machinery, with a 16-inch Jonville turbine wheel, under a pressure of thirty-six feet fall. A boiler will supply steam for the bleaching works similarly to the paper mill works. The pulp machine will prepare the bleached straw. No drying cylinders are employed, but a large yard is to be used in which to dry the board. I had always supposed that some sort of paste was used to stick layers of paper together in making pasteboard, but Mr. Sommerville explained that away. The right quantity of pulp is forced between rollers, to make the board the right thickness at one operation. Mr. Sommerville and his son, both intelligent mechanics, claim to be paper-makers of the fourth and fifth generations. Mr. S. told me, that when a boy, he used to make paper by hand.

This mill will be in operation about the first of June, and will be worth visiting. The board will be used for making boxes, etc., on this coast, and Mr. S. expects the demand to more than equal his supply.

No Chinese labor is used or desired in either of the paper mills here. This intention was emphatically expressed. He will prefer rye straw to wheat straw, and will give double the price in preference.

Miscellaneous.

There is a large stone flour mill in this place, but it is idle at the present time.

Mr. D. F. Hughes is building a chair factory on a small scale. He will use the native woods, which he says are unequalled for the purpose. I saw little else here worthy of note, but yet I observe a good opening for much improvement and enterprise, more particularly in the matter of cultivating the soil. S. H. Herring.

Letter From Bull Run District.

[Written for the Scientific Press.]

Editors Press:—This district is situated on the county line dividing Elko and Lander counties, some eighty miles to the north of Carlin. It is about fourteen miles square, is well provided with wood and water, and offers every facility for mining and milling. It has a dense forest of fine sawing timber, and the mountains, which are capped with limestone (although the original formation was slate and granite), are high and steep, and afford excellent opportunities for tunneling.

The veins run very regularly in a northerly and southerly direction, pitching to the east into the hill. They average all the way from six inches to twenty feet in width. The ores carry considerable base metal, principally lead, of which there are veins two feet wide which will give 90 (?) per cent. of pure lead. [Pure galena contains only 86.6 per cent. of lead.—Eds.] There are, as yet, no mills in the district. The Porter company have shipped to the Reno mill twelve tons of ore which yielded $300 per ton, and they will soon ship twenty tons more of a higher grade.

The snow is now rapidly disappearing from the mountains, and miners are coming in from every direction, prospecting for new mines, and opening out those previously discovered. Among the companies already at work may be mentioned the Porter, the Norwich, the Ophelia (which has ore which will yield about $800 to the ton), the Highland Queen and the Georgietta. The Found Treasure has been at work all winter opening out the mine, and has a tunnel about 150 feet long.

There are also placer mines in this district which are creating quite an excitement among the Chinamen, about sixty of whom came in last week. The gold is very fine and can be found in almost any place on the bottom and in the gulches, although not in very great quantities. I have taken out ten cents to the pan.

Altogether our prospects are bright, and there is every indication that Bull Run will be a most lively camp this summer in the way of mining enterprises. J. J.

Bull Run District, Nev., May 16th.

* * *

Determining Position by Telegraph.—Last night between 11 and 12 o'clock, the last interchange of signals between St. Louis and the observatory in Washington City, for the purpose of determining the longitude of St. Louis, was made. The signals consisted of a comparison of the local time of the two cities by telegraph. This is done by transmitting the beats of the clock or chronometer along the wires, and by this means a coincidence is established, and the accurate difference deduced. At the Washington observatory the pendulum of a large sidereal clock, by a simple but ingenious contrivance, is placed in direct connection, so that each oscillation breaks the circuit and is transmitted to St. Louis by a single tap of the instrument. The signals from St. Louis were somewhat different. Every fifth second of a solar chronometer was transmitted, and then every second, and lastly every tenth second each throughout a minute or more. Last night everything worked to a charm. The clattering tongues of the telegraph instruments were hushed for a time, and the steady beat of a sidereal pendulum swinging in Washington—a thousand miles or so away—was the only sound heard. Prof. Harkness, of the Washington University, and who has learned to work the telegraph tolerably, was present in the observatory, and sent and received signals. Some little interruption was caused by the curiosity of telegraph operators in West Virginia, who couldn't for the life of them make any sense out of the clock-beats, and wanted to know what it all meant.—*St. Louis Republican, May* 1*st.*

* * *

The Parker Steam and Air Engine.—*The Engineer* describes this as a form of aëro-steam engine, involving the same general principles as Warsop's. In this latter engine, air is forced by a pump through a coil of pipe exposed to a high temperature, into the water in the boiler. In Parker's engine, the air is forced directly into the steam pipe leading to the cylinders, and is therefore no hotter than the steam. The result of the working trial witnessed by the journal above-named was favorable.

Pavements and Sewage.

This subject, so very important for San Francisco, although receiving so very little attention, was considered at the meeting, May 18th, of the New York Society of Practical Engineering. The writer of the regular paper (J. Harrison, Esq.) treated mainly of the systems of sewage and street construction proposed or tried abroad and their adaptability to the needs of New York and other American cities.

London has about one thousand miles in all of sewers properly so called, besides nearly an equal length of branch drains or pipes. Some of these have been in existence since the invasion of Britain by Julius Cæsar; but before the beginning of the present century the sewers were used only to drain off the surface water. The deposits of the cesspools were carted off for manure while the liquids oozed into the sandy soil. When the city spread upon the adjacent clay lands where this absorbtion became impossible, the sewage was turned into the sewers, as is now the almos universal practice. The enlargements that resulted, and the new sewers that were constructed, were so poorly designed, however, that their outlets are mainly below high-water mark. As a consequence, when the tide rises, it carries sand and dirt into the sewers to choke them, and drives the polluting gases back, so that they escape into the air through traps and sinks. Analysis shows the composition of these gases to be about 70 per cent. of light carburreted hydrogen, 16 per cent. of carbonic acid, 10 per cent of innocuous nitrogen, and the rest of hurtful compounds, such as sulphurreted hydrogen—a poisonous emanation, which acts directly upon the blood, turning it black, and a peculiar organic vapor which excites putrid diseases in the human system. One gallon of common sewage will evolve from one and a quarter to one and a half cubic inches of these noxious gases per hour, and the putrifying process may continue a month or more. Many plans have been proposed to remove these gases from sewers by means of a draft, but they have all proved inefficient and costly. To remedy the manifest defects in the London sewers, engineers proposed, a number of years ago, to build a second or sub-system below the present one, from which the sewage could be drawn by steam pumps; the present or upper sewers could be used as forrmerly for draining surface water, while the new could be devoted exclusively to sewage, which when pumped out, could be carried in pipes to fertilize agricultural lands in the neighborhood of the city. The advantage of this last was illustrated by a sketch of the manner in which the same thing has been done in the vicinity of Edinburgh, in Scotland. The sewage of the city, applied to worthless fields at an annual cost of about half a guinea per acre, in the space of twenty-five years brought them up to a value of five hundred and twenty pounds sterling per acre, yielding grass in the cullings of seven months, amounting in the aggregate to more than a growth ten feet in height. The writer claimed that the proposed improvements for London were equally applicable to New York with its two hundred miles of sewers, possessing, especially in the low-lying parts of the city, the same defects as those of the English capital. With reference to the construction of pavements, their impermeability to gases from below and liquids from above, and also the essentials of durability, smoothness, foothold for horses, and ease of purification, the writer considered the concrete and wooden pavements, tried separately and condemned in England many years since, but which the writer believed could be so combined as to constitute a practically perfect pavement, the concrete serving as an impervious foundation for the wooden blocks, which should be thoroughly impregnated with some antiseptic and preservative substance.

* * *

How to Kill a Dog.—It sometimes happens that it becomes necessary to kill a favorite pet, as a dog, for instance, where the owner wishes to get rid of him in the easiest possible way, so as not to be either a witness or accessory to the pains and barbarism of shooting, or the spasmodic effect of strychnine. Mr. Eben Wright, Dedham, Mass., has communicated to the *American Agriculturist* a method which *he* has adopted, and which he recommends to all who may be as sensitive as he is about such things (and we are happy to say that such people are rapidly increasing in numbers). This gentleman laid his dog on a blanket, in a box, and after pouring upon him about four ounces of chloroform, covered him with another blanket, closed the box tight, and his pet *went to sleep.*

Mechanical Progress.

The York County Iron Ore.—The *U. S. Railroad Register* does not endorse the rather extravagant statements in reference to these Pennsylvania iron beds, which have been going the rounds,—although it considers them valuable. "They are only peculiar in being very easily crushed and washed to a pure magnetic oxide black sand, resembling that found and used on the shores of the St. Lawrence, below Quebec; and in fact they are the same ores, lying in the same rocks. In the puddling furnace, this ore carries up the quality of the iron, toughens and hardens it, and gives it a steely nature; but it can't pretend to make it into 'good merchantable steel.' Now and then a batch of blooms will come out so nicely carbonized that very respectable chisels can be made of them. Magnificent rail bar iron has been thus produced. With Whelpley & Storer's *high speed fuel dust fan and tuyere* furnace arrangement (getting up a manageable heat as great as any that Siemens can get up in his costly and cumbersome regenerating furnace) we expect from it even the direct production of shear steel, if such be a possible achievement of man. But at present the York county ore beds are simply and solely valuable, as being extensive deposits of *sand mixed with crystals of magnetic iron ore*, free from sulphur, and so loosened by the dissolving rain drainage of ages, as to be easily worked and washed, and offering a first-class *mixture* for the use of the furnace man and of the puddler."

Diamond Cutting in Boston.—The *Manufacturer and Builder* says that Boston diamond cutters are coming into strong competition with the Amsterdam workmen who have so long held the monopoly in that business. "The firm of Crosby, Morse & Foss, are the pioneers, and have made improvements on the method employed. In place of using the horizontal wheel on a perpendicular shaft, set in a ponderous wooden frame, a small iron-topped table is employed, with a solid stanchion projecting upward from the center, and reaching over to form the upper bearing of the perpendicular shaft, which is provided with a lower bearing beneath the table. The wheel is fixed in the center to revolve horizontally on a level with the surface of the table. Thus the steadiness, so absolutely necessary, is obtained without recourse to bulky framing, and this improvement has already been copied in Europe."

New Pumping Engines.—We clip the following from the correspondence of the *Iron Age*, May 19th: "The Philadelphia Hydraulic Works have lately completed a peculiar engine for the water works at Newcastle, Delaware. The machinery consists of a pair of pumping engines, side by side, running in unison, without shaft or fly-wheel. The steam extensions are peculiar, each embracing, under cover of what appears to be a single cylinder, a distinct pair of cylinders, one being only one-third as large as the other. The steam is used first, high pressure, in the smaller, exerting a second force, low pressure, upon the piston of the larger. A pair of double-action horizontal air pumps, situated between the engines and driven by their motion, create a continuous vacuum upon the exhausting ends of the low pressure cylinders. This combination results in the consumption of but a nominal amount of steam. This is a especially new wrinkle in steam machinery."

Changing Horizontal to Vertical Rotation.—A Belgian has invented a new method of transmitting the motion of the horizontal vane-shaft, in a windmill, to the vertical working shaft. It is a steel spiral a foot in diameter, of some fifteen turns, and attached by its two ends to the two shafts respectively. These shafts have, upon the ends to be attached, iron caps of the same diameter as that of the spiral. The steel ribbon of which the spiral is made is two inches in diameter and from one-eighth to one-fourth-inch in thickness.

Petroleum Burning Locomotives.—Two locomotives on the Paris-Strasbourg Railway have been fitted up with Deville fire boxes and draw heavy freight trains. They consume from 3½ to 5 kilogrammes for every kilometer of road—*i. e.* 12 to 18 lbs. per mile; no smoke; no waste; and no sulphurous gases and odors in the tunnels traversed.—*U. S. R. R. Register.*

Steam from Gas Fuel.—The India Dock Wash-houses have adopted Jackson's patent for the hoisting works. The London *Mining Journal* thus speaks of it:

"The boiler, which is of 2-horse power, and occupies a space only 3 ft. square, is heated entirely by gas, the steam rising between 6 and 7 lbs. per minute, and affording an abundance of power for the steam crane, which has a cylinder 6 in. diameter and 10 in. stroke, working a cage 7 ft. 1 in. by 5 ft. 6 in., and capable of holding upwards of 20 full-sized chests of tea. The cage, however, is seldom loaded in this manner, it being found that greater expedition and economy of labor result from running the chests direct into the cage, on the ground floor, without removing them from the trucks on which they are taken out of the vans. The cage and trucks are raised to the floor required, and forthwith wheeled to their allotted bed. The system requires no stoker, brickwork, chimney, fire-bars, nor smoke-consuming apparatus, whilst with regard to efficiency, safety, and cleanliness it is without equal. The cost of gas for cranes of this size while at work is found to be about 6d. per hour. Wherever an ordinary gas supply exists the gas-boiler can be satisfactorily employed, and where the use of steam-power is required only occasionally gas generated steam would be economical, whilst that generated in the ordinary manner would be altogether inapplicable."

Cylindrical Cars.—A Glasgow inventor has designed a wrought-iron railway car of cylindrical form, which is described by *Engineering*: "The plates, of wrought iron or steel, are riveted on annular ribs, which act as ducts for the admission of air at the top, carrying it below the floor, and discharging it there, to rise up into the body of the carriage by apertures in the floor. The cylindrical form gives strength to resist side pressure, while longitudinally the carriage body is stiffened by angle-irons and roof plates, as well as by floor supports and semi-tubular strips. In the event of a collision, these bracings and stiffening strips will offer more resistance than an ordinary wooden carriage, while there is no danger of splinter from the iron. The plates being riveted from the outside upon the ribs would naturally start outward, and consequently from the passengers, exposing them to less danger." The heating apparatus is suspended beneath the carriage and the warm air conveyed through pipes. The weight and cost are said to be less, and the carrying capacity greater, than those of the cars in ordinary use.

Compound vs. Single Engines.—B. W. Farey, whose name is often mentioned in connection with experiments of this kind, writes *Engineering* of some new comparative trials made by him, and closes thus: "I would mention that it is generally believed that the friction of the compound engine is greater than the single cylinder; from direct experiments, this I find to be the reverse, as the pistons do not require to be so tight in the cylinders as in the single cylinder engines, because the difference of steam pressure is not so great, and any steam escaping the small piston does not go direct into the condenser, but has to escape the low pressure piston; and consequently in practice from this and other advantages, the compound engine (using of course the same pressure of steam in the cylinders) is found to run much longer without repairs than the other class."

Compressed Air for Street Cars.—A company has been organized in New Orleans for the application of compressed air as a motive power for street railways. For economy in weight, the cylinders into which the air is compressed are to be made of *paper*. A trial cylinder of this kind has borne a pressure of three hundred pounds to the square inch without yielding. A car fitted up for experimental purposes, with leaky iron cylinders (weighing 1,600 pounds) made three miles and a half in seven and a quarter minutes, carrying twenty-eight passengers. The cylinders are to be on the top of the car, and are to be charged at the depot by means of a stationary steam-engine.

Fan-Blowers.—B. F. Sturtevant,—says the Boston *Commercial Advertiser*,—is turning out 2,000 of his fan-blowers per year. This invention is covered by eighteen patents, and two more are pending. He employs over one hundred hands in the manufacture of these machines and others of his invention.

Scientific Progress.

Ammonium and Hydrogenium not yet Proved Metals.

Prof. C. A. Seely read a paper at the meeting of the Chemical Section of the New York Lyceum, on May 9th, in which he showed that the amalgams, so called, of ammonium and hydrogenium are simply metallic froths, and consequently these substances are not proved to be metals. An abstract of the paper is given in the *Chemical Repertory*, from which we quote and condense:

"The author considers the so-called ammonium amalgam to be a mechanical or physical mixture of liquid mercury with the gases ammonia and hydrogen, and that its semi-solid consistence is due to the mixture having the nature of a froth. When sodium-amalgam is brought into a solution of sal ammoniac (the ordinary method of preparing ammonium amalgam) the chlorine combines with the sodium, and the residue of the sal ammoniac is set free all over the surface of the mercury. The particles of the mixed gases adhere to the mercury, and by reason of the movement bringing to the surface fresh mercury, they become enfilmed and carried inward, until the mixture becomes a homogeneous froth. The principal considerations by which this view has been reached, are as follows:

1st. The volume of ammonium amalgam is inexplicable in any other way. * *

2d. Mercury has a mirror-like surface, while ammonium amalgam has a comparatively whiter and more dead surface. * *

3d. If ammonium amalgam be subjected to varying pressure, its volume changes apparently in accordance with Mariotte's law of gaseous volume. * *

The so-called ammonium amalgam is, therefore, not an amalgam at all; ammonium is not proved to be a metal, and if it be admitted that the monatomic radical really exists in ammonium amalgam, it is neither a solid nor a liquid, but a gas.

The considerations regarding ammonium amalgam are equally applicable to Loew's hydrogenium amalgam; both are only metallic froths. The expansion of palladium observed by Graham, on its absorption of hydrogen, is probably analagous to the case in question. * * Many have erroneously supposed that hydrogen was conspicuous in its capability of being absorbed by metals, and thus have more readily been infused with the hydrogenium theory. Oxygen has an eminence over hydrogen in that property, and yet no one has a theory of oxygenium. Iron absorbs carbonic oxide, but no one is bold enough to suggest that carbonic oxide is a metal."

Age of Nova Scotia Limestones Determined by the Microscope.—We take the following from an article by H. Y. Hind, M. A., in the *American Journal of Science and Arts:* "In the autumn of 1868, Dr. Honeyman, then engaged on the geological survey of Canada, discovered on the Gulf coast of Nova Scotia, in the Arisaig district, syenites, diorites, and crystalline limestone, with serpentine, which he supposed were of Laurentian age. Specimens were sent to Montreal for examination, and instructions were given by Dr. Hunt, who shared Dr. Honeyman's opinion, to the lapidary, to prepare sections of the serpentinous rock, for microscopic examination. By some mischance the specimens remained unexamined until quite recently. When submitted to the microscopic test, the *Eozoon Canadense* was distinctly seen, and Dr. Dawson has confirmed the observations. This not only affords most satisfactory testimony to the existence in Nova Scotia of the Laurentian limestones, but it enables geologists to recognize the truth of Dr. Honeyman's opinions, although by an accident these opinions were not made known or confirmed until after the publication of my Report."

Science does not Deal with Abstractions.—The discussion between Professors Walling and Van der Weyde continues. We give a single paragraph from the latter's last: "I have come to the conclusion that the true road to progress in the science of physics lies not towards abstract hypotheses of caloric fluids, luminiferous or electric ethers, or forces capable of moving bodies, all having an independent existence in space. The index-hand of modern science points in a very different direction; namely, towards the study of *matter* and *motion of matter*, and nothing else, dropping all metaphysical assumptions of which matter is not the basis."

Figures Produced by the Electric Spark.

Prof. Eli W. Blake, Jr., of Cornell University, gives in *Silliman's Journal* for May a method of producing by the electric spark figures similar to those of Lichtenberg, which were due to the position taken by light particles of dust upon an electrified surface. We quote:

"Prof. Rood has shown that figures entirely similar in form are produced, when the spark is allowed to fall on the sensitized collodion film of an ordinary photographic plate, and the latent image is developed in the usual way. The method I have to describe consists in throwing the discharge upon the surface of a fusible non-conducting body. If the body be near its fusing point the figure appears at once,—if cold, a latent image exists which may be 'developed' by heat. The non-conducting surface is prepared by coating a plate of metal with an even film of pitch. Pieces of sheet-tin, three inches square, coated with films of pitch of a thickness varying between 0·01 and 0·02 inches, were used in most of my experiments. The pitch was the ordinary commercial article, freed from sand, fragments of bark, etc., by being melted and strained through a muslin bag. Shellac, rosin, Burgundy-pitch, bees-wax and Canada balsam were in turn tried as substitutes for pitch, but with unsatisfactory results. * * The discharge having taken place, the plate may be removed for development. This process consists in gradually warming the plate over a lamp. The metal side must be presented to the lamp, as the slightest touch of a flame on the excited pitch instantly dissipates the electricity. At a certain temperature (in my experiments about 60° C.,) the figure will begin to appear, and in a few seconds the development is completed. The plate being now allowed to cool, the figure becomes permanent. If the plate be overheated the figure is destroyed. It may be instantly obliterated by exposure for a second to the naked flame, and the plate may then be used again. * * An interesting fact, in connection with this subject, is the length of time that may elapse between the reception of the spark by the plates, and the development of the figure. Several plates were charged in immediate succession, and developed one by one, at intervals of two hours. The last, developed after twelve hours, showed hardly any loss in depth or sharpness, although the weather was damp and unfavorable. Of another series the last, developed after *seven days*, still came out distinctly."

Phosphorus Essential to Organization.—The following is from a paper on nutrition read by Dr. Ott before the New York Liberal Club, May 4th: "Among all mineral ingredients, none are more especially attracted and retained by the tissues of the animal body than the phosphoric acid and the phosphates. The higher the organization, the larger the proportion of phosphoric acid and its compounds required. It has been found by Bousarelli that among all the organs of the body, the brain contains by far the largest amount of phosphated fat, the amount of phosphorus being twice as large as that in the muscles. Phosphate of lime is present in every tissue; moreover, all secretions from the blood, which are distinguished by their plasticity, exhibit phosphates; and, according to some investigators, these salts are required to supply the first basis for a new tissue, even in the case of those organs which subsequently exhibit an excess of carbonate of lime."

Antiquity of the Table Mountain Remains.—In a recent letter to the editor of the N. Y. *Mining Journal*, Prof. Whitney says that the mammalian remains so far identified as underlying the basaltic lava of Table Mountain, bear a closer relation to those of the rocks classed as Miocene by Leidy and Hayden, than to those of their Pliocene. The fact that all are of extinct species, together with the enormous denudation in that region, indicates the great antiquity of the strata. He adds that "the evidence of the vast antiquity of the human race in California is gradually accumulating. You may look forward to an interesting chapter on that subject in the next volume of the Geology of California."

Extracts of medicinal plants are now made with the bi-sulphide of carbon by M. Lefort.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

M. C. Tunnel No. 3.—*Miner*, May 21st: The working of ore at Reno mill, gave a return of $44.74. This is ore out of the tunnel 100 feet from the east wall, where the main deposit is known to lie.

Large loads of lumber, track iron, powder and other supplies pass through Monitor for the Leviathan.

Scandinavian Canon.—*Chronicle*, 21st: Since the purchase of the Buckeye 2 mine by the Exchequer Co., and the succesful working of its ore, the mines in the cañon have been attracting unusual attention. There are several claims which are known to be good. Most of the work now done here is paid for by New York and London capitalists. The claims held by San Franciscans are allowed to remain unworked.

Exchequer.—Work progresses. The road is finished, and grading going on for a large boarding house for the men.

Adolphus.—This is a claim relocated in Scandinavian cañon. A shaft is being sunk on the ledge, and the ore now coming out looks well, showing ruby.

AMADOR COUNTY.

Kennedy.—*Ledger*, 28th: We learn that the Co. have made a rich discovery. Some time ago they let a contract to sink their shaft 100 feet deeper, and on Tuesday last, 50 feet from where they commenced sinking, they struck a four-foot vein of the richest rock we have looked upon for many a day. The specimens exhibited are completely studded with free gold and rich sulphurets.

BUTTE COUNTY.

Quartz.—Oroville *Record*, 28th: Mining in Butte is beginning to look up again. We understand that in addition to Mr. Halstead's mill now worked at Oregon City, the Derrick mill will soon be started again.

Work Commenced.—The work on the canal of the Spring Valley Mining Co., which is to carry water into Cherokee, has commenced in earnest. Seventy laborers passed through town on Tuesday to commence.

CALAVERAS COUNTY.

Palomo.—*Chronicle*, 28th: Work is progressing favorably. The new battery of 20 stamps will be in operation in a couple of weeks. The most of the machinery is already on the ground.

Petticoat.—We are informed that work will be speedily resumed upon the mine.

Machinery.—The machinery for the Hepburn mill at Railroad flat, which is being remodeled by Mr. Burr, has arrived. The mill will soon be in operation.

Items.—The Harkins mine, Monitor district, probably the richest gravel claim in the country, continues to pay fabulously. ....Mullen & Co., same district, are daily expecting to strike the channel; their tunnel is 800 feet in length, through bed-rock. ....Paul & Co. are industriously at work. ....Whittridge, at the Junction, is at work....The indefatigable Shaw looks contented—indications of healthy sluice-boxes....Brackett & Co. struck it some time since....The Union shaft boys will commence taking out pay gravel again the first of the week.

EL DORADO COUNTY.

Gold Dust.—Placerville *Democrat*, 28th: During the week there has been shipped through Wells Fargo & Co., $15,690.

Georgetown.—Cor. of same: The negotiations for the sale of the Eureka mine fell through. Work on the claim has been commenced, and yesterday the mill was started, the determination being to fully prospect the claim.

NEVADA COUNTY.

Pennsylvania.—*Transcript*, May 25th: The water is to be pumped out, and there is every prospect that the mine will soon be yielding again.

Items from the Ridge.—Same of 26th: The English Co., on Buckeye hill, Sweetland, cleaned up $15,000, the proceeds of a short run....The Buck and Breck claims, owned by a Chinese Co., have been paying big, and the Chinese have sunk all the money for the purpose of extending their operations. The claim is nearly worked up to their line. The company is negotiating for the purchase of one-half of a mile of gravel claims on Shady creek.

North San Juan.—Cor. of same. There are only three companies washing on this hill at present, Foster & Co., Bsech & Co. and Bowen & Co. The Empire company will commence in a few weeks. The supply of water is diminishing. The rumors that the Eureka Lake Water Co. and the North Bloomfield Mining and Ditch Co. were negotiating for a consolidation are probably groundless, although such a thing is to be desired. At Sebastopol, the American Co. stopped washing four weeks ago, owing to the high price charged for water. They have now determined upon building a ditch of their own. The same of 29th says the ditch will start above Cañon creek, and pass through the mining region in the neighborhood of Badger hill, Cherokee, North San Juan to Manzanita hill, ending in the American Co's claims. Its estimate cost is $150.000.

Items.—*Gazette*, 25th. W. C. Stiles is crushing 45 tons of rock from the Mulberry ledge, on Gold flat. The rock contains no sulphurets, and will yield about $13 a ton. ....Same of 28th: A number of the best claims on Diamond creek suspend operations for the season, on account of lack of water. The Omega Ditch Co. are running their ditch full, but are using it all themselves.

Eureka Mine.—Grass Valley *Union*, 25th: Yesterday was the regular semi-monthly melting day, and gold to the value of $28,500 was put into bars. This was from a run of twelve days of the mill, and is independent of sulphuret workings. The Eureka has more than paid its $2,000 per day for the last twelve days.

PLACER COUNTY.

Colfax.—*Stars and Stripes*, 26th: The "Rising Sun" mine is doing an average yield of $2,000 per week. The ledge is very narrow, yet immensely rich. The sum of $15 per foot was offered last week. The Montana Co. have struck their ledge at the depth of eighty feet. It is about eight feet wide, and is excellent looking rock. The Ranger Co., after tunneling through hard rock for two years and a half, expect to find their ledge within a month, at the depth of two hundred and fifty feet. This tunnel will prospect five or six claims on the same ledge,

St. Patrick.—*Herald*, 28th: Rumors have been floating around that Mr. Eston has sold the mine for $45,000. Capitalists from San Francisco have been up, and on Thursday they telegraphed Mr. Eaton to come to the bay.

Another Good Mine,—F. Simons and partner crushed twenty-five tons of quartz this week, which yielded $900.

Evening Star.—The engine and hoisting works have been put in motion, the shaft pumped dry, and good quartz is being taken out. The mill will be in readiness soon.

Colfax.—Cor. of same: The eastern extension of the Rising Sun is known as the "Hazel Green." They are in great glee over their propects.

Ike Herrington & Co. have been sinking a shaft, and have reached the depth of 52 feet. Their ledge is three feet thick, and shows some free gold.

PLUMAS COUNTY.

Taylorsville.—Quincy *National*, May 21st: The miners of Light's cañon are all making good wages—say five dollars per day to the man.

SISKIYOU COUNTY.

A Chunk.—Yreka *Union*, May 27th: Romine & Co., of Humbug, found one day last week in their tailings, thrown out last year, a chunk of gold weighing eleven ounces.

Scott Valley.—Shaw & Co., Smith & Co., S. Mooers, and Howard & Co., of Miggingsville, are working their claims with flattering prospects. Wright Bros. and J. Young, of Oro Fino, are working a large number of hands, night and day. Patterson creek, though located but last fall, is almost entirely claimed. Burge & Co. struck dirt that prospected three dollars to the pan, while running their tail-race. Carpenter & Co., Tuttle, Horn & Co., Swan & Co.. and several other parties, have their claims opened. Coalman, Reynolds & Co., and others, on Rattlesnake, are receiving good pay. Bailey & Co., Short, Duff & Co., Hooper & Co., and Star & Co., of Indian creek, are getting fine prospects; McAdam's, Deadwood and Cherry-creeks are holding their own.

SIERRA COUNTY.

Scales' Diggings.—*Democrat*, 26th: Cox and Williams sunk a shaft, have a tunnel run to it, and are now prepared for work. They have an engine on the ground. Mr. Van Rensalear, of Brandy City, proposes to bring in big Cañon creek, by means of a ditch and flume. Those who have water and grade are doing well. Mr. Boyce and brother have done finely. At Council hill they were taking out first rate pay. The claims at Union hill, owned by Miles & Co., are still prosperous.

Iowa.—This company, on the ridge five miles below Port Wine, have a shaft 160 feet to the bed rock, and 26 feet of gravel, all containing gold. They have run a tunnel 1,160 feet, tapping the shaft, through which they expects to drain the ground. They have an engine and expect to start before the 4th of July.

Fir Cap.—This Co. have run a tunnel 1,460 feet, and have now one foot and a half of gravel at the top of the tunnel. This prospects finely, and they expect soon to commence taking out gold.

Poverty Hill.—A San Francisco Co. have commenced a tunnel, to be 6x7 feet in the clear, and 1¾ miles long, which will drain a large amount of ground, and through which claim-owners will be allowed to work for a consideration. Another good chance for capitalists is the bringing in water from Slate creek. It would pay.

Monumental.—It is reported that this company have found another rich deposit in their lower tunnel. We heard that they had taken out yesterday several thousand dollars. This is the Co. that took out the 106-pound lump last summer.

Items.—*Messenger*, 28th: Water is failing at Eureka, and one company has cleaned up....The Reis Bros. will put up new mills this season....The Cox tunnel, near Poverty Hill, is finished....Parker & Co., of Slate ravine, took out a nugget of gold and quartz valued at $58....The Dreadnaught Co. have been crushing rock at the Docilo mill for several weeks.... The owners of the Highland Mary have started a tunnel at Wahoo, on the opposite side of the ridge from Port Wine.

Monumental.—The new strike gave out seven or eight thousand dollars in one day. The tunnel where they have struck pay is 200 feet lower than where they were working last season. This is not a quartz ledge, but a seam of oxidized sulphurets. The company are working a chimney, and where they took out pay last summer it pinched out to a mere streak.

SAN DIEGO COUNTY.

Julian District.—Los Angeles telegram, May 21st: The leads being developed are the Washington, Mount Vernon, San Diego, Lincoln, High Peak, which show better defined ledges, widening on sinking. On all of them shafts are down from 20 to 60 feet. Seven thousand dollars has been refused for the Mount Vernon.

TRINITY COUNTY.

Not Worked Out.—*Journal*, May 28th: John Keach and a Portugese came to Weaverville, Thursday, from Pony creek, bringing with them a gum-boot leg filled with gold. One hundred and twenty ounces of the largest specimens were on exhibition at the bank that afternoon. Among the lot were two thirty-five ounce pieces. During the last two weeks, John and his hired man took out nine hundred dollars.

New Diggings.—There is some excitement on New river, caused by the discovery of a channel on the east fork which prospects well.

Arizona.

Walker District.—Prescott *Miner*, May 14th: C. Y. Shelton, owner of the Vernon lode, got $31 one day recently, rocked out of decomposed ore.

The New Mines.—Correspondent of the Amador *Ledger*, dated Fort Selden, New Mexico, May 4th: I can only say it beats all yet discovered for extent and richness. There is one lode, the Capitol, which is 40 feet above the surface, 200 feet wide, and assays from $20 to $12,00 per ton. There is another, the Leo, which is at least 400 feet high, 2,000 feet wide, and assays from $40 to $1,800 per ton; and there are a great many more. I saw assays from different leads running from $20 to $1,980—making an average of $680 to the ton—and all top rock. There is not a shaft sunk over six feet yet, and none of the rock assayed was taken from below the surface. Now for the disadvantages: In the first place, water will have to be brought from San Sumon Senaga, 32 miles, in iron pipes, and raised 900 feet. Wood will have to be hauled 40 miles. There will have to be at least a million and a half of dollars spent before the mines can be worked to advantage. The country is taken up for miles.

Colorado.

Items.—Central City *Herald*, May 25th: M. B. Hayes' mill is crowded with ore from the Roderic Dhu and the Dead Broke lodes. Mr. Hatch's 12-stamp mill will soon be running on ore from the Anoka lode. A 4-inch streak of this ore assays $583 to the ton. ....At the Coaley business is lively, and the daily yield 8 tons of first-class ore. ....In the Consolidated Gregory there is a body of water 300 feet long and 200 feet deep. In the Black Hawk twice as much. The Briggs and Smith & Parmelee mines will be filled in a few days. In the Gregory the ore is very rich. The run cleaned up 13 ounces to the cord....J. B. Plummer is running his mill on ore from the Niagara lode in Russell....Phillips, Snowdon and Gleason are putting up an 8-stamp mill above the Illinois lode....Bela Buel will start up the Illinois mill....Mr. Hardesty has started up his new mill in Nevada, and Mr. Chatfield is fitting up the old Boston mill....The Prize lode is paying big.... Sullivan and Wheeler are preparing for extensive operations on the Roderic Dhu.

Pewabic.—*Register*, 25th: E. S. Perrin is working this mine again and getting 46 ounces per cord.

James Creek.—Boulder *News*, 18th: J. Whoosley is running Strock's arastra on ore from the Golden Clay lode....John Keen is fitting up Batchelder's arastra to run on ore from the Wabang lode. This lode has opened up nice....John Virden is getting his arastras ready to run on ore from the American....J. C. Jencks is mining at the mouth of Hill gulch. He is down to the bed rock, and has splendid dirt.

Linn Tunnel.—Georgetown *Miner*, 19th: We learn that work will be recommenced in a few days and pushed vigorously.

Terrible.—This morning a bar of bullion, weighing 1,065 ounces and valued at $1,108.46, in coin, the product of Terrible ore, worked by Huepeden & Co., was shipped.

Montana.

Rocker.—*New North-West*, May 20th: There are 150 men in the vicinity—100 working day and night while water is plentiful. The ground is paying from wages up to $50 per day.

Henderson Gulch.—There are 80 white and 45 Chinamen in the camp. This year there will be good water until July. Work began April 16th, and more money has already been taken out than in 1869. The claims are running night and day, some running three eight-hour shifts. Wages for eight hours are $5; ten hours, $6. Woodlock, Butler Barmingham and Hennessy are taking out $250 to $300 per day. On No. 3 the McPhail Bros. are taking out $30 to the hand. Davis, Terril & Co's bed-rock flume was cleaned up with good prospects. Robt. Ferguson, in running a cut for his good ground, found $9 to the hand in his boxes. The gulch claims will average $13 to the hand. The most of the ground was stripped last winter. The weekly yield of the camp is not far from $7,000. On Harvey creek 16 men are working a bed-rock flume. It is yielding $20 to the hand.

Boyle's Gulch.—*Independent*, May 21st: The claims have been laid over until the 15th of August. A ditch three miles in length will be dug.

Cable.—The new steam hoisting and pumping machinery is a success, and the main shaft is progressing favorably. The Tunnel Co. intend in a few days to resume operations with a large force.

Georgetown.—Jameson and Co. are mining upon an extensive scale. Ten feet of waste dirt is ground sluiced off, and the balance shoveled into sluices. They have erected a flume one-half mile in length.

Pipestone—The following companies have good ground: McDougal & Co., Wood & Belcher, C. Cook & Co., George Worthington, and Mr. Miliner. Some good mines have been found on the Big Pipestone, but the high water has prevented work.

Clipper.—*Times*, 18th: J. Wysnt is getting six ounces per ton in his arastras.

Wigwam Gulch.—The water has fallen and the miners are all at work.

Philipsburg.—Cor. of Helena *Gazette*, 23d: Merrill & Ullery have got their main shaft on the Western Comanche lode down seventy feet, and are taking out some of the richest ore that ever came from this mine. Our Camp creek furnace is nearly completed. The Speckled Trout lode is one of the best in the Rocky mountains. The Yankee Charley Co's shaft is down 114 feet.

Diamond City.—The water has flooded all the claims in Confederate gulch, and driven the miners all out. The shafts are full of water and the drifts have caved. About 2,000 inches of water are used in hydraulic mining on Boulder bar, Montana gulch, Greenhorn and El Dorado bar, which all promise well, especially the latter. Metcalf, McGregor & Co. are moving the gravel out of Montana gulch at a great rate, using 400 inches of water.

Gold Creek.—One company made five days run and cleaned up $1,996,54. Several more will clean up this week. There are three large ditches, but not half enough water, and many claims will be laid over.

Nevada.

COPE DISTRICT.

New Ledges.—*Independent*, 28th: On the 6th, three miles west of Mountain City, Pressnater & Co. discovered a silver ledge, showing splendid prospects. The ledge on the top is six inches in width; at the depth of 17 feet, 13. The company has already taken out two tons of ore, which will be shipped to San Francisco for reduction.

John Upton discovered a new ledge, which has been named the Ada Gassage.

HUMBOLDT.

The District.—*Register*, 28th: At Humboldt City there are several companies at work, and prospects better than since '63. The boys in Florida cañon are driving with energy. Alpha mine is looking finely.

Battle Mountain ore and bullion shipments are increasing,

Doing Well.—The Marysville *Appeal* of 26th says that John C. Fall is now the sole owner of the Arizona mine in Humboldt, Nev. Last year he took out about $500,000 and he expects to take out at least $1,000,000 the present year. He has from fifty to sixty men employed.

REESE RIVER.

Rich Strike.—*Reveille*, 25th: A streak of ore, about 4 inches wide, of unparalleled richness, has been struck in the Oregon mine of the Manhattan Co. Superintendent Frost thinks it will mill at the rate of $2,000 per ton.

WASHOE.

Outside Claims.—*Enterprise*, 29th: Much more attention has of late been paid to claims off the Comstock. About Silver City a large number of claims have been opened which have been idle for years.

Hale & Norcross.—Yielding daily 160 tons, 50 from the 175-foot level. The development at the 1200-foot level is the most satisfactory and encouraging on the line of the Comstock. Excavations have been made in this body of ore, showing it to be of immense extent.

Bullion.—The north drift at the 500-foot level has not disclosed any favorable features. The arrangements are being made to resume prospecting at the 1,400-foot level.

Chollar-Potosi.—The daily yield is 170 tons, averaging $50 assay.

Sacramento & Meredith.—The water from the Allen shaft has not proven sufficient to supply the battery. No difficulty has been encountered which cannot be readily overcome.

Belcher.—Daily yield, 70 tons; average assay, $37. The main source of supply is from the 152-foot level and above it. A good body is also developed above the 262-foot level in drifting south. It assays well and is eight feet thick.

Ophir.—The tunnel has not yet reached the west wall, nor revealed the existence of any ore at the point where it cuts the lead.

Gould & Curry.—About 50 tons per day is being extracted, showing an average assay of $40.

Crown Point.—The old upper workings yield 65 tons per day of low-grade ore, which is shipped by railroad to mills on Carson river.

Daney.—The east portion shows improvement, and the west breast looks well: The ore is of low-grade but can be milled profitably.

Virginia Consolidated.—The tunnel west from the shaft at the 500-foot station is in 375 feet. The water was somewhat increased.

Sierra Nevada.—No new development. The supply of ore is ample for the mill, and could be greatly increased if desired.

Sutro Tunnel.—The tunnel is in 1,117 feet. The ground remains about the same.

Resumed.—Work has been resumed on the old Solferino mine, which has not been worked for several years, owing to the unsettled condition of the title.

Imperial-Empire.—Gold Hill *News*, 28th: No ore as yet developed in the Holmes ground by the drift from 1,100-foot level. They are now drifting southward.

Yellow Jacket.—The rich new body of ore at the 900-foot level, breasts out 60 feet in width, with no wall as yet. It is the best and most extensive deposit yet found in the mine.

Occidental.—The lower tunnel is being driven with energy, but harder rock being encountered, not so fast as could be wished.

Hope.—The daily yield is 30 to 35 tons of $20 ore, keeping both mills running. A fine body of ore is developed at the lowest level.

Overman.—Daily yield, 130 tons from the 226 and 500-foot levels. No prospecting at the lower levels.

Bowers.—Work was started up in the old Bowers mine, during the past week, under a contract.

Kentuck.—Yielding 35 tons of ore per day.

WHITE PINE.

Items.—*News*: Bullion shipments for the week ending May 23d amounts to $45,720.70, of which $29,571.06 went to San Francisco and $16,149.84 to New York. Of this amount, the Aurora South shipped $13,741.25 and the Original Hidden Treasure $6,092.64. The shipment of the South Aurora mine and Stanford mill for the last 35 days foots up $77,821.18....Four Aces is rapidly developing into a first-class mine, the ore being singularly free and abundant. ....Bowie & Brown shows a continuous body of milling ore on each side of the 50-foot tunnel....Original Hidden Treasure shipped $6,092.64 in bullion last week.... Coin, near the north end of the Base Metal Range, is showing a body of very rich ore in the left face of a 15-foot incline from the open cut—average assays showing $1,127.86 to the ton....Work is to be recommenced on the Phœnix, closed since last fall....Erie (base metal) is down 122 feet in a 7-foot vein of solid ore assaying $1,200 to the ton in silver. A fine road has been built to the Shermantown grade. ....Shipped, 23d, base bullion, 666 bars, weighing 60,250 pounds.

Outside Districts.—Many are prosperous. Silver Park runs 20 stamps. Ely runs 5 only, but in a few weeks will add 20. The machinery of a mill for Shoshone is now on the road. Patterson is attracting more attention. Robinson is building smelting works.. Cooper is opening splendidly, and the Mollie Rutter mine is shipping ore to Silver Park. Clifton is attracting a great deal of attention, and rich discoveries of gold and silver have been made. Kern is rapidly filling up with the right kind of men. Pinto has been shipping large quantities of high-grade base ore. Eureka is prosperous, and is shipping large quantities of base bullion. The mill of the Social and Steptoe Co. has been temporarily closed while the change is being made from wet to dry crushing.

Bald Mountain.—A correspondent says: "The variety of ores, the unlimited supply of wood for reduction purposes, and its never failing supply of water—a rare occurrence in Nevada—will, upon the completion of the proposed railroad from Elko to White Pine, render it second to no mining district in the State."

Idaho.

Loon Creek.—*Avalanche*, May 21st: A friend at Oro Grande writes that the water had been so high as to stop all work, but the miners thought they could resume operations Monday. The high water had done no damage.

Snake River Mines.—Work has been suspended owing to the high water, which will last two months yet. There have been some very rich spots discovered, but few claims yet struck are regarded as of much importance.

The Ida Elmore, Golden Chariot and Corduroy mines continue to yield rich quartz in abundance.

Summit Flat.—The *World* says Mr. Clarkson has 150 tons ore on the dump from the Mammoth lode. Mr. Goodwin's mill started up a few days ago on rock from the King ledge. The ore looks well in both lodes.

Centerville.—The mill of the Gold Hill Co., Granite creek, cleaned up after a ten days' run, on what was considered refuse quartz, $4,200.

Mexico.

Sinaloa.—Copala cor. of *Alta*, May 11th: The Sombrero mine is paying $4,000 a week, under the management of one of the chief owners. The Cinoseros mine, once famous, has been taken hold of by a San Franciscan of means and gives evidence of being restored. Captain S. S. Davis has a well organized band of Mexican miners at work, at prices for labor less than a third of the rates paid in the silver mines of Nevada, and the ore is of high grade. The Alicran mine is likely to show results similar to Sombrero.

New Mexico.

Sale of the Maxwell Grant.—Santa Fé *Post*, May 21st: We learn that Lucien B. Maxwell, Esq., has effected a sale of his land grant to a company of English capitalists for the sum of six hundred and sixty thousand dollars.

The *Press and Telegraph* of May 21st says the new mines are in Grant county, New Mexico. The same gives a letter from Ralston, the town laid out at the mines, which confirms the accounts which have been published. For further news from these new mines, our readers may this week look under the head of Arizona.

Oregon.

Canyon City.—Dalles *Mountaineer*, May 24th: The miners of Grant county are doing unusually well this year, and already large amounts of gold dust have been shipped away.

San Francisco Mining Stock Market.

The mining share market exhibits no buoyancy, and prices of nearly every stock on the list have declined since our last issue. Nevertheless, the business of the Board has been very fair, the sales aggregating fully as much as for some weeks past, but it may be remarked that these transactions principally partake of a speculative nature, outsiders still continuing reticent with regard to investment. At the close, a very marked decline took place in some of the leading stocks, which induced holders to part with their shares rather freely.

Chollar-Potosi—has been moderately active at uniform figures, closing at a recession. During the week ending May 27th, 1,142 tons of ore were extracted, showing an average assay value of $50 50 to the ton. Since our last report, the Belvidere section has yielded a large amount of ore, and, with the exception of the tunnel level, the various faces look equally as well as they did the previous week. At the first station of the New Shaft the raise has been completed, and they will soon commence to drift west.

Gould & Curry—sold rather freely at a rapid decline, particularly at the close. For the week closing May 30th an ore-product of 403 tons is reported, the average assay-value being $44 20 per ton. During the same time the following work has been accomplished: fifteen feet have been added to cross-cut No. 1, on the 7th station—face in black porphyry; 23 feet have been made in cross-cut A—quartz, with small seams of clay; advanced 25 feet in the incline on the second station—rock and quartz; from the 14th floor, 100 feet below the lower adit, a drift was started west on the 23d of May, and in a week's time 42 feet were made, showing quartz and porphyry. In the El Dorado level, the cross-cut running west is yielding a considerable quantity of good ore, and in the south-east drift, middle adit level, sixteen feet have been made, the face showing quartz, clay, and porphyry. A drift was started west from the United States Tunnel, on the 23d of May, and driven 40 feet, encountering quartz and porphyry. They recently sent forward $10,713 in bullion.

Hale & Norcross—has been dealt in to a limited extent, realizing less than opening rates of the week. During the week ending May 28th, the various ore-producing localities yielded as follows: 175-level, 205 tons; 300-level, 148; 535-level, 219⅛; sixth station level, 105⅛; seventh station level, 770¼—total, 1,448¾ tons; previous week, 1,698⅛ tons. They have in the dumps, 5,830 tons. The various deposits of ore continue to yield largely, and, having their ore-houses full, they availed themselves of the opportunity to retimber the shaft the present week. On the 31st of May they sent forward $27,166 in bullion.

Kentuck—continues to decline. During the week closing May 27th, 190 tons of ore were extracted, yielding an estimated value of $3,146 53 in bullion, equal to $16 56 ℔ ton.——**Crown Point** also declined. For the week closing May 27th, 274¾ tons were raised, valued at $6,749 65, or $20 92. Annual meeting, Monday, June 6th.——**Imperial** declined to a considerable extent. A letter dated May 31st says that no change has taken place in the 1,200 drift, and that they still continue in porphyry. The winze had attained a depth of 52 feet, mostly in clay, showing that the wall is turning to the west.——**Segregated Belcher** sent forward $5,072 48 in bullion on the 1st, and from $4,000 to $5,000 was shipped on the 2d.

Belcher—sold to a larger extent than during the previous week, at the recent sympathetic decline. On the 30th of May, they sent 484 tons of ore to the Rhode Island Mill, and forwarded $7,571 73 in bullion to the office in this city. It is said that the ore cut 55 feet above the 262 level continues to yield well.

Sierra Nevada—has been rather active at uniform figures. The ore product for the month of May is given at 1,800 tons from the gravel deposits, and 20 tons from the ledge.——**Ophir** changed hands freely at a material decline. On May 31st, they cut the west wall at shaft No. 1, without finding anything at all encouraging. The southwest drifts show no change of importance. At shaft No. 2 work has been discontinued, and at shaft No. 3 work is going on as usual.——**Eureka** (Cal.) announces the usual monthly dividend of $7 50 per share, and an extra dividend of like amount, aggregating $60,000, payable on and after the 7th inst.—*Commercial Herald.*

MINING STOCK QUOTATIONS, JUNE 2, 1870.

WASHOE.

	Bid.	Asked.		Bid.	Asked.
Alpha Con.	$ 8½	$ 9	Gold Hill Q M C.	$ —	$ 2
American	—	—	Hale & Norcross.	131	132
Belcher	16½	17	Imperial	27	27½
Bullion	—	—	Justice	—	—
Crown Point	11	11¼	Julia	—	—
Cole, Va.	—	—	Kentuck	42	43
Confidence	—	—	Lady Bryan	2½	3
Chollar-Potosi	27¼	27½	Occidental	—	9
Con. Virginia	9	9½	Ophir	8⅞	9
Daney	—	6	Overman	74	75
Empire	18	19	Savage	27¼	27½
Exchequer	7	7½	Sierra Nevada	8	8¼
Flowery.	—	—	Seg. Belcher	4	4¼
Gould & Curry	85	90	Yellow Jacket	45	45¼

WHITE PINE.

	Bid.	Asked.		Bid.	Asked.
Aurora Con.	$—	$ 3	Noonday	3¼	3½
Brodt	—	—	Orig. Hidden Tr.	17	17½
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	75c	1	Pogonip & Oth'o	—	—
Hidden Tr. Con.	75c	1	Silver Wave	5	5¼
Mammoth	1⅛	1½	Virginia	—	3

CALIFORNIA.

	Bid.	Asked.		Bid.	Asked.
Amador	$197½	$200	Eureka	$300	$ —

IDAHO.

	Bid.	Asked.		Bid.	Asked.
Golden Char't.	$ —	$ 15	Silver Cord	$—	$—
Rising Star	—	—			

* * *

The beet sugar-mill now in course of erection near San Lorenzo, Alameda County, has a capital stock of $225,000. The cost of the mill will be about $75,000, and it can use fifty tons of beets per day. If these beet-sugar experiments succeed, they will do more to bring California up than any other one thing we can think of.—*Bee.*

* * *

France consumes 910,000 tons of beef; England, 1,560,000 tons, and the United States 2,000,000 tons of beef each year. If quantity decides the point, Uncle Sam can justly brag of being able to beat Johnny Bull at his own table, and claim the prize for being the biggest beef-eater. He, one time, came near eating up the Bull himself.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment	Day Delinquent.	Day of Sale.
Aurora Cons., W. P., May 7, $4	June 14	July 7
Bromide Tunnel, W. P. April 20, 40c	May 55	June 13
Confidence, G. H., May 14, $10	June 17	July 8
Cherokee Flat B. G. April 14, $5	May 16	June 2
Cayuga Chief, W. P., April 29, 15c	May 31	June 21*
Empire M. & M., S. co., April 22, $10	May 27	June 18
Evening Star, No. 1, W. P., June 4, 5c	July 2	July 25*
Gold Hill Quartz, G. H., May 15, $20	June 20	July 11
Imperial, G. H., May 7, $5	June 10	July 2
Julia, Storey co., May 13, 75c	June 15	July 1
Mammoth, W. P., May 26, 20c	July 1	July 22
Mineral City, May 12, $1	June 15	July 2
Mountain City, Elko co., April 8, 50c	May 23	July 11*
Miser's Dream, W. P., April 14, 40c	May 17	June 14*
Noonday, W. P., May 10, 30c	June 15	July 7
Nevada L. & M., Elko co., May 3, 8c	June 7	June 28*
Oriental, Sierra co., April 22, 20c	May 25	June 16
Ophir, Storey co., May 6, $5	June 9	June 30
Placer G. & C., Placer co., April 9, $2	June 17	July 15*
Pinto, W. P., May 2, 10c	June 2	June 20*
Rising Star, Idaho, April 8, 50c	May 14	June 4
Segregated Belcher, G. H., May 30, $3	July 1	July 22
Silver Wave, W. P., April 21, $3	May 23	June 13
Savage, Storey co., May 3, $7.50	June 6	June 25
Silver Vault, W. P., May 3, 5c	June 9	June 29*
Siempre Viva, Mexico, April 25, 25c	June 2	June 2[illegible]
Tallulah, Sierra dist., May 10, $2	June 25	July 18
Virginia, W. P., May 14, 50c	June 21	July 6

MEETINGS TO BE HELD.

Alpha	Annual Meeting June 20
Ascendant	Annual Meeting June 5
Bromide Tunnel	Annual Meeting June 8
Crown Point	Annual Meeting June 6
Germania Cons	Annual Meeting June 9
Hearst	Annual Meeting June 6
Mammoth	Annual Meeting June 8
Oneida	Annual Meeting June 8
Peytona	Meeting June 6
Silver Sprout	Annual Meeting June 28*
Wheeler	Annual Meeting June 6

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable April 11, 1870
Eureka, div., $7.50	Payable May 7, 1870
Golden Rule, div., 60c	Payable March 26, 1870
Hale & Norcross, div., $6	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
North Star, div.,	Payable May 5
San Marcial, div., 50c	Payable Jan. 10, 1870
Union, div., $10	Payable May 10, 1870

——*Advertised in this Journal.

* * *

San Francisco Prices of Copper Ores.

San Francisco, June 2, 1870.

W. T. Atwood states the following as approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 10 per cent.:

	Per ton.		Per ton
12 per cent. ore	$24 00	18 per cent. ore	$41 40
13 " "	26 85	19 " "	44 65
14 " "	29 40	20 " "	48 00
15 " "	32 25	25 " "	82 50
18 " "	35 20	30 " "	75 00
17 " "	38 25		

Ores assaying above 30 per cent., $2.50 per unit. Bars at the rate of 13c. per lb. for pure copper.

* * *

Nova Scotia Gold.—The returns from the gold fields of Nova Scotia for 1869 show a small falling off in the yield of gold as compared with the previous year. The declared returns of the past eight years show a yield of 157,682 ounces. The average number of miners daily employed was 713; the amount of quartz crushed was 4,092,679 cwt.; the average per ton (of 2,240 lbs.) was 15 dwt. 10 gr.; and the annual earnings per man, $553.90. Last year 17,868 oz. 10 dwt. 19 gr. of gold were produced; 708,486 cwt. of quartz were crushed; the average per ton was 11 dwt. 5 gr; the number of miners daily at work, 676; and the annual earnings per man were $528.64 The gross yield for the past ten years is estimated at 180,000 oz., worth, in round numbers, $3,600,000.

* * *

Personal.—Hon. Charles L. Flint, who has most ably filled the office of Secretary of the Massachusetts Board of Agriculture for the last eighteen years, and Mr. Geo. E. Noyes, publisher of the Massachusetts *Ploughman*, one of our most valued agricultural exchanges, are now in this State, on a tour of observation. We had the pleasure of a call from them a few days since. They are now on a visit to the Yosemite and Big Trees.

Our Wool Interest.—Sheep-raising has been carried on to a very considerable extent in California, and the business seems now to attract a large share of the attention of capitalists. The results of the present year's work are just beginning to be ascertained, and thus far the accounts are very encouraging. From a late Sacramento dispatch, we learn that Thomas McConnell, a citizen of Sacramento county, has just finished the clipping of 3,500 head of fine Spanish Merino sheep. The clip weighed 25,030 pounds, averaging 7¾ pounds to the fleece—in addition his flock dropped 2,500 lambs. This is certainly a very fair showing, and conclusively proves that the business of sheep-raising is one which yields a very heavy profit on the sum invested. A late dispatch from Los Angeles says that the receipts of wool from the interior are immense. Over one hundred thousand dollars' worth passed through that city during one day of the present week. If these are not encouraging facts, then we are very much mistaken.—*Oakland Transcript.*

Arizona letters say the reputed gold discoveries at Tubac are unfounded.

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Farming in Mining Districts.

It is commonly supposed that gold-producing countries are poor and barren, and the outcropping bare rocks which usually appear in the vicinity of shallow alluviums are the only accompaniement of rich placers, and that the poverty of the soil is compensated for by the gold which sparkles in the sands of the streams. The mines of Victoria have shown the unsoundness of this long-established theory. Side by side with the gold miner we see the farmer busily plowing rich chocolate soils which yield heavy and good crops. In the midst of a field of yellow corn there rise the engine house and chimney which mark the spot where the miner has sunk a shaft for a deep lead; and on the slopes, falling towards the sites of puddling machines, and sluicing operations, we behold rich vineyards and well-stocked orchards. Near even some quartz workings there are gardens. There are fruit trees which yield more to the cultivator than he could hope to gain in the same way in any other country; and scarcely a patch of land is too poor for a Chinese gardener. If he has water and a good market he will make the bare rocks grow "green."

We can see the miner, in the intervals of his labor, cultivating a garden which surrounds a cottage better in appearance and more comfortable in its arrangement than many which in England are inhabited by those who do not depend on the labor of their hands for their support. And under no circumstance—not even where thousands congregate on a new gold field—are we justified in saying that the miners of Victoria are not immensely superior to the class that are employed in the mines of Europe.—*R. Brough Smythe.*

The above may be largely applied to the mines of California; but not to that extent which the opportunities here warrant. The feasibility of adapting our foot-hills and many of our higher mountain valleys and table lands to agricultural purposes, is just now exciting much discussion, especially among the mountain journals. The experiments which have already been made show that we have hundreds of thousands of acres among the mines which might thus be employed to good and profitable advantage. There are hundreds of places in Nevada, Placer, El Dorado and other mining counties, where many patches of ground, varying from one to ten or more acres, on which may be found fruit of every kind, and in some places the cereals in great abundance and altogether superior in quality to that produced in the valleys. The net proceeds of some of these ranches and gardens are very large—much larger than can be realized from the same extent of ground in the great agricultural valleys of the State. As an instance of the profits of mountain fruit-growing we may state that Mr. J. M. Reese, of Auburn, Placer county, last year realized from seven acres of ground, planted with peaches, apples, pears, etc., a net profit of $1,850 over and above cultivation, packing, marketing, etc. This is but one example among scores of similar ones which might be mentioned.

Experience has proven that but little artificial irrigation is needed—none, in fact, is wanted for trees and vines after they have become well rooted. Plowing and frequent stirring the ground is better than irrigation, and produces a much better quality of fruit.

The Auburn *Stars and Stripes* gives the following figures of the average yield, last year, of grape vines on Mr. Reese's ranch, cultivated *without irrigation*, and upon ground which many would think too poor to yield even a crop of common peas: Common Los Angeles grape, per vine, 30 pounds; white cerian, 60; muscat, 60; malaga, 60; black vinsindall, 60. These figures are from accurate weighing; the vines being five years old. Eight hundred of such vines may be planted on one acre. Estimating the yield at only one cent a pound, and 30 pounds to the vine, we should have $240 per acre. Grapes will almost everywhere command that price for wine, and would do so, if the present crop in this State was increased twenty fold. With such exhibits need anyone despair of the future of our mining counties?

Let the miners acquire titles to the lands on which their mines are located, and to the surrounding acres, a portion of which, in almost every locality, may be made productive, if it is not already so. A fruit and vegetable garden connected with a mine will always improve it; and the labor of preparing it may generally be done at odd hours, which would otherwise be spent in idleness. Such surroundings indicate thrift, permanence and value. We want to see, all over California, the gold miner, side by side with the farmer, working in unison, harmony, and, as far as it may be, in partnership. Such improvements will give permanence to our mining population and improve it, both socially and in purse. If the miner has the will and the energy he may make even the bare rocks grow green—and make it pay, too.

A New Variety of Wheat(?).—Mr. D. W. Ramsdell, of Norway oats notoriety, claims to have discovered a new variety of wheat, which he offers at the moderate price of $1 per pint! The wheat is no doubt a very good article; but probably no better than any farmer can produce by a careful selection and cultivation of seed for a series of years. Very few farmers seem to appreciate the advantages derivable from such care in the production of seed wheat.

Cultivation of the Gladiolus.

We give herewith an illustrative plate of seedling *gladiolus*, prepared by the zincotype process of engraving—or etching by the use of acids—one or two previous specimens of which have already been given in the Scientific Press. We also append a short history of the plant and some few directions for its culture in this climate.

Among bulbous flowering platns there are but few which deserve to rank higher than the *Gladiolus*. This elegant flower was first introduced into Europe by the early Dutch florists from the Cape of Good Hope. The earliest varieties were the *Gladiolus Byzantinus* and the *Gladiolus Communis*. The blooms of these varieties were of some one color, and confined to purple, red or white. In later years other varieties were introduced, many-colored, and of different, more various and brighter hues. Among the latest of these subsequent importations were the *G. Gandavensis*, orange, scarlet and yellow; *G. Floribundas*, shaded rose, pink or white; *G. Ramosus*, a beautiful rose color, marked with white and carmine. From these have been produced, by the florists of Europe, the great number of varieties of this beautiful plant with which the gardens of this country and Europe are now ornamented. So rapidly have the different varieties been produced that Henderson has truthfully said "they are now almost numberless, varying in every shade of their beautiful markings, which range through all degrees of scarlet, crimson, purple, carmine, rose, yellow and violet, down to white."

SEEDLING GLADIOLUS.

New varieties are obtained from seed, the *modus operandi* of which for this country may be given as follows: The seed should be sown in a light, peaty, warm soil, lightly covered and shaded from the hot sun. When the young plants are two or three inches high, they should be separated and allowed to make the fullest possible growth. The bulbs should be allowed to remain in the ground through the first winter. They will bloom the second year in California. It is perhaps better to start the plants in pots, in the green-houses.

The gladiolus is of easy culture. It requires a loose warm soil made rich by good and thoroughly decomposed manure. In setting, the ground should be thoroughly stirred to the depth of fifteen or twenty inches. Any good garden soil will be suitable; but, if particularly stiff, add sand. The plants should be set at least two feet apart. They appear to best advantage in rows. In planting the bulbs they should be covered about three inches, and provided with suitable stakes, to sustain the plant. The stakes should be painted a light green, as that color will more readily harmonize with the stalks of the plant.

Large bulbs will usually give the best flowers, though those not more than three-quarters of an inch in diameter will furnish some, though inferior blooms. They will require little cultivation, with the exception of keeping the soil loose and free from weeds, in doing which care is needed that the leaves are not cut or mutilated, as the growth of the bulb is thereby injured. Leaves should not be removed for appearance sake, unless they have turned brown. If the flowers are not desired for use, the bulb will be benefited by their removal as early as they begin to fade, as the forming and ripening of the seed is done at the expense, to some extent, of the bulb. Gladiolus increase rapidly by offshoots or division of bulbs, the largest ones usually furnishing the greatest number.

How to Make Cuttings Grow.

In alluding to the manner of propagating cuttings, the *New England Farmer* says that it has been ascertained that a cutting will develop roots much sooner in *moist sand* than in *rich soil*. But the sand cannot maintain its growth for any length of time. To prepare pots for raising cuttings they should be filled nearly to the brim with rich garden loam—dark and porous, not clayey and soggy; then pour in one inch in depth of scouring sand—sea sand will do as well as the yellow sand. Wet this thoroughly, and place the cuttings, from which all but the three or four upper leaves have been removed, close to the side of the pot; the contact of the ware against the stem of the cutting promotes its growth. Press the wet sand *firmly* around the tiny stem. A great deal of your chance for success in raising slips or cuttings depends upon this. Plant as many cuttings as the pot will hold, from six to a dozen, according to the size of your pot; when they are firmly set in the sand, two or three can be inserted in the middle of the pot. Set them away in a dark, warm place for twenty-four or thirty-six hours. Thus, cuttings will grow quickly in a hot bed, because the temperature is not dry. Their growth depends a great deal upon light, heat and moisture. If a bud is close at the base of a cutting it will strike root more easily—is not so apt to decay. The roots shoot from a bud, and the lower down it is the surer your success. When the leaves drop, the plant is commencing to grow; if they wither on the stem, it has begun to decay. By following these directions no one can fail to grow all kinds of house plants. Roses and all the rarest flowers of the green houses are propagated in this manner.

Silk Bounties Paid.—Warrants have been issued under the Act of March, 1868, for the encouragement of silk culture, in accordance with the findings of the State Board of Agriculture, viz.: H. G. Ballou, Yolo, $300; E. M. Weston, Yolo, $1,875; S. J. Scuffregan, Leon Gambert, Los Angeles, $250 each; A. Packard, Santa Clara, $450; A. Isoard and A. Miller, Nevada, $250 each. These awards were made for the culture of cocoons and mulberry plantations.

The "Hog Cholera."

The Commissio[illegible] Agriculture, in his report for March and April, alludes, at considerable length, to the increasing mortality among swine, which is becoming quite alarming throughout the Atlantic States. The Commissioner thinks there must be something radically wrong in the management of this animal, or we should not witness such a wholesale mortality, for which the butcher has no responsibility, especially among young pigs. The loss is largest in the West, notwithstanding the healthful range which is so generally allowed the animal in that portion of the country. The close quarters, in which Eastern pigs are kept, would thus seem to be advantageous.

The disease is usually termed "hog cholera," although it [illegible] lly epizootic—proceeding from various species of *parasites*, which infest the living tissues—thus rendering this, at best, unhealthy and unwholesome animal still more unfit for human food. It is already well known that some of these parasites are capable of being transferred to the human system, where they are sure to become as fatal as in their original home.

In some localities the loss is reported at from 20 to 30 per cent. of the entire number of swine. The evil has become so great as to produce much discouragement among the pork raisers in some of the worst infected districts.

The first symptoms of the disease are an appearance of stupidness; then the limbs become stiff, appetite fails, and vomiting occurs as the final stage. They generally die in a few days after the disease has fairly set in. All ages, sizes and conditions appear to be subject to the disease.

The trouble has generally been thought to proceed, in a great measure, from the large quantities of corn upon which hogs are fed, which is considered too concentrated for the continuous diet of this or any other animal; hence those who feed potatoes and other roots, and sloppy food from the kitchen, etc., are less troubled.

Mr. James Harkness, of St. Louis, Missouri, however, writes to the Department a letter, in which he attributes the chief cause of the trouble in question to a beautiful butterfly which has lately become very plentiful, and is seen especially in every clover field. This insect lays its eggs in the clover bloom, which is eaten by the hogs; the eggs subsequently developing into worms, much as the "nits" of the bot-fly are developed in the horse.

Mr. H. suggests, as a preventive, that hogs should be kept away from clover, and fed more upon timothy, herd, orchard and other grasses instead.

A remedy has been found practicable, to a great extent, in the free use of coal ashes, charcoal, salt, sulphur, soap, coal oil, sulphate of iron, etc. Soap suds, tobacco, assafœtida, and nearly all the poisons of the apothecaries' shop—even to strychnine—have been used. It is said that sulphate of iron administered in the proportion of a tablespoonful for a hog of 150 to 200 pounds, once a week, mixed with the food in the slop barrel, is an unfailing cure, and will kill every worm before it leaves the intestines, as sure as prussic acid will kill red-blooded animals.

The remedies suggested are good for all domestic animals troubled in this way, as they are very obnoxious to worms of any kind, in or out of the stomach.

We believe the disease in question has not yet made its appearance, to any considerable extent—if at all—upon the Pacific coast. At least it has not yet been reported to the Department. Still it is well that our people should be advised of its progress at the East, and be prepared to guard against its appearance here. The only reference to California, in the Reports, in this connection, is the following: "The business of swine raising in California is in the hands of a few, and is followed as a distinct one. Those in it keep from 200 to 1,500 or more, herding them in the foot-hills during the rainy season, where roots and mast abound. After grain is cut and threshed in July and August on the plains, the owners of hogs buy the fields for the season, and turn their hogs into them, where they feed until fall, when the fat ones are sold for pork in the best market, usually San Francisco. From the scarcity of mast and roots, the increase in herds was less the past year than formerly. The use of the header in harvesting, in place of the reaper, leaves less grain in the field than former years, consequently the hogs made less pork last fall than other years. The falling off in the increase of stock and in the weight of pork in this county may be placed at two-tenths.

What I Know of Farming—No. 20.

Bones—Phosphates—Guano.

I hate to check improvements or chill the glow of faith; yet I do so keenly apprehend that many of our people, especially among the Southern cotton growers, are squandering money on commercial fertilizers, that I am bound to utter my note of warning, even though it should pass wholly unheeded. Let me make my position as clear as I can.

I live in a section which has been cultivated for more than two centuries, while its proximity to a great city has tempted to crop it incessantly, exhaustively. Wheat, while its original surface soil of six to twelve inches of vegetable mold (mainly composed of decayed forest leaves) remained; then corn and oats; at length, milk, beef and apples—have exhausted the hill-sides and gentler slopes of Westchester county, except where they have been kept in heart by judicious culture and liberal fertilizing; and, even here, that subtle element phosphorus, which enters minutely but necessarily into the composition of every animal and nearly every vegetable structure, has been gradually drawn away in grain, in milk, in bones, and not restored to the soil by the application of ordinary manures.

I am convinced that a field may be so manured as to grow three tons of hay per acre, yet so destitute of phosphorus that a sound, healthy animal cannot be grown therefrom. For two centuries, the tillers of Westchester county knew nothing of chemistry or phosphorus, and allowed the unvalued bones of their animals to be exported to fatten British meadows without an effort to retain them. Hence, it has become absolutely essential that we buy and apply phosphates, even though the price be high; for our land can no longer do without them. Wherever a steer or heifer can occasionally be caught knawing or mumbling over an old bone, there phosphates are indespensable, no matter at what cost. Better pay $100 per ton for a dressing of one hundred pounds of bone per acre than try to do without.

But no lands recently brought into cultivation—no lands where the bones of animals fed thereon have been allowed, for unnumbered years past, to mingle with the soil—can be equally hungry for phosphates; and I doubt that any cotton field in the South will ever return an outlay of even $50 per ton for any phosphatic fertilizers whatever. That *any* preparation of bone, or whereof bone is a principal element, will increase the succeeding crops, is undoubted; but that it will ever return its cost and a decent margin of profit, is yet to be demonstrated to my satisfaction.

No doubt, there are special cases in which the application even of Peruvian guano at $90 per ton is advisable. A compost of muck, lime, etc., equally efficient, might be far cheaper; but months would be required to prepare and perfect it, and meantime the farmer would lose his crop, or fail to make one. If a ton of guano, or of some expensive phosphate, will give him six or eight acres of clover where he would otherwise have little or none, and he needs that clover to feed his team wherewith he is breaking up and fitting his farm to grow a crop next year, he may wisely make the purchase and application, even though he may be able to compost for next year's use twice the value of fertilizers for the precise cost of this. But I am so thorough in my devotion to "home industry," that I hold him an unskillful farmer who cannot, nine times in ten, make, mainly from materials to be found on or near his farm, a pile of compost for $100 that will add more to the enduring fertility of his farm than anything he can bring from a distance at a cost of $150.

Understand that this is a general rule, and subject, like all general rules, to exceptions. Gypsum, I think every farmer should buy; lime also, if his soil needs it; phosphates in some shape, if past ignorance or folly has allowed that soil to be despoiled of them; wood ashes, if any one can be found so brainless as to sell them; marl, of course, where it is found within ten miles; guano very rarely, and mainly when something is needed to make a crop before coarser and colder fertilizers can be brought into a condition of fitness for use; but the general rule I insist on is this: A good farmer will, in the course of twenty or thirty years, make at least $10 worth of fertilizers for every dollar's worth he buys from any dealer, unless it be the sweepings or other excretions of some not distant city.

I have used guano frequently, and, though it has generally made its mark, I never yet felt sure that it returned me a profit over its cost. Phosphates have done better, especially where applied to corn in the hill, either at the time of planting or later; yet my strong impression is that flour or bone, applied broadcast and freely, especially when wheat or oats are sown on a field that is to be laid down to grass, pays better and more surely than anything else I order from the city, gypsum, and possibly oyster-shell lime, excepted.

My experience can be no safe guide for others, since it is not proved that the anterior condition and needs of their soils are precisely like those of mine. I apprehend that guano has not had a fair trial on my place—that carelessness in pulverizing or in application has caused it to "waste its sweetness in the desert air," or that a drouth following its application has prevented the due development of its virtues. And still my impression that guano is the *brandy* of vegetation, supplying to plants stimulus rather than nutrition, is so clear and strong that it may not easily be effaced. It seems to be plainly absurd to send ten thousand miles for this stimulant, when this or any other great city annually poisons its own atmosphere and the adjacent waters with excretions which are of very similar character and value, and which science and capital might combine to utilize at less than half the cost of like elements in the form of guano.

My object in this paper is to incite experiment and careful observation. No farmer should absolutely trust aught but his own senses. A Rhode Islander once assured me that he applied to four acres of thin, slaty gravel one hundred pounds per acre of nitrate of soda which cost him $4 per hundred, and obtained therefrom four additional tons of good hay, worth $15 per ton; net profit (after allowing for the cost of making the hay), say $30. He might not be so fortunate on a second trial, and there may not be another four acres of the earth's surface where nitrate of soda would do so well; but, should I ever have a fair opportunity, I mean to see what a little of that nitrate will do for *me*. And I hope farmers may more and more be induced to conform in practice to the apostolic precept, "Prove all things: Hold fast that which is good." No one's success or failure in a particular instance should be conclusive with others, because infinite diversity of antecedents and attendant circumstances; but if every thrifty farmer would give to each of the commercial fertilizers—lime, gypsum, guano, raw bone, phosphates, ashes, salt, marl, etc.—such a careful trial as he might, observing closely and recording carefully the results, we should soon have a mass of facts and results, wherefrom deductions might be drawn of signal practical value to the present and to future generations.—*Horace Greeley.*

Importation of Flaxseed.—On the 26th of March, the bark Bell Hill sailed from Valparaiso for San Francisco with a cargo of linseed for the mill on King street in San Francisco. Another vessel was soon to follow with a similar cargo. It is well known that flax is easily raised in this State, and no argument is required to prove that a large number of persons could be profitably engaged in the production of crops of this character. The consumption of linseed oil on this coast is already extensive, and it must steadily increase. A little more enterprise on the part of our farmers would take them out of the beaten path, and lead to the discovery of many branches of remunerative production, to meet deficiencies now supplied from remote quarters of the globe.

A recent frost destroyed the fruit and foliage of about 7,000 of the 10,000 grape vines in the vineyard on the old Gwin rancho, near Snelling, Merced county.

The weather is so warm and dry in England that apprehensions are felt for the safety of the crops.

A Model Fruit Farm.

[Concluded from last week.]

The several acres of raspberries in Mr. Wilcox's fruit garden comprise many varieties, several black caps among the rest; but the *Red Antwerp*, *Falstaff* and *Knevet's Giant* occupy the larger space. Mr. W. gives the well-proved sorts and the approved methods of culture preference over doubtful ones generally. While profit is the first object, the results of a various trial will not be disregarded. He has the native *Yosemite*, but thinks little of it.

The greater part of his eleven acres of strawberries have been planted this season. Although he has some forty different varieties, he has, in general culture, but *one* sort, the well-known and reliable *Longworth's Prolific*. This is an American fruit, sub-acid with a sprightly flavor, and more nearly resembles the wild strawberry of New England than any I have tasted. It is more generally cultivated, and stands higher in the estimation of culturists here in Santa Clara county than any other kind. The berry is large, short, rough and uneven shaped,—the common sort in the San Francisco markets. The plant is very vigorous, long lived, bears early and late, and shows an abundance of dark and spreading foliage.

The *Jocunda*, a large, long, fine-looking but insipid berry, has attracted much attention. It promised well, bearing abundantly one season, but has proven worthless, and almost ruined the persons who have ventured largely and persistently into its culture.

Russell's Prolific has a fine flavor, but does not fertilize perfectly, and is fruitless.

Wilson's Albany, a splendid fruit in some localities, is out of favor in this county.

The *Triomphe de Gand*, a large, conical, smooth, glossy fruit, not quite so early as the *Longworth Prolific*, is sweeter, and will stand transportation better. Mr. Pancoast, who has thirty-three acres of strawberries near Santa Clara, has averaged three cents per pound more for this than for the *Longworth Prolific*. The *Triomphe de Gand* is a long-lived plant,—moderate bearer, and very thrifty grower; but the leaves are smaller and lighter colored han *Longworth's*.

As a general rule, the fruit-growers in California decide quickly as to the merits of varieties, and discard everything but the best approved. As a general thing, this is right; but it would be well to retain, as a standing test, a few sorts other than the favorites.

Unless a thing has real merit, this State is a poor place to undertake a "sell," such as is common in the Eastern nurseries.

Mr. Wilcox has a number of the *Zante Currant* grape, several of which will fruit this season. This grape will be a sure success in California, and is worthy of general attention. In the south of Europe it is grown in ditches dug in level terraces around the hill-sides. The ditches are kept full of water during the winter and allowed to dry out in the spring and summer. I am very doubtful as to the necessity of such treatment there, or of the policy of such here. We Americans are breaking through all old fixed stereotyped rules, and are making money by it. An experimental and practical knowledge of simple principles is better than all scholastic training.

Mr. W. is also accumulating a variety of nut trees, shrubs, ornamental trees and plants. An artesian well, over 300 feet deep, supplies an abundance of pure water for irrigating his grounds. It flows with sufficient force to throw a stream through hose twenty-five feet high. This well, though a wonder in itself, is no uncommon thing in this valley. Hundreds of such are flowing and sparkling amidst groves and gardens and green fields, every one teaching a beautiful lesson of temperance in refreshing streams. An unsightly slough that runs through the prettiest part of Mr. W's grounds, will be dug into shape for a fine fish pond, to be supplied by the artesian well and lined with a variety of shadowing trees.

In many respects, Mr. Wilcox's place makes a fine showing for two years of time of what California soil and climate can do, and something of what a working man on the right track can achieve, when determined to succeed. As our friend can use the pen as well as the spade, I will not anticipate more, but the readers of the Scientific Press may expect something from him occasionally, as to the results of his methods, progress, experiments, etc.

S. H. Herring.

Scientific Press.

DOUBLE SHEET—24 PAGES.

W. B. EWER..............................Senior Editor.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance..................$4 00
One copy, six months, in advance.................. 2 50
Delivered by city carriers, per month.. 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month.......................... 8 00
One column, one month.......................... 40 00
One column, one year........................... 400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:
Saturday Morning, June 4, 1870.

Table of Contents.

Steam Engines for Field Threshing—Ill........369
A Portable Assaying Machine—Ill............376
Arrival of the Boston Party.............. .376
Progress of the Silk Business in California....369
Letter from Bull Run District 376
Jottings in Santa Clara County..............370
Sewerage and Pavements370
The World Reaper and Mower—Ill...........377
The Steam Plow in Louisiana...................377
Notes of Recent Patents.376
The Patio Process......377
Full List of Patents....376
Mortising Machines—Ill378
The Basalts of Oregon..378
Device for Steaming Rovings—Ill..............376
S. F. Stock Market......341
S. F. Metal Market..... 340
New York Metal Market.373
S. F. Shareholders' Directory..................372
Route to Yosemite—Ill.379
Gold and Gold Mining..379
Determining Position by Telegraphy...........376
Machinery for the Farm.382
East River Bridge Ill—379
Ocean Cables.............380
Bridal Veil Fall—Ill....381
Farming and Gardening.—Farming in Mining Districts; Cultivation of the Gladiolus—Ill.; To Make Cuttings Grow; The Hog Cholera; A Model Fruit Farm; What I Know of Farming, etc..........374
Mechanical Progress—The York County Iron Ore; Diamond Cutting in Boston; Steam from Gas Fuel; Cylindrical Cars, etc........... 371
Mining Summary.—Items from various counties and districts in California, Arizona, Idaho, Colorado, Montana, Nevada, New Mexico and Oregon...372
Reading for the Hour.—Boyhood Days—Ill; Swiss Washerwomen; To Choose Black Silk; Executions in London in the Olden Time, etc.............388
Scientific Progress—Ammonium and Hydrogenium not yet Proved Metals; Figures Produced by the Electric Spark; Phosphorus Essential to Organization, etc......371

Notices to Correspondents.

Raising Horses.—Will our Harrison street correspondent, who sends a communication on "Raising Horses," call at our office, 414 Clay street? We should like an interview with him.

Blasting by Electricity.—We will endeavor to furnish our correspondent, who makes inquiry for a suitable battery for employment in blasting by electricity, with the information he seeks in our next issue.

J. R., Santa Cruz—We will endeavor to report on your query with regard to the grape-vine destroying insect in our next issue.

Arrival of the Boston Party.

The Boston party arrived in this city on Tuesday night between twelve and one o'clock. The train of nine cars was (by special permission) brought to the very doors of the Grand Hotel. When it arrived there was a large crowd on Market street, notwithstanding the lateness of the hour. The Grand Hotel was lighted up and Bancroft's building was brilliantly illuminated. As the cars came down Market street, the crowd gave rousing cheers, and here and there a blue light was set off. A delegation from the Chamber of Commerce of this city had met the party at Stockton, and we hope the Bostonians were pleased with their welcome to this city.

We join in offering our congratulations and good wishes to the excursionists who come as representatives of the fair city on the Atlantic coast. We are always heartily glad to see deputations from other places, and believe that by thus personally coming to our shores, they are doing much to further good feeling among the various parts of our wide country. We need a better personal acquaintance with one another, which does much towards establishing friendly relations and uniting us more firmly in the bonds of union; and for this reason especially, we utter a cordial welcome to our Eastern brethren.

A Portable Assaying Machine.

An assaying apparatus, which could be carried about easily and be of practical use in the field, has long been a *desideratum.* The blow-pipe, with its delicate tools, is suitable merely for the laboratory, and the common assaying furnace is too cumbrous to be of any general application. We know of no device, hitherto, which has combined the necessary qualities of compactness, durability and requisite accuracy.

Last September, however, Mr. J. S. Phillips, a mining engineer of San Francisco, who has had long experience in assaying, both in the laboratory and in the field, patented an apparatus which, he claims, satisfies all these demands, and can be readily used by the prospector, who needs but a few hours' instruction to be able to assay his rock, wherever he may find it, at a cost of but a few cents.

The illustrations show the machine in three positions. In Fig. 1, it is arranged for roasting, drying and fusion; in Fig. 3, for the general purposes of the analyst and assayer; and in Fig. 2, packed for traveling in a five or six-inch box. Into this small space are condensed all the tools and fluxes, in short, everything necessary for a complete assay, as well as the articles requisite for shaping the charcoal supports, the cupels, etc., etc.

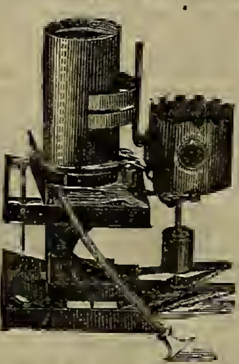


Fig. 1.

One great object of this invention was to put into the hands of the uneducated prospector a device which would be automatically so complete that the operator could obtain proper results with the need only of a few hours' instruction and the application of a little care. Hence it is made as simple as possible; the weights and similar articles are of a size to be readily handled by fingers used to the pick, and are marked so as to prevent the possibility of mistake; and the results of the assay are marked down before the eye, requiring only the ability to read on the part of the assayer. We have not room to describe all the various details. We give, however, the general method of making an assay.

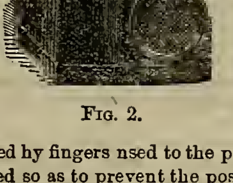


Fig. 2.

The pulverized sample to be assayed, being well mixed, is ground to a fine powder in the mortar, and then ten grains are weighed in the pan shown at the back of the device in Fig. 1. After being fluxed, it is poured into a previously prepared paper cartridge and shaken to mix it. The cartridge is folded and put in a molded charcoal support, which, again, is placed in a metal cup, shown in Fig. 3, in front of the furnace, which has a long stem, and is so arranged that it can be readily adjusted in any position required. Next, a piece of charcoal, or a small furnace containing several, is suspended in the metallic bands or fingers above the assay, and the flames of four olive oil lamps are blown on the sample by means of an arrangement which requires only an *occasional* blast from the lungs. This smelting operation lasts from ten to fifteen minutes, during which time the operator need only to blow once in a while and to give a general attention to the process, while at the same time he can converse and is otherwise at liberty to do what he may find convenient. By handling the non-conducting cork on the cup-stem and by means of spring levers, the cup can be altered in its position or removed when necessary. The lead button obtained is cleaned and cupelled in a similar manner on bone-ash supports.

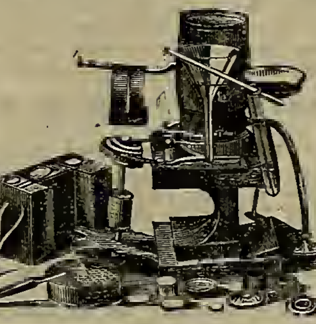


Fig. 3.

The refined bead is weighed and its value found in a very simple manner. In the pan suspended at one end of a lever is placed one of ten numbered weights. In the other grooved arm the bead is placed, until it just balances the weight, which fact is shown by a mark properly placed. When thus balanced, the value is read on a paper placed beneath the lever arm, and either in dollars per ton, or in thousandths fine for gold and silver, or the percentage of base metal, the device for reading being very simple and easily understood.

The Committee on Premiums at the last Industrial Exhibition of the Mechanics' Institute awarded Mr. Phillips a first premium and gold medal, and report that "for convenience in use and accuracy in performance, we esteem this little machine as of the greatest utility to the mining prospector, and well calculated to relieve our mining interests of the uncertainty hitherto attending their development." A letter from a Superintendent at Galena, Battle Mountain district, reads: "I think a great deal of my machine and feel the need of it every day." We have seen assays made by Mr. Phillips with his machine in a very expeditious and satisfactory manner.

The above brief description will serve to show that the inventor has aimed to produce a practical article which should be at once sufficiently accurate and sufficiently simple for the prospector. He has two or three sizes, all of which, however, can be packed into a very small compass. The price is $100, which includes instruction, tools, calculating balance, weights, fluxes, etc., etc. Those who are interested or engaged in prospecting operations would do well to call themselves and personally examine the apparatus, which was patented in September, 1869, through the agency of the Scientific Press, and which may be seen at the office of the inventor, Mr. J. S. Phillips, 423 Washington street, San Francisco.

◆

Decoration Day was observed in many cities on this coast as well as at the East, on last Monday. The custom is a most beautiful and appropriate one when carried out in the proper spirit, and can be made to do much towards softening the feelings and healing the wounds caused in our late civil strife. By all means let us honor those who died in vindication of what they thought was right, and for the welfare of their native land.

◆

Balbach's patent wagon spring will be illustrated in our next.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending May 24th.

Street-Car Truck.—John Berry, San Francisco.

Dredging Machine.—William D. Robertson, San Francisco.

Amalgamator and Ore Concentrator.—Joseph Scott, San Francisco.

Water Wheel.—Henry W. Shipley, Portland, Oregon.

Gate Latch.—J. W. Still, San Francisco.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

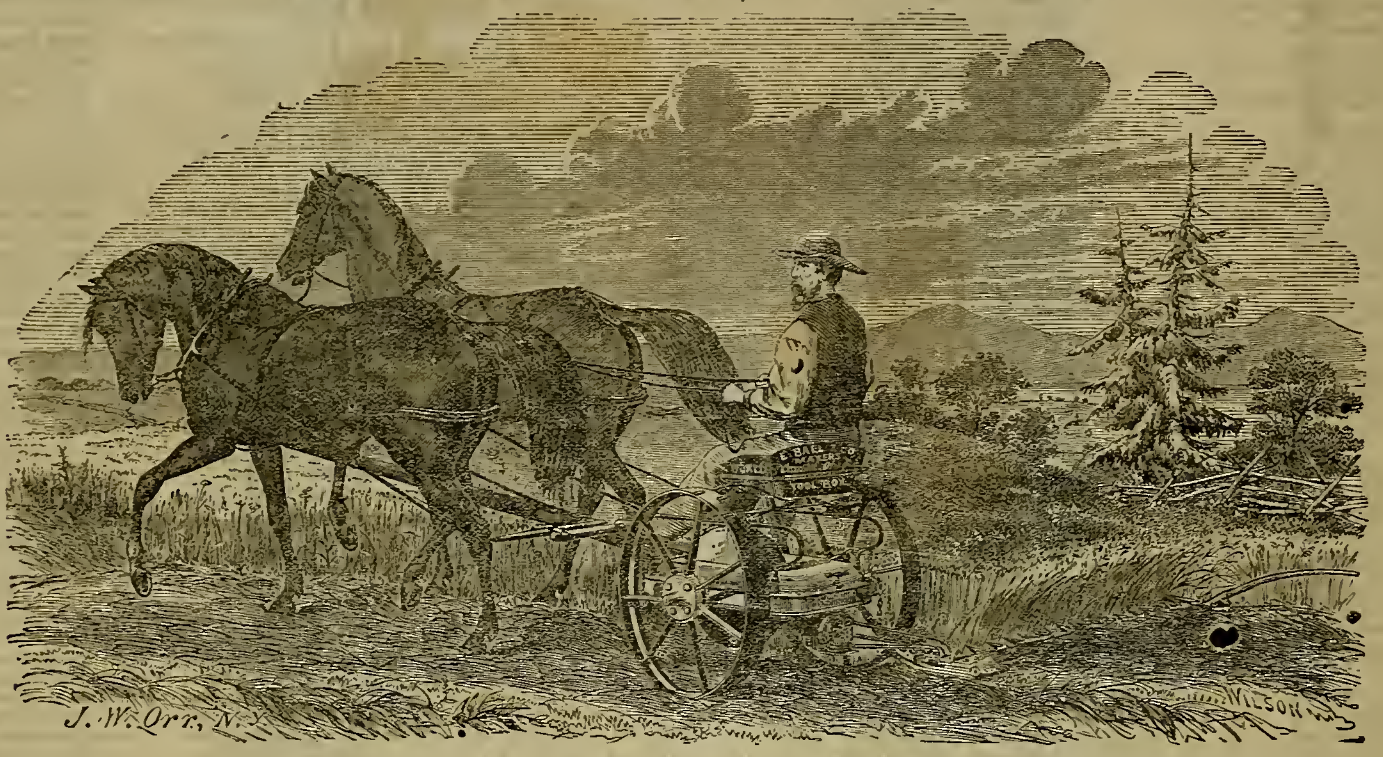
Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Improvement in Breech-Loading Ordnance.—A. F. Potter, Oakland, California.—The nature of this invention consists in a certain combination and arrangement of cams and keys operated by a central pin, for securing the breech-core in a gun. The cannon is constructed in three general parts—the barrel, the breech-core and the key-pin—which, when put together, all concenter around a common longitudinal axis. The breech-core is, in its general outline, a hollow truncated cone of an external caliper measure and length to fit closely into the barrel of the gun at its breech. The key-pin is also a truncated cone which fits accurately into the inside of the breech-core. These two last named parts are firmly locked in place by means of a number of cams and keys, which play in appropriate grooves or channels, and which are easily actuated by means of a lever placed at the rear of the key-pin easily and quickly. Among the points of advantage claimed in these arms, the following may be mentioned: First, the construction; it unites firmness with simplicity in the fastenings of the several parts, which renders the gun easy of construction; is cheap, durable, easy of repair, and safe and certain in use. Second, in action it assures ease of handling, rapidity in loading, firing and cleaning, little liability to wear or burst, the minimum of escape of the gases of the charge in firing, the power of burning more powder in a shorter barrel, the ease with which the gun may be dismantled in defeat and rendered valueless to a captor though perfectly good to its owners so soon as retaken; and in small boats, launches, monitors and fortifications the absence of any need to run the gun in and out in loading and firing. In military tactics the soldier acts by "times and motions" in handling his arms. It would take too long to point out these in the tactics for different guns, some requiring more than others. Potter claims that with his gun, when used with his fixed ammunition, the times and motions required for pricking and springing are saved and fewer men are needed to handle the piece.

Stave-Jointing Machine.—J. W. Alesworth, Santa Cruz, California.—The object of this invention is to provide an improved gauge-box for giving to barrel-staves the proper bevel and taper to produce the swell in the center of the barrel, allowing the workmen to give each stave the same bevel and taper, and operating upon several at the same time with the greatest ease and accuracy. On a strong table is a box, on two sides of which are placed longitudinal strips of wood with their upper faces rounded or curved and metal-faced. These strips are removable, so that others with more or less curve may be substituted when necessary. The box is provided with a number of false bottoms, in order to give any desired width to the staves, and a beveled strip of wood is placed in the angle formed by the side and bottom and secured by cross-pieces, on which the staves are placed and where they are held by a screw. Below the table is a rack set in a block driven back and forward by a pinion operated by a hand-wheel. A lever attached to the block at its lower end, passes up through the table, where it is pivoted, and has on its upper end a piece of metal provided on one side with teeth, which serves as a clamp to prevent the staves from being moved while they are trimmed. A large number of staves can thus be easily beveled and tapered at one time.

The World Reaper and Mower.

This machine, which has been lately introduced on our coast, has been used for four years in the more easterly States, and has there obtained a most enviable reputation. It is built strongly and compactly of the best material, is of easy draft, and is claimed to be one of the most durable machines of the kind. It has the peculiarity that the working parts—except the wheel gear, the cutting knives and the rake—are protected from dust, water and other similar agencies which clog and disturb their action, by being inclosed in an iron case, which is placed beneath the driver's seat. This alone must add greatly to its effectiveness and durability.



E. BALL & CO'S WORLD REAPER AND MOWER.

Letters which have been received from farmers who have tried it, speak loudly in its favor. And it seems to be receiving a large share of the public patronage here, for of two car loads recently received, over one-half, we are told, have been already disposed of. It is certainly worth the trouble of an examination by those who need such machines. Our illustration gives a general view of the device, and further information as to the particular details may be obtained by applying to the general agents for the Pacific coast, Messrs. Linforth, Kellogg & Co., Nos. 3 and 5 Front street, San Francisco.

◆

Telegraphing and the Medical Profession.—We see it stated in an exchange that physicians are beginning to employ the telegraph in their practice. By having an apparatus in his office, connecting with the main lines, a doctor is enabled to consult with and prescribe for his patients elsewhere in much less time than is required for a personal call. It is stated that thus far the experiments in this direction have been attended with very satisfactory results. While the patient, in this way, loses the benefit of the personal presence of his physician, which is often of as much or even more influence than any medicine, on the other hand, she or he can have the advantage of communicating with him at any time.

◆

The Arizona and Sonora Mining Company propose, it is said, to send out a party of one hundred men, armed with picks and rifles, to work mines and repel Indians in Arizona. The expedition will leave this city about the 1st of August.

◆

Recent mineral discoveries are creating quite an excitement in India among miners.

The Steam Plow in Louisiana—The Advantages of Deep Tillage.

Some two or three years ago we mentioned the fact that Mr. E. Lawrence, an extensive sugar planter of Plaquemines Parish, La., had imported from England a 15-horse power Fowler steam plow. Since that time, two or three other plows, of the same make, have been imported for other sections. We now learn that Mr. L. was so much pleased with the work of his first importation that he has since imported a second machine of 20-horse power, designed more especially for certain portions of his plantation, which consist of a heavy, stiff clay soil, for the proper cultivation of which he found both the 15 horse steam plow and his ordinary plows inadequate. He now expresses himself highly pleased with the performances of these machines, both of which are kept constantly at work during the season for plowing and cultivation—each upon land suited to its capacity and power. Mr. L. evidently believes in deep plowing, and the comparative results which he obtains fully warrants such a belief and practice, on his grounds at least. When breaking up with the mold-board plows they ran to the depth of from 15 to 20 inches; when cultivating or subsoiling between the planted rows of cane they ran to the depth of from 20 to 24 inches! On lands thus plowed and cultivated he obtains *two and a half* hogsheads of dry sugar to the acre; while from lands every way as favorably conditioned, naturally, but cultivated in the ordinary manner by horse-power, and of course with shallow plowing, he obtains only *one and a half* hogsheads. On the latter, he says the stand of cane was equally as good, while *more* labor is bestowed on them than is expended on the steam-plowed lands.

He considers that the yield of steam-plowed and steam-cultivated lands is fully *fifty per cent.* greater than that of land cultivated with horse-power, while less than half the labor is expended upon the former than upon the latter! This testimony in favor of the use of steam in plowing and cultivating is the same which has long been given to the world by the farmers of England, where steam is now almost universally employed for such work.

It is singular that while the half-civilized people of Egypt are introducing the steam plow, by hundreds, upon the plains of the Nile, the go-ahead, progressive farmers of the Mississippi and Sacramento valleys are still doubtful of its economy. But prejudices against steam-cultivating machinery cannot much longer retard its general introduction upon this continent. The scarcity of, and rapidly increasing demand for labor, coupled with the abundant evidence of its superiority, which is now being placed before the public by the agricultural press of the country must soon work a revolution in this direction. In fact, it is the only thing which will supersede the necessity for the general introduction of Chinese labor upon American farms.

The estimation of the advantages derivable from the application of steam to the cultivation of the soil in the great valleys of the Atlantic States and of California, so admirably adapted for such culture, is beyond the power of human calculation, and will form the great feature in farming operations on this continent ten or fifteen years from this time.

In working out this change, the slow and half-way machinery of the English will not be accepted. American ingenuity will yet triumph in this as it already has done in every other department of agricultural machinery, and our farmers will soon have placed at their disposal a plow in every way calculated to meet the peculiar demands of such a machine. California will carry off the honors in this invention. The plow must be *revolutionized*, or made to revolve. The straight forward motion of the plow, as heretofore employed, is inapplicable to machinery. A *revolving* plow is needed, and time, in our opinion, will prove that either Standish of Martinez, or Locher of Oroville, have hit upon the principle which is to win in the construction of steam plows.

◆

A Pearl Mine is reported as having been struck in this city, on Washington street, one day this week. Two boys, on turning over the dirt in a gutter, are said to have found a large number of pearls and a nugget of gold, 900 fine, and already coined for use. As it is getting to be the custom to discover ores containing considerably over a hundred per cent. of the precious metal, we see no reason against opening up pearl mines in our city gutters.

◆

On the 19th of May, according to the Elko *Independent*, the first through mail left that place for Boise City, Idaho, on Hill Beachey's stage. The Winnemucca mail route has been abolished and switched on this route, which is via Cope District and Silver City.

The Patio Process.

Editors Press:—It has often been remarked that the usually accepted theory of the patio process is not quite satisfactory. Having certain suspicions, I made the following experiment: A little rich silver ore, of the Blind Springs district, Mono county, was ground, moistened, and mixed in a saucer with a quantity of calomel and salt, also a little mercury. It was kept moist, and thoroughly mixed daily with a wooden spatula. After two weeks it was washed, and yielded a pellet of fine silver amalgam, amounting to the greater part of what the ore had contained. I feel justified in assuming the extreme probability that the main agent in the patio process is not, as usually stated, the copper chlorides, but mercury subchloride ($\mathrm{Hg^2Cl}$). I admit that my experiment is not conclusive; but, in addition to the presumptive evidence it affords, many other reasons point to a similar view.

The quantity of magistral added to the pulp is not, usually, by any means the equivalent of the silver contained; and if it were, the "consumida" or chemical loss of mercury should be greater than it is. The length of time occupied is greater than would seem necessary were copper chlorides the chief agent. Moreover, in some places, ore is worked by the patio process without magistral, and without roasting, in which case I presume the ore to contain certain quantity of silver chloride by which calomel is produced. I, therefore, suggest that the office of the magistral is simply to initiate the formation of calomel, by which, with the aid probably of light, the reaction is carried on and perfected.

Metallic Soaps.

I have been hoping to hear more from our friend, Mr. E. Pique, on metallic soaps. It is an interesting subject, and I think some useful results might be obtained by investigation, though I have not time to follow it up myself.

The iron soap formed by precipitation of suds with iron protosulphate is of a rich brown color, and dissolves readily in coal oil to a fine transparent varnish. That of copper is of a splendid green tint. The defect of these, as pigments, is a lack of the property of "covering." With coal oil as a solvent, the resulting varnish is too tender and brittle; probably linseed oil would be better. Lead and silver give white precipitates with suds, and that of gold is purple.

C. H. A.

◆

A Library for the Working Classes. The Manufacturers' and Village Library of Great Falls, N. H., now contains over five thousand volumes, to which every girl that works for the corporation can have access for the trifling sum of fifty cents per year, and all other persons for one dollar.

Mortising Machines.

America, and by "America" the European world at least always understands the United States, is renowned for the perfection to which it has carried labor-saving machines. Stimulated by the high price of labor, to a very great extent, our mechanics have improved on the old-fashioned ways of working, and have substituted almost living machines for the time-robbing manual labor.

Considerable attention has been given to the improvement of wood-working machinery, which is said to have been brought to a more advanced state here than in any other country. Not the least important branch of this class of mechanism is that of mortising timber. The slow process of cutting out the wood by mallet and chisel is now confined to very limited operations. But in cases where a large amount of work is turned out, especially when articles are reduplicated, we use our excellent machines.

Among the latest of such improved devices which come to us well recommended are the two which we illustrate. They were invented by Mr. D. L. Gibbs, who, we are informed, has had a long experience, and has devoted the study of years to perfecting his ideas. He has obtained patents for the same, which he has assigned to the manufacturers, whose address will be found at the end of this article.

The rail-car mortising machine, Fig. 1, is substantially built and has stood severe tests, it is stated, both in the United States and in England. The rest has a solid support, can be raised or lowered as desired, or turned to any desired angle. The apparatus for reversing the chisel is arranged, in connection with a pin over the treadle, so that it can be stopped in its upward motion at any point, when making shallow mortises. The treadle, when pressed down to the floor, is held by a catch, and so arranged that it can be instantly thrown off by the foot. The auxiliary boring attachment has a horizontal and vertical adjustment of twelve inches. All holes for bolts, etc., can be bored when the timber is in place for mortising. Composition boxes and hardened steel parts are used whenever necessary for the easy running of the machine.

The hub mortiser, Fig. 2, is designed for boring and mortising hubs of any size up to twelve inches in diameter and sixteen inches in length; and with the addition of an extra rest (not shown in the cut) it is capable of doing common square mortising in timbers not less than twelve inches deep and eight inches thick. The rest is tilted by a conveniently-placed handle, so constructed as to be stopped exactly at any requisite point. The rest, and also all the apparatus connected with it, is attached to a sliding plate on the post, admitting of its being moved up and down without changing the bevels. For giving the length of even or zig-zag mortises, there are stop nuts on a screw rod before the carriage, which can be adjusted by means of a stop-lever operated readily with one finger of the hand when holding the wheel.

The boring-arbor is driven by a belt from the counter-shaft which drives the mortiser, and fed by the foot, as this can be done more easily and quickly than by the hand when much work is done. The ball is suspended by a malleable iron lever at the top of the post, thus drawing up the joints in the same direction as the stroke of the chisel, and thereby avoiding much of the jar and rattle common in other machines. A spring attached to the rod inside of the post gives a quick upward motion to the treadles, lessening the weight of the ball and rendering it easier to depress the treadle. The balance-wheel head is connected at the top and bottom and held securely to the four corners of the post by adjustable packing. The dial-ring is accurately spaced for from ten to eighteen spokes, and held by a spring, conveniently arranged for turning.

These machines have been extensively experimented on and improved, and have been subjected to thorough tests with great success, as is claimed. They are manufactured by Messrs. R. Ball & Co., of Worcester, Mass., who may be addressed for further particulars.

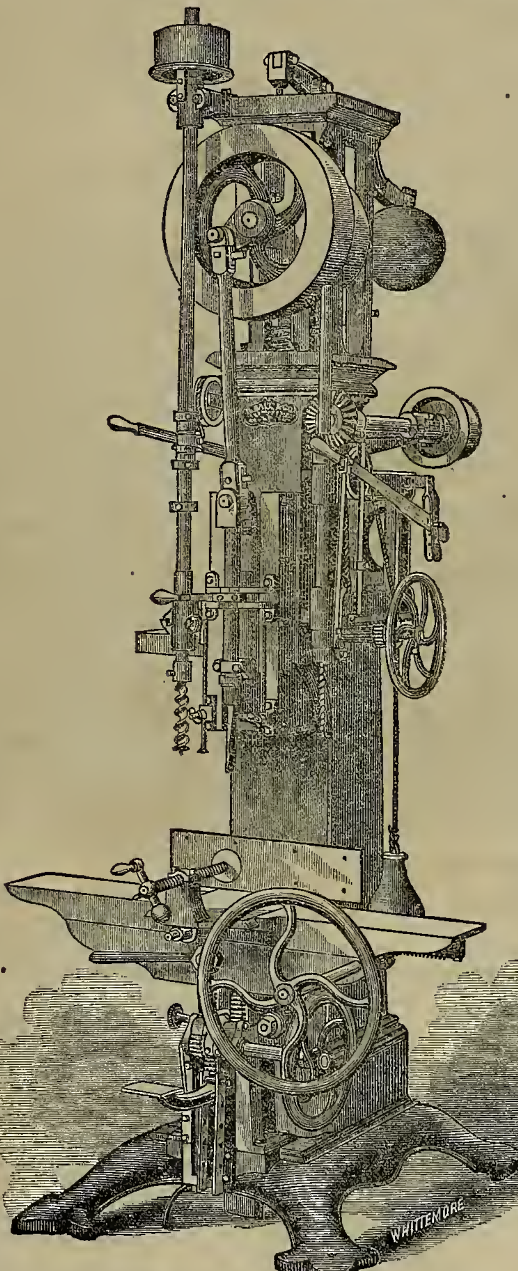


FIG. 1—RAIL-CAR MORTISING MACHINE.

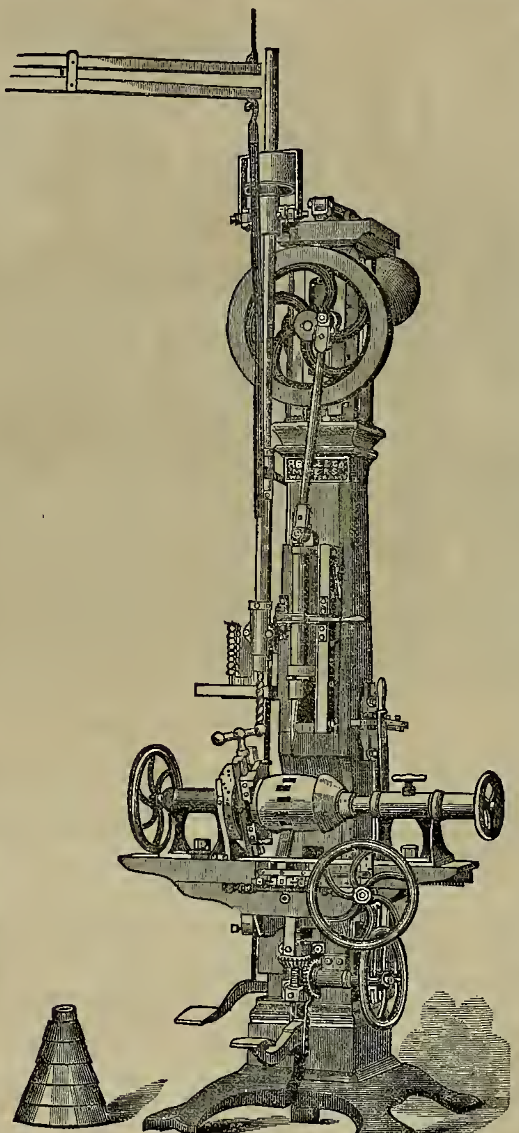


FIG. 2—HUB MORTISING MACHINE.

The Basalts of Oregon.

At a late session of the Academy of Science at Washington, Mr. R. W. Raymond read a most interesting paper on the basalts of Oregon, Washington and Idaho. After speaking of the Dalles particularly he went on to say that on the road from Dalles City to Cañon City, along the Sante river, was a tremendous thickness of basaltic overthrows two thousand feet high. The river had taken its way through the chasm of the original upheaval and worn it deeper. He explored the singular phenomena of the caves north of the Dalles. There was no ice in Portland last summer when he visited the place; but a few miles further it was abundant: and, on inquiry, he learned that it was mined from the ice caves forty miles up the Salmon river, near the foot of Mt. Adams. An expedition set out for the caves. They were not large, but beautiful, and filled with the purest ice in mid-summer. Here was a possible hint of the lost rivers which puzzle the discoverers. This was a volcano country, and the centers of lines of eruptions could be traced by the terraces. The ground under the horses' feet sounded hollow from the falling in of the roofs of old caverns from one to four miles in length, which were the old ducts of the lava. He had seen the same thing on Vesuvius in the eruption of 1859-'60, which was not from the crater but at the sides, as from a bleeding wound. The stream of lava cools at the sides and top, protecting the hot stream beneath. Finally the orifice becomes choked with stones and clotted lava at the eruptive point, and the lava flows away, leaving the duct empty, ending at some elevation of the surface which tore up the duct. In the ice caves, the roof had fallen at the corners, but on the sides and floors the smears of lava could be seen in fibrous masses, spirting on the roof-like door. In these caves the water trickles from thawing snow, in winter freezing as it falls, forming bergs of tons of ice reaching nearly to the top of the cave. This is much colder than common ice, and lasts all summer. Just below the lower line of Mt. Adams was to be found a miniature paradise, where all the flora of the Pacific coast grew luxuriantly, attended by myriads of humming birds which disappear for other regions with the flowers. The great Shoshone Falls, second only to Niagara, carved their way through basaltic rocks, remarkably distinct in their hexagonal and columnar form. Geological surveyors here can make no mistake in reading the text. He stood at one time over a cleft ten inches wide and five hundred feet deep. The river had eaten out below the basalt, which by gravity and cleavage had settled into a broken line, different columns separated by tufa settling sometimes without breaking. Four hundred feet the river has cut through the basalt, and there are two hundred feet of porphyry below the basalt. The Lost river is found on entering the cañon of the Snake river, where, from a perpendicular face of porphyry midway of the cliff, a cascade issues from the rock in a furious large stream. No water is to be found on the surface, but the settlers pretend to identify it with a river one hundred miles to the north. This was probably a volcanic drift from which the tufa had been wrought out of the way, and formed a channel underground for the water. The speaker wished to see this interesting region thoroughly surveyed by the Government.

* * *

A French Labor League.—Through the exertions of Mr. Th. Pergeline an influential association has been organized in Paris for the suppression of strikes throughout the French Empire. The efforts of the association will be directed to relieving the workmen from the tyranny of professional delegates, the evil influence of whom, as a class, is equally felt by employers and employed. Subscriptions are being freely given for aiding the attainment of the object in view, and in January next a prize of 5,000 frs. ($1,000) will be awarded to the author of the best essay under the title, "Suppression of Strikes," pointing out the means (not involving State intervention) most practical, equitable, and conformable with social equality, of rendering strikes henceforth inefficacious, and consequently impossible.—*London Mining Journal.*

A correspondent of the *Scientific American* recommends turpentine as a certain cure for lockjaw. He says: "Let any one who has an attack of lockjaw take a small quantity of turpentine, warm it and pour it on the wound, no matter where the wound is or what its nature is—and relief will follow in less than one minute. Nothing can be applied to a severe cut or bruise that is better than cold turpentine; it will give certain relief almost instantly. It is also said to be a sovereign remedy for croup. Saturate a piece of flannel with it and place the flannel on the throat and chest—and in very severe cases three to five drops on a lump of sugar may be taken inwardly. Every family should have a bottle on hand." It is a simple remedy and can be easily tested. In all serious cases application should be make under medical advice.

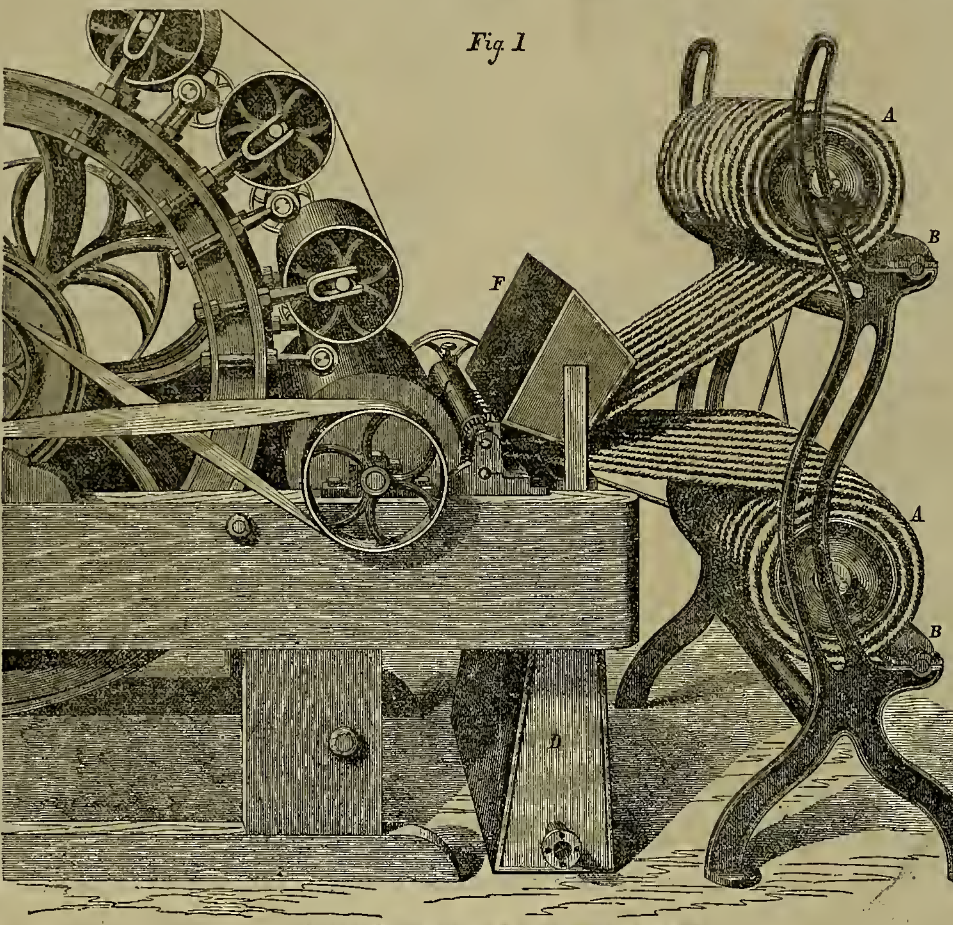
Served Him Right.—Ira E. White, of Wakefield, Mass. was lately sentenced to pay a fine of $75 and costs, for failing to provide sufficient food for his horse.

Device for Steaming Rovings.

In the manfacture of woolen or cotton goods, it is necessary to warm and moisten the strands of undressed wool or cotton which are to be carded, for the purpose of rendering them pliable, capable of being drawn out very fine, etc. The process of steaming has been employed for some time, but the manner in which it has been used has been open to certain inconveniences, which is the object of this invention to obviate.

The device is very simple and easily attached. Our first figure shows it applied to a carding machine, while Fig. 2 gives a sectional view, showing the interior of the steam reservoir.

Fig 1

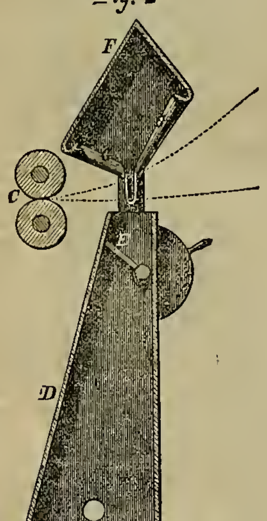


BARBER'S DEVICE FOR STEAMING ROVINGS.

From the rolls, A, on which the rovings are wound and which rest on wooden rollers, B, which revolve these rolls by friction, the rovings pass through a steam reservoir, D, and thence to the rollers, C, which feed the card cylinder. This steam reservoir is made of tin and composed of two parts. Into the lower part, D, the steam is admitted through a pipe, shown in the cut, and here it expands and passes up through the rovings into the upper part, F. In this place it condenses and the condensed water trickles down the sides and is carried away by interior gutters, G. In this way the rovings are reached by the steam alone, being protected from any condensed water, all of which is caught either in the lower part, D, or in the upper one, F.

While the rovings are thus gently and uniformly moistened—much more so, it is claimed, than by any other device used—there is also a great saving in the oil which hitherto has been used in quite considerable quantities for softening the rovings and rendering them pliable. Only one pint of oil, it is said, is necessary for a hundred pounds of roving with this arrangement; indeed, the use of oil can be done away with entirely, as is thought advisable when the goods are not to be scowered after weaving, in which case the fabric will then be much cleaner, and the colors much brighter and better.

Fig. 2



The annoyance, often quite serious in dry and cool weather, of the generation of frictional electricity, is prevented, and the wool can be worked equally as well in dry and cold as in moist and warm days. The amount of steam required is regulated by its admission into the reservoir and by means of the damper, E, which can be placed and held in any required position by means of a handle and pins.

The device is very highly spoken of, and seems to be a very efficient and desirable arrangement. It was patented by Solomon Barber, of South conveutry, Conn., to whom may be addressed any applications for further particulars.

◆

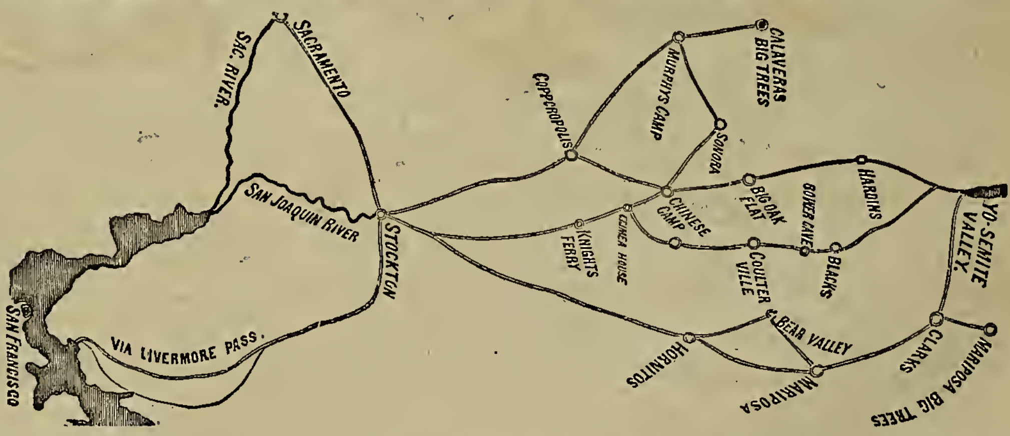
A Proclamation has been issued by the Governor of Arizona, calling upon every able-bodied man subject to military duty within the Territory to immediately aid in organizing the militia in order to take active measures against the Indians. The Apaches have been hitherto successful in committing murders and depredations, and the number of whites killed has been growing fearfully large. The Governor applied to Washington for assistance, and has been furnished with seven hundred and forty-four improved breech-loading guns and an ample supply of ammunition. As the military force there now is entirely inadequate to protect life and property, he will organize the militia and prepare for carrying on an aggressive war against the Apaches. The present state of things cannot continue, and the action of the Governor, backed up by the support of the citizens, will arouse the general government to taking more decisive measures. Helping themselves, as the Governor says, is the most effectual way to get help from others.

Route to the Yosemite.

The Yosemite Valley will probably be visited this year by a larger number of persons than ever before. New routes are being opened up, and the accommodations are being continually adapted to the wants of the travelers. There are several roads by which the valley can now be approached, each of which has its advantages and disadvantages.

The newest route, which was opened last year and traveled by over 600 persons, is by way of Chinese Camp and Hardin's. It has the advantage of being the most direct way and of saving considerable horseback riding, besides leading through a fine country. Parties leave San Francisco on the afternoon cars or boat for Stockton. Every morning a stage leaves this last place at six o'clock, and carries the passengers to Chinese Camp and to Hardin's, and thence horses are taken to the hotels in the valley, a distance of only eighteen miles. On the way one passes directly through the Tuolumne Grove of Big Trees, which alone is worth the whole cost of the trip. By leaving Stockton at six o'clock in the morning the tourist arrives at Chinese Camp at four in the afternoon, then rides fifteen miles to "First Garrote," where he spends the night, and the next day continues by stage over a well-graded mountain road to Hardin's, where the trail begins. Arriving here, those accustomed to horseback exercise may at once start off, reaching Hutching's Hotel in time for a late dinner, and in this way making the entire trip from Stockton in thirty-eight hours. Those who are unable to push on so rapidly, can rest during the day and night at Hodgden's, reaching the valley the next day.

This shortening of the route will recommend itself to many, particularly to ladies. It is highly spoken of by those who have traveled it, and those intending to visit the Yosemite would do well to talk the matter over with the gentlemanly agent, Mr. E. Harrison, who may be found at the Grand Hotel in this city, or who will call on any one who desires it and make any necessary arrangements.



Gold and Gold Mining.

Eds. Press:—The *Overland Monthly* for June contains an article headed "Gold and Gold Mining," in which the writer gives statistics to show that in Victoria they are making large profits from quartz which yields no more than $2 a ton, and he states that the average yield of the quartz in that colony ($10) is the minimum at which quartz can be worked to a profit in California. He gives one example of a company at Ballarat, who crushed 7,543 tons of quartz, which yielded only $2 a ton, and which cost $1.30 a ton for raising the quartz and extracting the gold, including wear and tear of machinery etc., and yet paid in dividend to the shareholder $10,500! If the writer will exercise himself a little in addition and subtraction, he will discover that the manager of the company performed a wonderful feat.

Again, if the writer will refer to the reports of Ross Browne, he will discover that, in some instances, they have been and are working quartz mines in California at a cost of less than $5 a ton.

The same statement was made in a similar communication to the *Bulletin* some months ago (February 16th) and passed unnoticed. The aims and high character of the *Overland Monthly*, will not admit of such errors. M.

◆

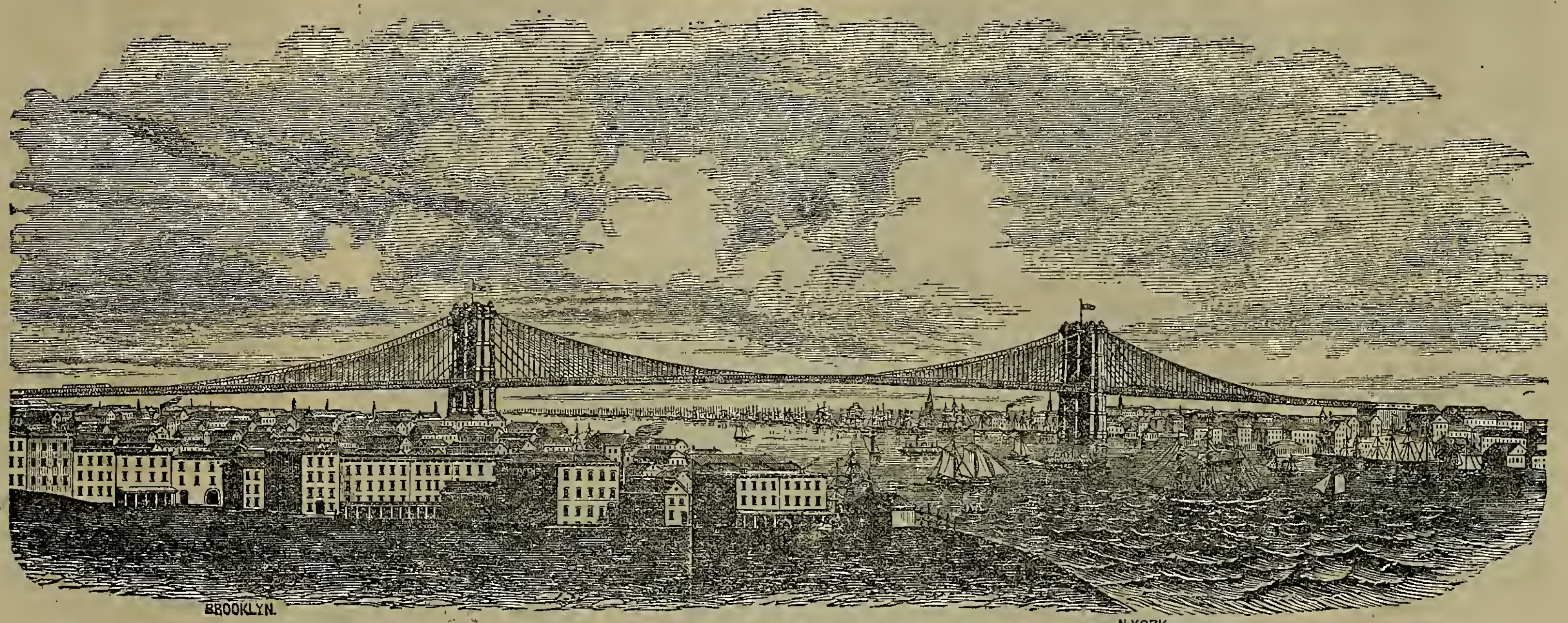
Not Digestible.—The Willamette *Farmer* says: "Mr. Morse, Warden of the Penitentiary, informs us that from the stomach of a cow killed at that institution during the week, was taken the following articles of 'hardware:' Forty-five nails, of different sizes; one piece of endless chain; piece of blade of jackknife, 1½ inches long and sharp; one piece copper; one 8-ounce tack; and a black rock about the size of a robin's egg. None of the articles are in a very forward state of digestion."

Good Friday.—The Grass Valley *Union*, of 26th, says: Yesterday Mrs. Murray received from her husband, David Murray, $125 worth of bullion from Auburn, that being Dave's share of the proceeds of eight loads of rock from the Good Friday ledge.

The East River Bridge, New York.

One of the greatest of engineers whom America has possessed, and one of the first in the world in his particular branch, was the late John A. Roebling, of Trenton, N. J. This talented engineer had made a specialty of the construction of suspension bridges and had built two of the boldest in the world—that at Niagara Falls and that at Cincinnati. His last and greatest work, however, was the planning of the East River Bridge, which is to be over a mile long and 130 feet, clear, above the channel of the river. Mr. Roebling died before his plans were followed out; but his projected work is to be carried on to completion, its execution being entrusted to the care of his son.

Our engraving, taken from the *Manufacturer and Builder*, shows the general appearance of the projected bridge, looking down the river. Its importance will be realized when we remember that fifty-two millions of people are yearly transported across the stream on the present comparatively inefficient ferry boats. Some idea of the magnitude of the work can be obtained from the following description:



VIEW OF THE SUSPENSION BRIDGE, NOW BEING CONSTRUCTED, TO CONNECT NEW YORK AND BROOKLYN.

There are two piers, as shown in the cut, 1,620 feet apart and 280 feet high, so that the largest ships may pass beneath. The weight of the bridge will be 3,600 tons, and it will sustain a transitory weight up to some 1,400 tons, giving a total of 5,000 tons. Each pier will contain over 900,000 cubic feet of granite, will be hollow, with a base measuring 134 by 32 feet at the water line, and will weigh more than 70,000 tons. To support this weight with safety, the surface of the lower part of the foundation will be 17,000 square feet. In each pier there will be two arches for entrances to the bridge, each being 32 feet wide and 120 feet high, and giving passage to a railroad track, a carriage way, and a sidewalk. The bridge will be sustained by four cables made of parallel steel wire, stretched in a bundle nearly a foot thick. These will be anchored in two solid walls which are 3,794 feet apart. Beyond these points, on each side, the approaches are built of arched masonry, commencing at the City Hall in New York and at the junction of Fulton and Sand streets in Brooklyn. Each cable enters through the masonry of the anchor-walls to a distance of twenty feet, and then connects with anchor chains 130 feet long, which form a downward curve so as to convert a part of the tension into downward pressure. The pull on each will amount to about 5,600 tons. But reliance is not placed alone on these huge cables. The bridge is secured likewise by stays from the tops of the piers to the bottom of the bridge, which, it is asserted, will hold the bridge, even if the cables should break, although they would not prevent its sagging in the middle in this case.

In building such a bridge not only must the weight be held up, but care must be taken to prevent its being swayed by heavy gales. For this purpose the cables are not laid in parallel lines, but the outside ones are much further apart at the piers than the width of the bridge, and approach each other, while the reverse is the case with the middle cables.

The first and most difficult step is laying the foundation of the piers; a work which has evoked a display of the highest engineering talent. The general plan of effecting this on the Brooklyn side, where rock is found only at a depth of ninety-seven feet, is as follows: The shore is first dredged out, and then a large caisson floated into position at high tide and firmly secured as the water recedes. The ground beneath the caisson will then be excavated, until the huge affair, sinking by its own weight as the work progresses, shall have reached a point thirty feet below low tide, when additional timber will be laid on top of it to the height of fifteen feet, and filled in with concrete; and when the whole has become firmly fixed in place, the tower will be built on the solid foundation thus obtained.

The caisson is a huge structure, 168 feet long, 102 feet wide and 15 feet high, built of white pine timbers, a foot square, and strongly bolted together, with the seams tarred to render them water-tight, and a sheathing of tin, between two of felt, placed between the outside layers of timber, to make the affair air-tight. The whole does not form a solid mass from top to bottom, but contains a large chamber below, about nine feet high, with sloping walls, the lower part of the four sides of the caisson around this chamber or cavity having a wedge shape, in section, eight inches wide at the lower edge and 8¼ feet wide at the top of the chamber. This wedge-shape facilitates the sinking of the caisson, and its sharp lower edge is very strongly constructed. To prevent the corners at the bottom from spreading, great care is taken, and in the second course, at each corner, a knee of hardwood timber, extending twenty feet each way, is inserted.

Six shafts, lined with half-inch boiler iron, pass through the roof of the caisson. Two are water-shafts, rectangular, 6½x7 feet, in which the water collecting in the caisson will rise, forced by the atmospheric pressure. Two are man-shafts, of circular shape, through which the workmen will pass and the earth be hoisted. Two are air-shafts, also circular, and 3½ feet in diameter. Air will be forced into the chamber, expelling the water and enabling the laborers to work on the bottom. As fast as these excavate the earth, they will deposit it around the shafts, through which a dredging machine will lift it and dump it into the scows. The interior will be lighted by gas. The caisson contains 1,500,000 feet of lumber, 100 tons of wrought iron in the shape of bolts, angle-irons and plates, and weighs from 2,500 to 3,000 tons.

The work of dredging was commenced on the 3d of January. The bottom was composed of clay, gravel and loose boulders; and to render it easy for this process piles were driven and then removed, and in the holes thus made shells were deposited and exploded. Many of the boulders were over ten tons in weight and were destroyed by explosion through the means of divers. The work was prosecuted at night, and cost about $35,000.

On the nineteenth of March, at high tide, the monster caisson was launched at the yard of the builders, Messrs. Webb & Bell, at Greenpoint. This was effected without difficulty, although itself a work requiring great mechanical talent. Without a single mishap the huge structure slid down the ingeniously-constructed ways into the water. Then the air-pumps, driven by a steam engine on deck, were set at work, and thus the caisson was raised considerably. It was then taken in tow by steamers and attached to a neighboring pier, where work on top of it was continued.

On the third of May, the place for it being ready, it was towed by four steamers and laid upon its bed near the Fulton ferry slip, where a dock had been built for it, into which it fitted exactly. Here the work of excavation is going on, and no trouble is anticipated, unless, perhaps, in sinking the edges may come upon large boulders.

Every obstacle, and such present themselves at every step, has been successfully overcome thus far, and we doubt not that the skillful engineers who have the matter in charge will be able to complete their gigantic undertaking. We have not sufficient space to speak more of the details of this most interesting work. In the boldness of its conception, the ingenuity displayed in its execution, and its magnitude and importance, connecting as it does two great cities, it will ever remain a colossal monument of American ingenuity and American skill and energy.

Ocean Cables.—There are now sixty-four ocean cables in different parts of the world, with an actual length of insulated wire amounting to 27,402 miles. The earliest line, laid in 1851, is that across the British channel from Dover to Calais; the latest, in 1870, that between Bombay and Aden, which is 2,881 miles long. The longest one is that from Brest, France, to St. Pierre and Duxbury, Massachusetts, having a total length of 3,887 miles. Contracts have been made for the completion within one and two years of eleven additional lines, which will be, in all, 20,828 miles long. But much longer than any at present existing or contracted for, is that for which Mr. Cyrus W. Field is now working before Congress. This is to extend from San Francisco to Japan and China by way of the Sandwich Islands or the Aleutian Archipelago, and will be six to seven thousand miles long. But having a mid-ocean station, the difficulties of the undertaking are greatly reduced and brought fairly within limits known to be possible by the existence of other lines. If carried out this will complete the telegraphic girdle around the globe and, with its connections, bring our commercial centers into close communication with all parts of the world.

* * *

California woolen blankets have the established reputation of being superior to all which are imported. We have used several manufactured by the Marysville woolen mills, which we consider as among the very best. Marysville is located very favorably with regard to the wool-growing interest of a large section of our State, and the proprietors of these mills have the opportunity of securing some of the choicest staples raised in California. Improvements have been introduced by them during the last year, their manufactory extended and its producing capacity greatly increased. Messrs. L. & M. Sachs, corner of Bush and Battery streets, are the agents for San Francisco.

* * *

Government School of Mines.—It is proposed by parties East to have mining engineering taught at West Point. We imagine that this will not amount to anything more than a proposition. The one great advantage from such a school would be that we could be certain that a graduate from there had really studied his profession faithfully, which guarantee we have from no other mining school at present.

* * *

High wind has done considerable damage to the fruit crop in the vicinity of Stockton.

Bridal Veil Fall, Yosemite Valley.

One hundred and forty miles east of San Francisco, on the western slope of the Sierra Nevada, thirty miles from their summit, and at an elevation of over four thousand feet above the level of the sea, lies the pride of California, the boast of the United States and one of the great wonders of the world—the Yosemite Valley. Unparalleled of its kind, it is the perfection of beauty and sublimity.

THE BRIDAL VEIL FALLS, YOSEMITE VALLEY, CALIFORNIA.

We have no intention of giving a description of this valley, so well known by report and personal experience. We give our readers, however, a view of one of its most beautiful features, the Bridal Veil fall, which has elicited the rhapsodies of writers and the highest efforts of some of our best artists. Situated two miles from the lower end of the valley, and being the only one of the noble cataracts visible to the tourist on approaching or leaving the enchanted spot, it has attracted special attention. About seventy feet wide in June, leaping a distance of a thousand feet, and waving from side to side, like the fluttering of a white veil, it is a most beautiful sight. "As I think of it," writes Starr King, "I lose quickly the impression of the widening of its watery trail before it struck the rocks to thunder from them; I do not dwell either on the fascinations of its ever melting and renewing tracery, nor on the brilliance of its iris banners, that are dyed into its leaping mists and flying shreds; I can recall for my supreme delight only the curve of the tide more than eight hundred feet aloft, where it starts off from the precipice, and the transparency of its vitreous brink, with the edge now and then veiled with a little curling misty vapor, when the wind blew hard against it, but generally tinged with a faint apple-green lustre."

To those of our readers who have visited this wonderful vale, our illustration will recall the hours of the highest enjoyment;

to those who have been unable to partake of this choicest of pleasures, it will give some idea of one of the grandest beauties of Nature, a foretaste of the rarest treats within the reach of mankind.

On another page we give a sketch map of the location of other places of interest contiguous to the routes to Yosemite, together with some information regarding the new and popular means of conveyance opened last season via. Chinese Camp.

Machinery for the Farm.

Farming machinery is, as a general thing, very roughly made and clumsily put together. A mechanic prides himself greatly in the perfectly fitting gearing and true and steady motion of the machinery he uses. The greatest mathematical nicety is observed in its construction. Its setting is gauged to a hair, so that no power may be lost in uneven motion or friction. But anything seems to be considered good enough for the farmer, and any sort of usage good enough for the machine after the farmer gets it. Rough castings are frequently warped out of true, and not even dressed, but geared together as most convenient for the manufacturer. An unequal strain and motion is the consequence of such disproportional machinery, and a loss of power is also entailed. It is better that two prices be paid for good machinery, than that a poor machine be furnished for nothing.

The farmers of California always demand the best, or what they think the best, regardless of cost, and none but the very best machinery, finished perfectly, and substantially fitting, should be tolerated; and instead of leaving farm machinery exposed out of doors to the shrinking, swelling and rotting and warping of the sun, rains and weather, the *prudent* husbandman will house his machinery and keep it in repair. The bearings and boxings of farm machinery are generally too small. Where the bearings are large, much greater strength is given to the machine, and it will last, in good order, much longer. Too little attention is given to this important principle, more particularly in the manufacture of portable machines. Portable engines, harvesters, mowing machines, etc., are generally greatly at fault in this respect.

The care of machinery is a subject of great importance. Every farmer is aware of the great difference in the running and working of the same machinery in charge of different men. Aside from properly handling the team, or power, the difference is sometimes one-half in effective service. Constant attention and watchfulness are required to work and take care of machinery. We have known men to take a pride that almost amounted to an affection for the machinery under their charge. Such a person, with proper instruction and understanding, may safely be trusted.

The boxing of the machinery should never be set so tight as to bind and heat; but should fit so close as not to allow any rattling or clattering. Much power is frequently lost by unsteady motion and by unnecessary friction.

Another most important matter, and one too frequently neglected, is the oiling of the bearings, and the cleaning from all clogging and "gumming," of all parts of the machine. It is poor economy to spare the oil, especially where the greatest amount of speed is centered. We have known the pitman boxing to cut badly—to be nearly ruined in one day's running of a reaper by a careless hand, and all for the want of a little oil. The slightest tendency to heat may be readily detected by touching the boxing with the fingers, which should be frequently done and always attended to. The ear soon detects the least thing wrong in the running of the machinery. There is music in the smooth and easy clipping of a perfect mower, and agony in a rattling or binding machine. The low, even hum of a thresher is quite different from the harsh, uneven tremor of a badly-working one. Indeed, while the economy of power and the effectiveness of machinery depends so much on its construction, and so very much on its management and care, it is of much importance that farmers give more attention to the principles involved. S. H. Herring.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street.......................San Francisco
(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

JOHN ROAOH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.
DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,
DENTIST.
Office, 313 Bush Street, near Montgomery.
Is a regular graduate, with twenty years experience in practice. 14v20-3m

DR. MABON,
ORTHOPÆDIST,
(Late of the City and Royal Orthopædic Hospitals of London).

Apparatus for the following bodily DEFORMITIES skillfully made and carefully applied: Curved Spine, Hip Disease, Club Feet, Round Shoulders, Weak Ankles, Flat Feet, Bow Legs, Knock-knees, Contracted Knee, Contracted Fingers, Shortened Limbs, Fractured Limbs, Knee, Wrist, and

Hip Dislocations.

My NEW TRUSS is admitted by the Medical Profession at large to be the
MOST EFFICACIOUS INSTRUMENT
Yet invented for the cure of
RUPTURE.

I will give a written guarantee to cure in a specified time. All that are ruptured are invited; and I shall be pleased to explain the principle of my Truss and mode of treatment
Office, No. 128 Kearny Street, near Sutter,
SAN FRANCISCO. 11v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞Sole Agents for Barstow's Metallic Burial Cases and Caskets
25v14tf

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 Clay Street, bet. Kearny and Montgomery, San Francisco. 11v203-m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street. (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Oarratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO.

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufactory on the Pacific Coast. Meerschaums Mounted with Silver. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

H. G. STILLEY,
PLANE MAKER.
Planes of every description made to order of beach timber or other hard wood. Every variety of Moulding Tools repaired. Shop, No. 3 Belden Place (near Bush street), below Kearny, San Francisco. 11v20-3m

D. BOYLE. JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line promptly attended to.
Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

F. SCHOENER,
METAL SPINNER
All kinds of Metal spun to order. Give me a call at No. 10 Stevenson Street, fourth story Pioneer Mills.
14v20-3m

NOTICE.
HYDRAULIC HOSE MANUFACTORY.
Hose made to stand any pressure—from 100 to 300 foot fall. Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street.
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street. San Francisco. 25v19

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

California File Manuf'g Co.
437 Brannan Street, bet. Third and Fourth.
W. Wusthoff, L. Kramer, M. Harris, J Burke.
REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,
At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

"ENTERPRISE"
SAWING AND PLANING MILL.
D. A. MACDONALD, J. H. MACDONALD,
JOSEPH MCGILL, H. CHAPMAN.
D. A. MACDONALD & CO.,
Manufacturers of DOORS, SASHES, BLINDS AND MOULDINGS, 217 to 225 Spear street, and 218 to 226 Steuart street, between Howard and Folsom, San Francisco. ☞Finishing Work for buildings constantly on hand and got up to order. 20v20-3m

Metallurgy and Ores.

MINING SCHOOL.
Mosheimer's Practical Mining School
Will be reopened by the FIRST OF JUNE, and practical instruction given in all branches of Assaying, Crushing, Amalgamating. Concentratigg, Smelting and Refining Ores; also Erecting Furnaces and Reduction Works of every kind. To give all miners a chance to learn Assaying of Ores (what everyone ought to) I have reduced my former charge for
Assaying Ores.......................................$ 50.00
To work Gold and Silver Ores.......................... 100.00
Smelting and Refining, including Assaying...... 150.00
Many gentlemen who have been taught in my establishment will bear testimony that in a few days they learned more than they expected to learn in a month. Before going into mining, every man ought to know how to test ores, and then he will go to work with prudence and never fail to be successful. Apply to
J. MOSHEIMER,
Office, 328 Montgomery street; Works, 2,005 Powell street, San Francisco. 22v23-3m

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street. San Francisco.
Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.
Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 10v20-3m

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.
Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
☞Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.
H. H. LAWRENCE..........................Manager.
J. A. MARS...........................Assayer.
Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

CRUCIBLES! CRUCIBLES!
EUGENE DE SABLA,
COMMISSION MERCHANT,
AND SOLE AGENT FOR
J. H. GAUTIER & CO'S CELEBRATED
American Blacklead Crucibles,
No. 310 DAVIS STREET,
SAN FRANCISCO. 20v20-3m

Agents! Read This!
We will pay Agents a salary of $30 per week and expenses, or allow a commission, to sell our new and wonderful inventions. Address M. WAGNER & CO., Marshall, Mich. 21v20-2m

THE FIREMAN'S FUND INSURANCE COMPANY.

OFFICE,
S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine In urance.

CAPITAL..............................$500,000 00
SURPLUS..............................267,115 63
TOTAL ASSETS.........................$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
13v20-3m CHAS. R. BOND, Secretary.

OCCIDENTAL Insurance Company

OF SAN FRANCISCO.]

Cash Capital, - - - - - - - $300,000
GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 28v17

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2.500 secured for $6.

HOWARD & HOWE,
General Agents for the Pacific Coast.
No. 338 Montgomery street, corner California, Room 7.
☞Agents Wanted.☜ 14v20-3m

Pacific Bank.

PETER H. BURNETT........................President.
FORD H. ROGERS..........................Cashier.

REMOVED

To its new Banking House, northwest corner of Sansome and Pine streets.

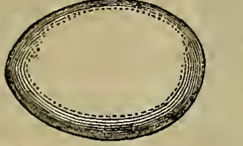
O. P. SUTTON, Secretary.
San Francisco, March 30, 1870. 15v20-3m

SOMETHING NEW

— FOR —

MINERS AND FAMILIES.

EAKINS' EGG SUBSTITUTE.



One Can equal to three dozen Eggs,

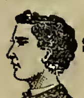
And dispenses with the use of Baking Powder, Soda, and Cream of Tartar.

Price, 35 Cents per Can.

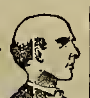
MANUFACTURED BY ADAMS & CO.,
423 WASHINGTON STREET.

HEATHFIELD, BOGEL & CO., Wholesale Agents, 206 and 208 Battery street, San Francisco. 11v20-3m

---



WONDERFUL
Scientific Discovery.



THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Dear Doctor:—I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly,
John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 19v20-2m

---

Scientific Press.—Dewey & Co. are the publishers of this sterling paper It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican*,

---

PACIFIC BUSINESS COLLEGE,

Mechanics' Institute, 27 Post Street,
Bet. Montgomery and Kearny, San Francisco.

THE PIONEER AND ONLY BUSINESS COLLEGE

On the Pacific Coast where BOOK-KEEPING is taught as practiced in the Counting-room.

PENMANSHIP.

In this useful and very important branch we challenge competition.

PROF. SEREGNI

Has obtained First Premiums at all the Fairs on this coast where his Penmanship was exhibited, and was awarded the MEDAL at the Seventh Industrial Exhibition of the Mechanics' Institute in 1869 over all competitors. His success as a Teacher is unequalled.

TELEGRAPHING.

The only place in the city where Telegraphing is taught by an experienced Operator.

We cordially invite the public to call and examine the merits of the College. Our Institute is patronized by the youth of fifteen and the man of fifty, where they receive instruction in Single and Double Entry Book-Keeping, Commercial Arithmetic, Commission Jobbing, Business and Ornamental Penmanship, Commercial Correspondence, Actual Business, Merchandising, Banking, Importing Railroading, Steamboating, Mining, Real Estate, Brokerage and Exchange, Mechanical and Architectural Drawing, Telegraphy, Orthography, French, Spanish, Italian, German and English Grammar. No Class System. Each student receives individual instruction. No Vacations.

Sessions Day and Evening.

12v20-12t VINSONHALER, JULIAN & CO.

JOHN WRIGHT & CO.,

DEALERS IN PICKS AND PICK HANDLES.

Sole Agents for Washoe Tool Company.

Nos. 13 and 15 Fremont Street, at Nelson & Doble's, San Francisco.

LIST OF PRICES OF PICKS:

No.					No.				
No. 1	Round Eye Surface,	4	lbs.	$16	No. 16	Drifting	4	lbs.	16
" 2	" "	4½	"	16	" 17	"	4½	"	18
" 3	" "	5	"	16	" 18	"	6	"	18
" 4	" "	6½	"	18	" 19	"	6½	"	20
" 6	" "	6	"	20	" 20	"	6	"	22
" 6	" "	6½	"	22	" 21	Poll	4	"	18
" 7	" "	7	"	24	" 22	"	4½	"	18
" 8	Flat Eye Surface...	4	"	16	" 23	"	5	"	20
" 9	" " ...	4½	"	16	" 24	"	5½	"	20
" 10	" " ...	5	"	16	" 25	"	6	"	22
" 11	" " ...	5½	"	18	" 26	"	6½	"	24
" 12	" " ...	6	"	20	" 27	"	7	"	30
" 13	" " ...	6½	"	22	" 28	Coal	2	"	16
" 14	" " ...	7.	"	24	" 29	"	2½	"	15
" 15	Drifting	3½	"	16	" 30	"	3	"	16

No. 31 Coal.............. 3½ lbs.................. 16

Also, PICK EYES, ready for the steel, for the Blacksmiths, which will be sold cheap.

I wish to call especial attention to

MY NEW ADZE EYE PICK,

Which was made under my own supervision while in New York.

For Beauty, Strength and Durability they are unequaled.

JOHN WRIGHT.

WE HAVE A LARGE STOCK OF

Extra Number One White Hickory Drifting Pick Handles,

WHICH WE OFFER CHEAP.

CALL AND EXAMINE FOR YOURSELVES.
8v20-q1am3w

H. S. CROCKER & CO., Importing Stationers,

DEALERS IN

BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM PRINTING ESTABLISHMENT.

Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

The California Powder Works

No. 314 CALIFORNIA STREET,
SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

DR. F. SCHULTZ,

NO. 114 KEARNY STREET,
SAN FRANCISCO.

Office Hours—From 8 to 11 A. M. and from 2 to 6 P. M.

PARTICULAR ATTENTION GIVEN TO

SORE EYES, NEURALGIA,
RUNNING SORES and RHEUMATISM.
16v20-3m

MITCHELL & BELL
Carpet Dealers
606 Clay St.

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞Can compete in prices with any other dealer. 11v20-3m

---

CRANDALL'S PATENT SPRING BED.

COOLEY & GREEN, Proprietors.

Manufactory, corner Front and M streets, Sacramento. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. Orders receivd at our manufactory, or at our agencies, as follows.

S. B. SNEDAKER, 413 Pine street, S. F.
W. H. SARLES, San Jose.
MR. NICHOLS, Stockton.
IRWIN & GARNETT, Oakland.
MR. MURPHY, Vallejo.
22v20 E. A. TOMPKINS, Grass Valley.

Carmen Island Salt Works

MANUFACTURE AND OFFER FOR SALE

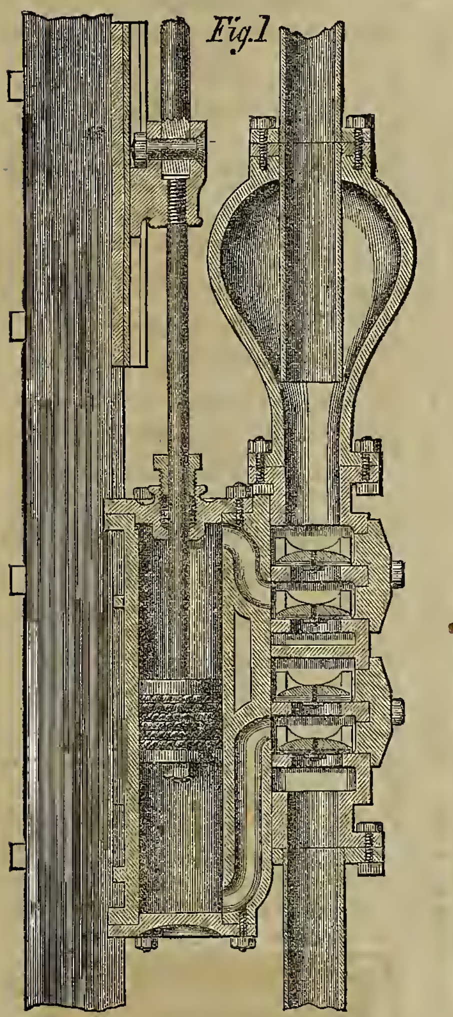
TABLE, DAIRY, COARSE-FINE,
CARMEN ISLAND ROCK,
AND LIVERPOOL COARSE AND FINE
SALT.

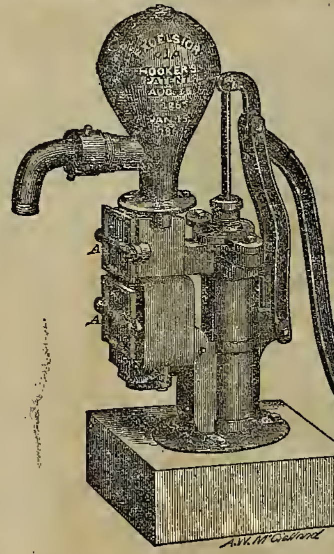
Dealers and Packers supplied in quantities to suit, at the lowest market prices.

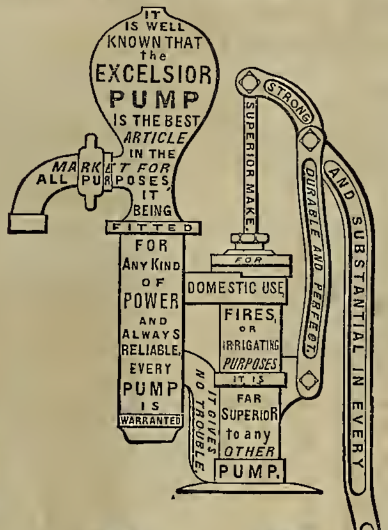
MILL, 249 STEWART STREET.
HOLLADAY & BRENHAM, Agents,
11v20-3m 326 Front Street, San Francisco.

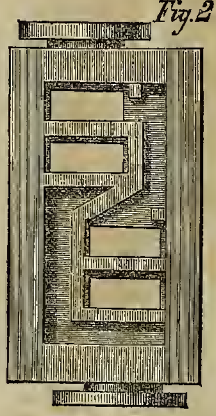
EXCELSIOR IMPROVED DOUBLE-ACTING SUCTION AND FORCE PUMP.

HOOKER'S PATENT, August 13, 1865, and January 15, 1867.

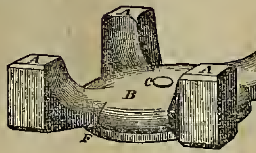




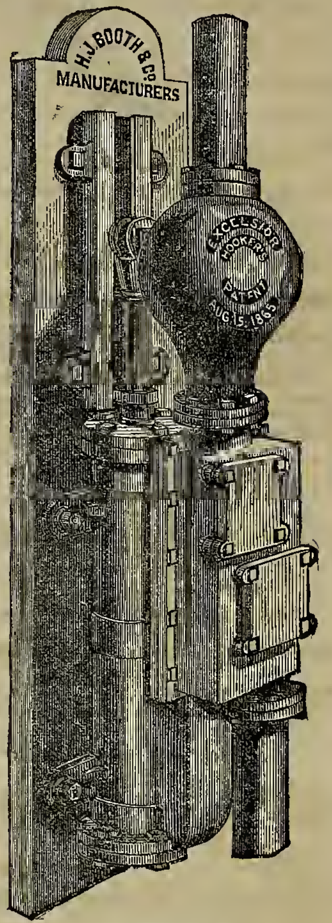

IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES, IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE, EVERY PUMP IS WARRANTED
SUPERIOR MAKE. FOR DOMESTIC USE FIRES, OR IRRIGATING PURPOSES IT IS FAR SUPERIOR to any OTHER PUMP.
IT GIVES NO TROUBLE.
STRONG DURABLE AND PERFECT.
AND SUBSTANTIAL IN EVERY RESPECT.



VALVE BOX.



VALVE.



We call the especial attention of all Millwrights, Miners and Farmers to this very superior Force Pump. It is more simply constructed, more durable, and has larger and more direct ports for receiving and discharging water, and warranted to furnish more water than any other pumps of equal caliber. It has Poppet Valves, which can not be wrongly placed in the Pump. The Fair of the Mechanics' Institute, held in the city of San Francisco, awarded the owners of this Pump, FOR ITS SUPERIORITY, A FIRST PREMIUM AND SILVER MEDAL. Suitable for DEEP WELLS, Factories, Mining, Breweries, Sugar Refineries, Tanneries, Railroad Purposes, Drainage, Irrigation, etc. As the above Pumps are already in use in the principal Sugar Refineries, Factories, Rolling Mills and Gardens in this city, reference may be had where they are working. ☞ See circular for particulars.

General Agents.—MESSRS. BRITTAN, HOLBROOK & CO., 111 and 113 California street and 17 and 19 Davis street, are Agents for the sale of the Excelsior Pump, who make liberal discount to the trade. H. J. BOOTH & CO., Union Iron Works, First Street, corner of Mission, San Francisco, who manufacture and have the sale of the Excelsior Pump.

V. CUSHING, Proprietor, San Francisco.

☞ We have BRASS-LINED, BRASS PISTON and BRASS VALVE PUMPS, at greatly reduced prices. Also STEAM PUMPS. ☜

THE EQUALIZING INSTITUTE.

SOMETHING NEW.

The Equalizer,

A TRUE GUIDE

—TO—

HEALTH.

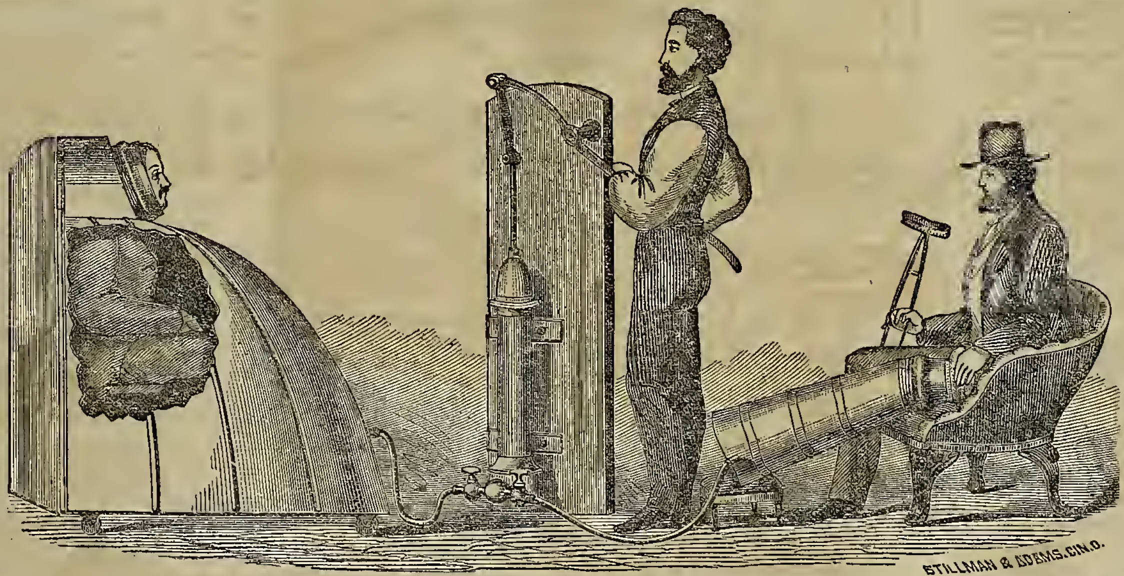
CURES

All Chronic Diseases

—BY—

VACUUM.

This treatment causes a thorough circulation of the blood throughout the system, creates new life, restores the GENERATIVE ORGANS, and reinstates perfect health.


STILLMAN & ADEMS.CIN.O.

The Following Diseases

CAN BE CURED

By this System:

Paralysis, Nervous Debility, Neuralgia, Dyspepsia, Asthma, Curvature of the Spine, and other Spinal Affections; Sciatica, Palsy, St. Vitus' Dance, and Derangement of the Mind; Pro Lapsus Uteri, Obstructed Menstruation, with all their concomitant diseases, Impotence, and all kinds of Weakness of the Generative Organs, can be cured. It breaks up congestion and inflammation in every part of the system.

All those treated with any of the above diseases can be speedily cured by application of the Equalizer.

Ladies will be treated by a competent Female Physician, who graduated in a New York Institute.

OUR BREAST GLASS

Is not simply an elevator of the breast for ornamental purposes, though it is true it will increase the size of the breast to any extent desired; but this is the least of the advantages derived from its use. For the health of both mother and child, every mother should nurse her own babe. The benefit derived from the application of this Glass will enable her to do so with pleasure.

CONSULTATIONS

Can be had with the undersigned at all hours at the office of the Equalizer,

No. 650 Howard Street,

SAN FRANCISCO.

RADICAL CURE OF PARALYSIS.

P. Winsdor, having suffered severely from four sun strokes, in the last two years from four strokes of total Paralysis and loss of speech, had recourse to the Equalizer as a treatment for same, and by means of the Equalizer was perfectly cured in the astonishing short period of four months, and as a proof of the above he can be seen at the Equalizing Institute, Howard street.

SAN FRANCISCO, February 17th, 1870.

P. Winsdor—Dear Sir:—I am 70 years old, have been Paralyzed two years on my right side. After using the Equalizer one month I find myself much improved. My leg, which would drag the ground when walking, now comes up as usual; my right arm, which was drawn round in front, now hangs by my side as formerly; my fingers, which had lost their sense of feeling, have been greatly improved, so that I can feel the smallest article. I was also troubled with the Rheumatism in my left arm and shoulder, which has been entirely removed during the month's operation. In many other respects I am much improved.

Yours, Respectfully,

[Signed] DAVID COLLINS,
208 First street.

[The above letter is in Mr. D. Collins' own handwriting, and can be seen at the Institute.]

SAN FRANCISCO, February 18th, 1870.

P. Winsdor—Dear Sir:—I am 32 years old, and have been Paralyzed in my right leg for three years, during which time I could not walk without a crutch and cane, but after a treatment of four months by the Equalizer, am able to walk quite comfortably without any assistance, and strongly recommend the Equalizer as a cure for the Paralysis. Yours Respectfully,

AARON MARKS,
Auction Store, corner of California and Kearny streets, San Francisco.

SAN FRANCISCO, February 17th, 1870.

Dear Sir:—In January, 1870, I suffered severely from Rheumatism, so much so as to prevent me from practicing in my profession as a Dentist. I tried the Equalizer as a remedy, and in twenty minutes after the first application experienced great relief; four more applications cured me perfectly, and I fully recommend the Equalizer as a certain and rapid cure for the Rheumatism.

Yours Respectfully.

DR. J. W. WINTER, Dentist,
No. 405 Kearny street.

N. B.—Ladies desirous of being treated by the Equalizer will be attended on by a Female Physician, who graduated at a New York Institute, and can obtain first class lodgings at moderate prices at the Institute. Those who wish to be treated at their residence can be accommodated.

Proprietor of the Equalizing Institute,

PHINEAS WINDSOR, E. C.

THE large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of DEWEY & Co., publishers of the SCIENTIFIC PRESS. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.
Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and ;e.

Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.
The highest price paid for Scrap Iron 9v14m9p

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,
S. E. corner of Sansome and Washington streets,
SUPPLIES ALL
Eastern Perodicals,
BY THE
Year, Month, or Number.

Sheffield Scientific School
Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1865, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY. and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School." New Haven, Conn. v16-1y16p

---

ARCHITECTS AND BUILDERS

Are invited to examine an invoice of

Marbleized Slate Mantels.

As these mantles are so perfect an imitation of the most costly Italian Marble, and can be furnished at so much less cost, they are being placed in the finest houses in New York and other Eastern cities.

J. D. HUNT.
No. 716 Montgomery street, San Francisco.
May 5th, 1870. 19v20.

I. O. O. F.
THE NEW AGE,
A WEEKLY JOURNAL OF SIXTEEN PAGES.
The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, &c., &c. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

WOODWORTH PLANERS,

With patent expansion feed gears and other improvements, made in the most finished and substantia manner. Also every description of the

LATEST IMPROVED PATENT

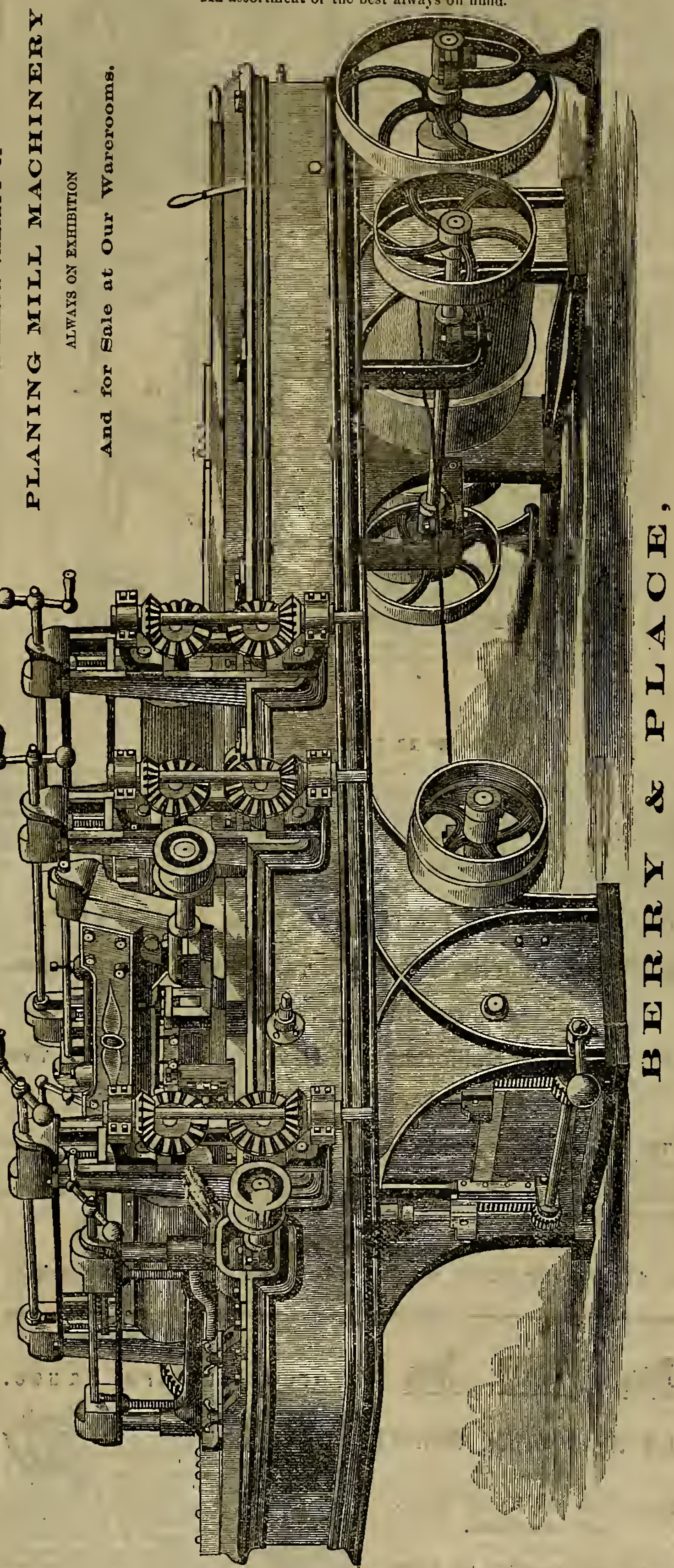
Wood Working Machinery. Wood Working Machinery.

Embracing various styles and sizes of the following Labor-saving Machines:

Morticing (Sash and Door),
Sash and Moulding,
Blind Slat Tenoning,
Boring (Horizontal & Upright),
Shaping,
Re-sawing,
Planing and Matching,
Blind Stile Boring,
Blind Wiring,
Blind Slat Planing,
Rod and Dowell,
Hand and Foot Mitering,
Railway Sawing,
Improved Tenoning,
Variety Moulding (Gear's Pat,) } Machinery.

An assortment of the best always on hand.

A LARGE VARIETY OF
PLANING MILL MACHINERY
ALWAYS ON EXHIBITION
And for Sale at Our Warerooms.



BERRY & PLACE,
IMPORTERS AND DEALERS IN MACHINERY OF ALL KINDS, San Francisco.

Scroll Saws, Dimension Planers, Wood Lathes,
FAY'S PATENT BAND SAWS,

ENGINE LATHES and Machinists Tools generally, with also a large assortment of small machines used in Planing Mills, Machine Shops, etc. Also, Planer Knives, Saw Gauges, Matcher Sets, Sash and Matcher Heads, Saw Tables and Arbors, etc. Being the selling agents for most first-class Eastern Machinery Builders, we sell THE BEST, and at manufacturers' prices. Invoices of the above machinery are now being received by every vessel. ☞ Send for Illustrated Catalogue.

BERRY & PLACE,
112 & 114 CALIFORNIA STREET, SAN FRANCISCO.

Blake's Steam Pumps, Turbine Water Wheels, Miller's Patent Elevators, Woolen Machinery, Flour Mill Machinery, etc., etc.

Central and Western Pacific Railroads.

Time Schedule, May 16, 1870.

EASTWARD.		Express Train Daily.	Hotel Monday Thursd'y	Mail, Sunday excepted
San Francisco	Leave	8 00 A M	8.00 A M	4 10 P M
Oakla d	"	8.30 A M		4.30 P M
San Jo·o	"	8.35 A M		3 25 P M
Stockton	"	12.07 P M		8.15 P M
Sacramento	Arrive	1 50 P M	1.50 P M	10.00 P M
				Emigr'nt
Sacramento	Leave	2.10 P M	2.10 P M	9.10 A M
Junction	"	2.55 P M		10 30 A M
Marysville	Arrive	4.00 P M		1.15 P M
Colfax	Leave	5 00 P M		4.00 P M
Cisco	"	9.00 P M		8 45 P M
Reno	"	1.15 A M	1.15 A M	5.45 A M
Wadsworth	"	2.50 A M		9.45 A M
Winnemucca	"	9.10 A M		10.15 P M
Battle Mouatain	"	12.00 M		3.50 A M
Carlin	"	3.10 P M		10.00 A M
Elko	"	4.40 P M	4.40 P M	12.30 P M
Kelton	"	1.30 A M		7.45 A M
Corinne	"	4 52 A M		2.50 P M
Ogden	Arrive	6.00 A M	6.00 A M	5.10 P M

WESTWARD.		Express Train Daily.	Hotel Thursd'y Saturd'y	Emigr'nt Daily.
Ogden	Leave	6 00 P M	6.00 P M	5 00 P M
Corinne	"	7.15 P M		7.35 P M
Kelton	"	10 42 P M		1.30 A M
Elko	"	8 45 A M	8.45 A M	7.15 P M
Carlin	"	10 15 A M		9.45 P M
Baitle Mountain	"	1.25 A M		3 05 A M
Winnemucca	"	4 05 P M		9.10 A M
Wadsworth	"	10.45 P M		9.00 P M
Reno	"	1.00 A M	1.00 A M	11.30 P M
Cisco	"	5.35 A M		8.15 A M
Colfax	"	8.45 A M		11.37 A M
Marysville	"	4 00 P M		4.00 P M
Junction	"	10.30 A M		5.05 P M
Sacramento	Arrive	11.25 A M	11.25 A M	6.30 P M
				Mail. Sunday excepted
Sacramento	Leave	11.45 A M	11.45 A M	7.00 A M
Stockton	"	1.40 P M		8.45 A M
San Jose	Arrive	6.30 P M		12.45 P M
Oakland	"	5.30 P M		12.10 P M
San Francisco	"	6.00 P M	6.00 P M	12.40 P M

"Local Trains."

From SAN FRANCISCO.	From OAKLAND.	From BROOKLYN.
B 6 50 A. M.	B 5.40 A. M.	B 5.30 A. M.
D 8 00 "	B 6.55 "	B 6.45 "
9.00 "	8 00 "	7.50 "
D 10 00 "	9 00 "	
11 00 "	10.00 "	9.50 "
D 12.00 M.	11.00 "	
2.00 P. M.	12 00 M.	11.50 "
D 3 00 "	2.00 P. M.	
4.00 "	3.00 "	2.50 P. M.
5.15 "	4.00 "	
5.30 "	5 20 "	5 10 "
B 11.30 "	6.40 "	5.30 "
From SAN FRANCISCO.	From ALAMEDA.	From HAYWARDS.
B 7.20 A. M.	B 5.25 A. M.	B 4 30 A. M.
C 9.00 "	R 7.36 "	B 7.00 "
BE 9 30 "	C 9.05 "	C 8 30 "
CE 11.30 "	B 9.35 "	B 9.00 "
E 1.30 P. M.	C 11 36 "	C 11.00 "
4 30 "	1.35 P. M.	
6.00 "	4.35 "	
	C 6 05 "	

R Sundays excepted. C Sundays only.
D To Oakland only. E To Alameda only.

A. N. TOWNE, Gen'l Sup't C. P. R. R.,
T. H. GOODMAN, Gen'l Pass'gr Agent, Sacramento.

SHORT ROUTE.

CALIFORNIA PACIFIC RAILROAD & STEAMER NEW WORLD VIA VALLEJO.

The following time will take effect
Sunday..............April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
7:00 A. M. 4:00 P. M.	11:15 A. M. 7:15 P. M.	11:20 A. M. 8:20 P. M.	1:00 P. M. 9:30 P. M.
ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M.

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M. 1:15 P. M.	6:45 A. M. 2:15 P. M.	6:15 A. M. 3:15 P. M.	10:30 A. M. 7:30 P. M.
ON SUNDAYS.			
10:15 A. M.	3:00 P. M.	2:30 P. M.	6:45 P. M.

TICKETS for sale at 313 Montgomery street, or on board steamer New World. R. S. MATTISON, Superintendent.
L. C. FOWLER, General Freight and Passenger Agent.
N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf.
Vallejo, April 24, 1870. 13v20-1y

Pacific Mail Steamship Company.—For NEW YORK, VIA PANAMA. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the 3d and 18th of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

June 3..............COLORADO,
Connecting with Alaska.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanillo.

For Japan and China.—Steamers leave on the 1st of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

June 1—Steamer JAPAN, Captain Freeman.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.
13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation
COMPANY,

Steamer CAPITAL..............CAPT. B. A. POOLE
" CHRYSOPOLIS..............CAPT. A. FOSTER.
" YOSEMITE.............. — —
" CORNELIA..............CAPT. W. BROMLEY
" JULIA..............CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

B. M. HARTSHORNE,
President.
13v12

SCIENTIFIC PRESS

BOOK AND JOB PRINTING OFFICE,

No. 414 Clay Street,

Below Sansome, - - - San Francisco.

SPAULDING & BARTO,

PROPRIETORS.

EVERY VARIETY OF

PRINTING,

FOR

Business Men, Corporations,

AND ALL

Branches of Industry,

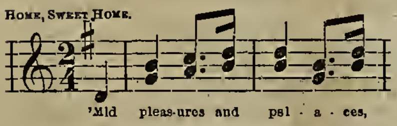
EXECUTED IN THE

BEST MANNER,

AT REASONABLE PRICES.

Music Printing

Executed correctly and with dispatch.



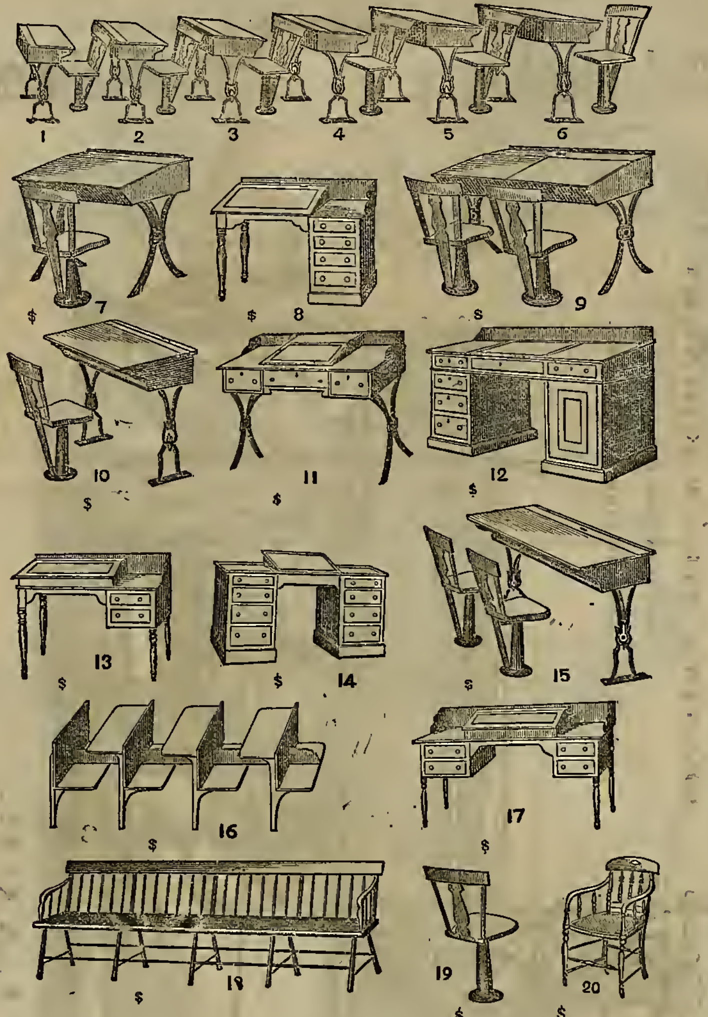
"Live and Let Live,"

Is a good old adage, and we shall adopt it as our own. We do not pretend to do work at "less than cost," as some people advertise to do; but we do claim to do all kinds of printing as cheap as it can be done on this Coast—and we believe as cheap as it is DONE in Chicago. Customers, in the country or city, are invited to call in person at our office, or send their orders by mail or express, and they will be fairly dealt with.

SPAULDING & BARTO.

Scientific Press Office,
San Francisco.

PACIFIC SCHOOL INSTITUTE.



PRICES:

No. 1	$ 6 00	No. 8	$20 00	No. 15	$ 9 00
No. 2	6 25	No. 9	12 00	No. 16—per set of three, Rankio's Patent	21 00
No. 3	6 50	No. 10	7 00	No. 17	25 00
No. 4	6 75	No. 11	16 00	No. 18—per foot	80
No. 5	6 75	No. 12	48 00	No. 19	2 25
No. 6	7 00	No. 13	14 00	No. 20	6 00
No. 7	8 00	No. 14	45 00		

BABBITONIAN PENMANSHIP,

Copy Books, Pencils, Pen-Holders, Paper-Cutters, Maps,

CHARTS, GLOBES, AND INK-WELLS.

A Large Map of California and Nevada, four feet by five,

IS NOW READY FOR DELIVERY.

This Institute is prepared to furnish Schools and Seminaries with the most approved School Furniture, Apparatus, Stationery, and all other SCHOOL SUPPLIES. Having ample facilities for manufacturing and importing most of the articles used in Schools, Teachers, County Superintendents and Trustees will find their orders promptly filled with articles that will give entire satisfaction. Office Furniture of every variety will be supplied. The numbers refer to each cut.

WARREN HOLT,

No. 411 Kearny Street, up stairs, between Pine and California.

8v20-q1am2

BULL'S HEAD STOCK MARKET,

JUNCTION OF

Hayes, Ninth and Market Streets.

SAN FRANCISCO.

H. B. PURDY & CO.,

— DEALERS IN —

CATTLE AND HORSES.

Work Oxen always on hand.

WAGONS AND HARNESS BOUGHT AND SOLD ON COMMISSION.

☞ Good Barns, Sheds, Corrals, and all other necessary accommodations. 21v60-3m

---

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.

CAUTION AGAINST FRAUD.

Declared by Connoisseurs to be the only good SAUCE The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed,

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

---

$1. Postage Paid. $1.

A CHEAP AND HANDY BOOK

— FOR —

Mechanics, Inventors and Students.

SCIENTIFIC PRESS

NEW EDITION

— OF —

507 MECHANICAL MOVEMENTS.

PUBLISHED BY

DEWEY & CO.

LIST OF CONTENTS.

Æolipile.

Balance, Compensation: Barometer; Blower, Fan; Brake, Friction.

Cams; Capstans; Centrolinead; Clutches; Chasers; Clamps, bench and screw; Cock, four-way; Column, oscillating; Compasses, proportion; Counters of revolutions; Coupling, union; Crank—substitute for the, variable; Cranks, bell and compound; Cyclograph.

Differential Movements; Drag-link; Drill—Fiddle and Persian; Drills, Cramp; Drop; Drum and Rope; Driver, Pile; Dynamometers.

Eccentrics; Ejectors, Bilge; Ellipsograph. Engine, Disk; Engines—Rotary, Steam, Valve Gear for; Epicyclic Trains; Escapements.

Fountain, Hiero's: Fusees.

Gasometers; Gauge, Bisecting; Gauges, Pressure; Gear, Steering; Gearing—Bevel, Brush, Capstan, Conical, Crown, Eccentric, Elliptical, Face, Friction, Internal, Irregular, Multiple, Mutilated, Scroll, Sector, Spur, Step, Stud, Sun and Planet; Gearing—Variable, Worm; Governors; Guides; Gyroscope.

Hammers-Atmospheric, Bell, Compressed Air, Trip, Steam; Helicograph; Hook—Boat-detaching, Releasing; Hooks, Centrifugal Check; Hyperbolas, Instrument for Drawing.

Intermittent Movements.

Jack—Hydrostatic, Lifting; Joint—Ball and Socket, Bayonet, Universal.

Ladder—Folding, Self-Adjusting; Lazy-tongs; Level, Self-recording; Lever—Bell-crank or Elbow, Knee; Lewis; Link. Detachable Chain.

Machine—Bohnenberger's, Drilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; Meter—Gas (wet and dry), Water; Mill—Barker's, Crushing, Tread, Wind; Miscellaneous Movements; Motion—Alternating Traverse, Rocking, Self-reversing, Shuttle; Motions—Feed, Link, Parallel, Pump, Traverse, Variable Traverse.

Pantograph; Parabolas, Instrument for Drawing; Paradox, Mechanical; Pendulum, Conical; Pendulums, Compensation; Pinion—Lantern, Mutilated, Slotted, Two-toothed; Power, Horse; Presses, Hydrostatic; Propeller, Screw; Pulley—Expanding, Friction: Pulleys—Anti-friction Bearing for, Chain; Pump—Air, Balance, Bellows, Chain, Diaphragm, Steam-siphon; Pumps—Double-acting, Force, Lift, Rotary; Punching Machine.

Rack—Mangle, Mutilated; Racks and Pinions; Ram, Montgolfier's Water; Ratchets and Pawls: Regulator—Gas, Watch, Reversing Motion, Self; Revolver; Rollers, Oblique; Rolls—Anti-friction, Drawing, Feed; Rulers, Parallel.

Saw—Endless Band, Gig, Pendulum; Screw, Archimedes, Differential, Double Reversed, Micrometer; Screws—Endless, Right-and-left Hand; Sectors; See-saw; Shears; Stamps; Stand, Mirror; Stop—for Hoisting Apparatus, for Lantern Wheels, for Ratchet Wheels, for Spur Gear; Stops for Winding Watches.

Test, Friction; Throttle, Spinning; Toggle-joint; Tongs, Lifting; Trap, Steam: Treadles.

Water, Machines for Raising: Weir, Self-acting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Paddle, Water; Windlass—Chinese, Friction; Windmills; Wipers.

This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.

A liberal discount made to the trade. Single copies, $1—sent postage free. Address orders,

DEWEY & CO.,
Patent Agents, San Francisco.

FIRE PROOF

— AND —

Fire and Burglar Proof Safes.

J. J. DUNN,

NOS. 317 AND 319 BATTERY STREET,

Sole Agent for JONATHAN KITTRIDGE'S

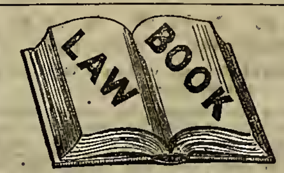
Fire Proof and Fire and Burglar Proof Safes.

Constantly on hand a large assortment of Fire Proof and Fire and Burglar Proof SAFES. Also the celebrated MONITOR SAFES. Steel Lined Bank Vaults, Silver Safes, and Safes of every description, made to order. SAFES REPAIRED, and furnished with new Combination Locks.

New Safes exchanged for second-hand ones. Safes let by the month on reasonable terms. An assortment of the most approved COMBINATION BANK LOCKS.

15v20-1sm-3m

Agents Wanted for Chamberlin's New



FOR THE PEOPLE.—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

---

ICE. ICE.

On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.

AMERICAN RUSSIAN COMMERCIAL CO.
D. E. MARTIN, Superintendent,
714 and 716 Battery street,

16v20-qy

Valuable Books on Mining, Mineralogy, Geology, Metallurgy, Etc.

ANTISELL.—The Manufacture of Photogenic or Hydro-Carbon Oils, from Coal and other Bituminous Substances, capable of supplying Burning Fluids. By Thomas Antisell, M. D. 1 vol. 8vo..	3 00
AARON (CHAS. H.)—Treatment of Rebellious Silver Ores. 8 pp.; pamphlet. S. F., 1869. Postage free	25
BROWN (H. T.)—507 Mechanical Movements. Dewey & Co's Scientific Press Edition, S. F., 1869. The most complete publication of illustrated mechanical powers with replete descriptions. 134 pp. Cloth bound; postage free	1 00
BARSTOW—Sulphurets; What they are, How Concentrated, How Assayed, and How Worked; With a Chapter on the Blow-pipe Assay of Minerals: 1 vol 12mo. cloth	1 00
BLAKE, W. P.—Annotated Catalogue of California Minerals. 8vo	50
BLAKE, (W. P.)—Report on the Precious Metals at the Paris Ex., 1869. (To be had through Members of Congress.)	
BROWNE, ROSS—Mineral Resources of the Pacific States. San Francisco, 1868	4 00
BOURNE (John)—Handbook of the Steam Engine, illustrated. 2 vol. 12mo, cloth	2 25
CONGDON.—Mining Laws and Forms of California and Nevada, and the Mining Ordinances of Mexico. 184 pp. 8vo; flexible cloth; 1864	2 50
CRONISE (W. H. V.)—Natural Wealth of California	5 00
DANA'S Manual of Geology. Numerous Illustrations. 8vo. half morocco. Philadelphia, 1867.	8 75
DANA'S Text-Book of Geology. Illustrated. 12mo, cloth. Philadelphia. (School Edition) 1864...	2 25
DANA'S System of Mineralogy. New Edition. 8vo. cloth	10 00
DANA'S Manual of Mineralogy. Revised edition, 1868	10 00
ELDERHORST'S Blowpipe.—Analysis and Determinative Mineralogy. Third edition, revised. 8vo. cloth. Philadelphia, 1866	2 50
FEUCHTWANGER — Treatise on Gems.	6 00
GOODYEAR'S Translation. A Treatise on the Assaying of Copper, Silver, Lead, Gold and Mercury, from the German of Th. Bodeman and Bruno Kerl. 1 vol. 12mo. cloth	3 00
HITTEL'S (JOHN S.)—Resources of California; comprising Agriculture, Mining, Geography, Climate, Commerce, etc., etc; the Past and Future Development of the State. 12m., cloth.	1 50
HOSKOLD'S Practical Treatise on Mining Land and Railway Surveying, Engineering, Etc. 1 vol. 8vo. cloth	16 00
KUSTEL.—Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada; also, a description of the General Metallurgy of Silver Ores. By Guido Kustel, Mining Engineer. Illustrated by accurate engraving. 1 vol. 8vo. cloth	5 00
KUSTEL.—A Treatise on Concentration of all Kinds of Ores: including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores Generally. By Guido Kustel, Mining Engineer and Metallurgist. Illustrated with 120 diagrams on 7 plates. 1 vol. 8vo. cloth	7 50
LAYRES (A.)—Elements of Composition (for schools or self instruction). 166 pp, Cloth	1 00
LAMBORN.—Rudimental Treatise on the Metallurgy of Copper. 1 vol. 12mo. limp cloth. Illustrated	1 00
MITCHELL'S Manual of Practical Assaying. 1 vol. 8vo. cloth	10 0
MAKINS.—A Manual of Metallurgy, more particularly of the Precious Metals, including the Methods of Assaying them. By G. H. Makins. 1 vol. 12mo. cloth. Illustrated by upwards of 50 engravings	3 50
OVERMAN (Fred.)—A Treatise on Metallurgy; comprising Mining, and General and Particular Metallurgical Operations. 1 vol. 8vo. cloth.	7 50
PHILLIPS (J. ARTHUR) — Mining and Metallurgy of Gold and Silver. New edition.) 8vo. Cloth	15 00
PERCY (John).—Metallurgy; the Art of Extracting Metals from their Ores, and adapting them to various Purposes of Manufacture. Iron and Steel. 1 vol. 8vo. cloth.	13 50
ROWLANDSON (THOS.)—Treatise on Earthquake Dangers, Causes and Palliatives. 96 pp.; pamphlet. S. F., 1869. Postage free	50
SCOFFERN'S Useful Metals and their Alloys. 1 vol. cloth	5 50
SIMONIN, L.—Underground Life; or, Mines and Miners. Edited by H. W. Barstow, F. R. S. 160 wood engravings, 20 maps (colored), and 10 plates of metals and minerals in chromo-lithography	18 00
URE'S Dictionary of Arts, Manufactures, and Mines. 2,300 Engravings. From last London edition. 3 vols. 8vo. cloth. New York	16 50
WHEELER & RANDALL'S Quartz Operator's Handbook. Flexible cloth, 12mo. San Francisco 1865	1 00
WHITNEY.—A Geological Survey of California. Report of Field Work from 1860 to 1864. By J. D. Whitney. Per. vol quarto	6 00
YALE'S Mining Claims and Water Rights. 8vo	7 50

Any of the above Books will be furnished by return mail or express, on receipt of price, in coin, postage added. Any other books desired will also be furnished at the lowest San Francisco retail prices. Address,

DEWEY & CO.
Scientific Press Office, San Francisco.

CHOICE POULTRY.

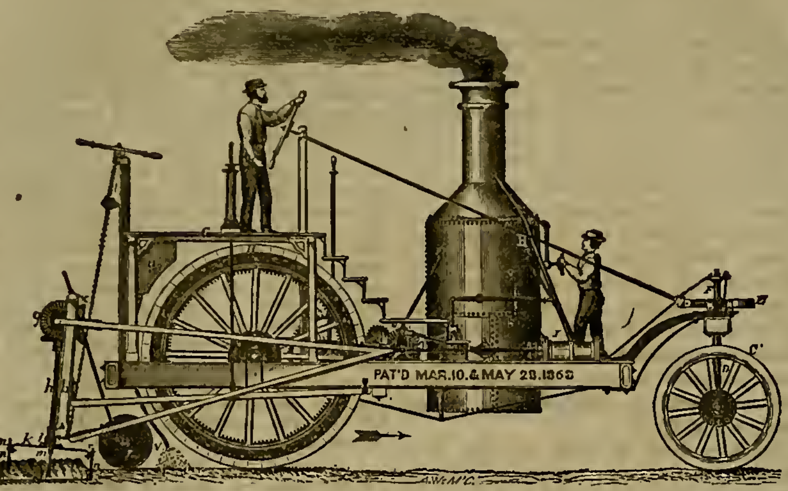
Light Brahma and White Leghorns.

We are now booking orders for a few trios of the above named fowls, bred from choice imported stock. Will commence delivering in July. All orders filled in rotation, as received.

☞ A few clutches of eggs for setting from the above named breeds.

NICHOLS & WILLARD,
Importers and Breeders of Choice Poultry, Fruit Vale Avenue, Brooklyn, Alameda county, Cal.
20v20-3m

The Standish Patent California Steam Plow.



Capacity, from FIFTEEN to THIRTY Acres per day. The success of this invention for plowing large fields, is established beyond a doubt. Individuals, clubs, or companies desiring a more rapid and economical means of cultivating their farms, are invited to address, for the present, the inventor, PHILANDER H. STANDISH, care of CHAS. F. COFFIN, South Boston, Mass. He will soon return with a plow of improved construction.

Air—Daisy Deane.

'Twas down in the kitchen a turkey she was stuffing,
And trimming it with parsley fresh and green;
And the kettle on the stove was bubbling and singing,
When I first met my darling Daisy Deane,
None knew thee but to love thee, thou dear one of my heart,
Oh! thy cabbages were ever fresh and green;
Though the squash pie is gone, and stuffed hearts be eaten,
Still I love thee, my darling Daisy Deane.

While walking on the levee, she fell into the river,
And she floundered like a fish caught in a seine;
By the wetting she took cold and a racking cough soon followed,
It settled on the lungs of my darling Daisy Deane.
None knew thee, etc.

My bright flower seemed fading, like a rose that had fallen,
Though they dosed her with pills and kerosene;
For the doctors all agreed she'd die before the morrow,
Oh! my dear one, my darling Daisy Deane.
None knew thee, etc.

So down to the drug store I despondingly did wander,
To end my existence with a glass of glycerine;
But ALLEN'S PECTORAL BALSAM was placed within my grasp,
Just one bottle cured my darling Daisy Deane.
None knew thee, etc.

☞ Ask for ALLEN'S PECTORAL BALSAM, and see that the proprietor's signature (as below) is written across the wrapper in red ink. SOLD BY ALL DRUGGISTS AND GROCERS.

Isaac D. Allen

Depot—139 J Street, Sacramento.

Rails, Newel Posts,

AND BALUSTERS.

Constantly on hand for sale, and shipped, together with all kinds of

STAIR WORK,

To any part of the coast. Practical workmen sent, when desired, to put up the same.

Work Warranted to Fit

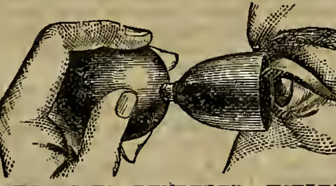
by simply sending a correct ground plan of stairs, together with hight of story.

Wood-Turning and Scroll Sawing of all kinds promptly executed.

☞ Spanish Cedar, Walnut and California Laurel always on hand for sale.

Langland & Cameron,
STAIR BUILDERS,
300 Market street,
And 485 and 487 Brannan street,
SAN FRANCISCO.
16v16-1y

Restore your Sight!



SPECTACLES RENDERED USELESS.

Failing Sight from age and other causes restored and preserved by

DR. STEVENS & CO'S
EYE-SIGHT RESTORER.

This simple and wonderful mechanical invention is applied by suction directly to the eye, bringing the sight to a natural focus and restoring the Cornea to its original convexity.

REFERENCES.—Mrs. Rev. James Wood, Mrs. Sutherland, T. O. Boyd, of San Francisco; Mrs. J. B. Hoyt, Suisun City.

M. A. SUYDAM, Sole Agent,
No. 20 Geary street, San Francisco, at Dr. Benton's rooms.

☞ Also Cornea Flatteners for cure of Near-Sightedness. 15v20

THE CALIFORNIA Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:

JAMES T. DEAN	President.
JAMES MILBURN	Secretary.
RODGERS, MEYER & CO	Treasurers.

Company's office, 121 POST STREET, San Francisco.
12v20-3m

HAYWARD & COLEMAN

IMPORTERS AND REFINERS
—OF—
Illuminating, Lubricating,
—AND—
PAINT OILS,
CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.
—ALSO—
Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!
An elegant and complete assortment.

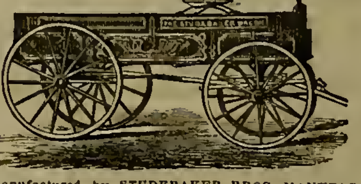
SOLE IMPORTERS OF
Devoe's Illuminating Oil,
PATENT CANS.

5v17-tf 414 Front street, San Francisco

MARTIN'S Patent Hydraulic Engines,

Compound Hydraulic Engines,
STEAM ENGINES,
FORCE PUMPS AND AIR PUMPS.
No. 13 Fremont Street, San Francisco.
16v20-3m H. B. MARTIN & CO.

The Celebrated Studebaker Wagon,



Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

FIRST.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover.

SECOND.—They are made by experienced mechanics.

THIRD.—The lightest running and most durable Wagon in the market.

FOURTH.—Their Thimble Skeins never break, while all others do.

FIFTH.—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not.

SIXTH.—The only Wagon in which the SLOPE SHOULDER SPOKE is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying.

SEVENTH.—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction.

EIGHTH.—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road.

NINTH.—Last, but not least, Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others. Sold by

COPELAND & DEFREES,
K street, bet. Seventh and Eighth,
SACRAMENTO, CAL.

☞ PIONEER AGENTS FOR THE PACIFIC COAST. 15v20-3m

AMES & WOOLVERTON,

General Agents for the Pacific Coast
FOR THE CELEBRATED
STUDEBAKER
Farm and Team Wagons,
Manufactured at South Bend, Indiana.
OFFICE AND GENERAL DEPOT
— WITH —
THE KIMBALL MANUFACTURING CO.,
SAN FRANCISCO, CAL.

☞ Orders and correspondence solicited. 15v20-3m

E. A. ARCHIBALD,

MANUFACTURER OF
Cast Iron Hubbed Wheels,
BY HIS PATENT PRESS PROCESS.
— ALSO —
Axles and Team Wagons of every Description.
METHUEN, MASS.

Particular attention given to Wheels for Portable and Fire Engines.

All my Wheels have my name cast on the hub, and are made by my Patent Press Process. By this new method the wheel is so compressed in every part that shrinkage or yielding of the part with all its attendant evils is wholly obviated, even in the driest climate. Any one understanding my process will be convinced of this. ☞ Send for illustrated circular.

20v20 E. A. ARCHIBALD.

"Salus populi suprema lex."
"Sub hoc signo vinces."

Farm Wagons For Sale.

We have contracted for the manufacture, in this city and vicinity of a large number of Two-horse Farm Wagons—light, medium size and heavy, made either with Iron Axles or Thimble Skeins, which we will sell as low as Eastern-made Wagons are sold for here, and guarantee both the work and materials. Orders from the country from persons who have facilities for disposing of them are respectfully solicited, and any reasonable number promptly furnished. Price Lists sent on application.

MEEKER, JAMES & CO.,
Corner California and Davis sts.
March 26, 1870. 14v20-1am3m

Save your Boilers!
Save your Fuel!
Save your Temper!
BY USING
CHRISTOFFEL & BOOTH'S
PATENT
Boiler Scraper and Tube Cleaner.

The Most Complete and Perfect Instrument of the kind Invented.

SIZES TO SUIT ALL TUBULAR BOILERS.

They cost but a trifle, and are handy as well as economical. For further particulars, or for the purchase of Scrapers, address or call on

McAFFEE, SPIERS & CO.,
6v20 Howard street, near Fremont, San Francisco.

SAN FRANCISCO STARCH WORKS.

LAVERY'S SNOW-FLAKE
YEAST POWDER.

Corner Eighth and Brannan Streets.
Office, 302 California street, up stairs.
22v20-3m **W. J. LAVERY & CO.**

Reading for the Hour.

SWISS WASHERWOMEN.—Curtis Guild, in his "Over the Ocean" sketches in the Boston *Commercial Bulletin* gives the following amusing account in Geneva: Returning back across the bridge to our hotel we saw a specimen of Swiss clothes-washing, which in a measure may suggest that reason why some of the inhabitants of this part of the world change their linen so seldom. Beneath a long wooden shed, with its side open to the swift flowing stream, were a row of stout-armed, red-cheeked women bending over a long wash-board, which extended into the stream before them. Seizing a shirt, they first gave it a wash in the stream, next it was thoroughly daubed with soap and received other vigorous swashes into the water, and was then drawn forth dripping, molded into a moist mass and beaten with a short wooden bludgeon with a will; then come two or three more swashes and a thrashing by the stalwart washerwoman of the garment down upon the hard board before her with a vigor that makes the buttons spatter out into the stream like a charge of bird shot. After witnessing this, I accounted for the recent transformation of a new linen garment by one washing into a mass of rags and button-splinters. This style of washing may be avoided to some extent by particular direction, but the gloss of glazing which the American laundries put upon shirt-fronts seems to be unknown on the continent.

DIARRHŒA is very common in summer time. Cholera is nothing more than exaggerated diarrhœa. When a man has died of diarrhœa, he has died of cholera in reality. It may be well for travelers to know that the first, most important, and most indispensable item in the arrest and cure of looseness of the bowels is absolute quietude on a bed; Nature herself always prompts this by disinclining us to locomotion. The next thing is to eat nothing but common rice, parched like coffee, and then boiled, and taken with a little salt or butter. Drink little or no liquid of any kind. Bits of ice may be eaten or swallowed at will. Every step taken in diarrhœa, every spoonful of liquid, only aggravates the disease. If locomotion is compulsory, the misfortune of the necessity may be lessened by having a stout piece of woolen flannel bound tightly round the abdomen, so as to be doubled in front and kept well in its place. In the practice of many years, we have never failed to notice a gratifying result to follow these observations.—*Hall's Journal of Health.*

GEOLOGICAL MAP OF CANADA.—This map, which includes also a portion of the United States as far south as Kansas and Northern Virginia, is noticed at some length by *Silliman's Journal*, which has received one of the few colored copies yet issued. It is on a scale of 25 miles to an inch. There are 31 geological divisions, indicated by as many different colors. It is spoken of as a very complete and valuable work.

THE *People's Tribune*, published by Conrad Weigand, at Gold Hill, Nevada, has been received. It has certainly a most extensive aim, being "devoted to the betterment of all things, to the defense of right, and to the people." As its subscription list and advertising cannot maintain it, the editor frankly says, it solicits for its support private contributions from those who desire it to be continued.

THE FENIAN RAID on Canada seems to have come to a speedy end. There were one or two skirmishes and then the invaders appear to have been satisfied and to have retired within our lines. Numerous arrests have been made by U. S. officers. Many Fenian leaders, it is fair to state, have expressed themselves as strongly against the movement, which appears to have been instituted by a few restless spirits.

A SMALL CRAFT.—The telegraph gives information that the little steamer City of Ragusa, left Liverpool for New York on the 31st of May. She is only twenty one feet long, carries a crew of two men besides a Newfoundland dog, and provisions for three months.

Boyhood Days.

We were brought up in the city. Although permitted, after arriving at a certain age, to wander among the fields and fragrant woods adjacent to a country town, and to blister our hands and to brown our faces in out-of-doors work, yet our early days were consumed in the perusal of useful books in the intervals between our games of "tag" and marbles.

The consequence was that we were good boys. Never did we rob a melon patch or a hen's nest. The taste of the raw egg was long unknown to our lips, and the cider barrel never yielded its sweet contents, long drawn out through a straw, to our youthful months. Whatever faults we may have possessed, we were spared these temptations.

Looking back at these days, we feel thankful that we were not like the man of the *Rural New-Yorker*, who is represented by the middle figure in the adjoining cut, as he once was. He has undoubtedly improved since then, as the picture, drawn by him, is a tacit confession, and as the making of a confession is a mark of improvement. When he gets older and has learned to spell, he will, no doubt, become quite a man.

SUM INTERESTING SUCK-EM-STANCES OF MY AIRLY LIFE.

HOW TO CHOOSE BLACK SILK.—As this is a point upon which most ladies possess little or no information, the following correct test if observed, will be found advantageous: "When a woman is about to choose black silk, it is well to pull a thread out of the 'tram' or filling. She must try the strength of the thread. If it breaks easily, the examination has gone far enough; it is wisdom to look further. We will suppose the thread has been tried, and that it indicates some backbone. Then it is necessary, if the woman is right brave, and dares to do such a thing with a handsome clerk's eyes bearing down upon her like a privateer upon a poor little merchantman, to seize the silk by the corner and rub it just as the washerwoman would do when she intends to remove a stain. If this awful ordeal can be performed to perfection—remember some muscle must be brought to play—the silk is honest and legitimate. If it is heavy with dye, if held up to the light, slight traces of disaster may be discerned."—*N. Y. Telegram.*

TO WASH SILK.—Half a pint of gin, four ounces of soft soap, and two ounces of honey well shaken. Wet a sponge with this mixture, and rub the silk, which should be spread upon a table. Then wash it through two waters, in which put two or three spoonfuls of ox gall, which will brighten the colors and prevent them running. Do not wring the silk, but hang it up to dry, and while damp iron it. The lady who furnishes this recipe says she has washed a green silk dress by it, and it looks as good as new.

VINEGAR IN COOKERY.—All kinds of poultry and meats can be much more quickly cooked by adding to the water in which they are boiled about one-eighth part of vinegar. By the use of this there will be considerable saving of fuel and shortening of time. Its action is very beneficial on old tough meats rendering them quite tender; and fowls will also lose their bad taste and odor if cooked this way, and if no more vinegar is added than we have indicated, there will be no taste of vinegar acquired.

A NOVEL METHOD OF REFORM is to be tried as an experiment on a large scale in Boston. About one hundred and sixty night-walkers were arrested recently in the streets at night. Their conditions of life were investigated, and it is found that one hundred of them are poor girls, who would be glad of the opportunity of decent employment. It is intended to place them under some wholesome restraint, the Court imposing some sentence upon each, but suspending its execution until the result of the experiment in each case is ascertained. Homes will be found or provided for those who have none; those that have homes will be sent to them. Work and means of support will be supplied, and the entire police force will assist in their supervision. Two Catholic clergymen lend their personal efforts to the undertaking, and it is hoped that the report which is to be made in Court in the latter part of June, will justify, in a majority of instances, a revocation of the sentences.—*San Francisco Chronicle.*

EXECUTIONS IN LONDON IN THE OLD TIMES.—People went to the hangings as to a festival. The vulgar drank and swore worse than our army in Flanders, while the "quality" made a picnic of it. The longer the whole ceremony—the addresses to the people, the leave-taking with kinsfolk and sweethearts—the better the spectators were pleased. The finale was as lugubrious as imagination can conceive. The ropes round the victims' necks were fastened to the beams, the carts were lazily driven away from under them, and the hangman rode off without giving himself any further trouble. Then the friends, familiars, or relatives of the hanging men rushed to the suspended bodies, and began pulling them by the legs, or dealing them heavy blows in the stomach, in order to bring their sufferings to an end. The Newgate chaplain, meanwhile, took his ham and liquor in the first friendly carriage into which he was invited; and at night the whole affair was talked over everywhere in London and the suburbs. Men in the last century seemed to go as naturally to Tyburn as Irish Colonels to Gretna Green, and young ladies of St. James' talked about the last execution with the strolling player, who was their dancing-master, or the deserter from Dunkirk, who taught them French.—*Athenæum.*

EXTRACTING WHEEL GREASE, ETC.—I have cleaned wheel-grease from a nice silk thus: Laying the silk on a clean sheet folded to eight thicknesses, I rubbed the greased part with a soft cloth dipped in lard, moving the silk to a new spot frequently. After a time the wheel-grease all went through, leaving only clean lard. This was then cleaned out in the same way, by rubbing it with some nice soap and alcohol, using a clean cloth to rub with, and frequently changing to a new spot on the under-lying sheet. The silk was then laid on a clean cloth, and rubbed dry with a soft cloth. A friend cleaned white Canton crape in this way, and you cannot find a place where it was greased.—*S. M. Healy.*

STAINS.—All clothes subject to be stained, such as table linen, napkins, children's clothes, towels. etc., ought to be examined before being put into any wash mixture of soap suds, as these render the stain permanent. Many stains will yield to good washing in pure, soft, warm water. Alcohol will remove almost any discoloration. Almost any stain or iron rust, or mildew, may be removed by dipping in a moderately strong solution of nitrate acid, then covered with salt and kept in the sun. This may require to be repeated many times, but with us it has never failed.

New Books.

LOTHAIR, a novel, by the Rt. Hon. B. Disraeli. Published by D. Appleton, New York, 1870; for sale by A. L. Bancroft & Co., S. F. Price, $1.

The mere announcement of the fact that *Lothair* was written by an ex-Premier of England, and treats only of the nobility of that country, will be sufficient to induce many to read the book; and the statement that it is published for a political purpose will, in these times, when every one is posted, to a certain extent, on the political struggles of Great Britain, by no means diminish the eagerness to peruse it. The publication is said to have produced quite a sensation in England. It treats freely of Fenian meetings, Popish intrigues, and Red Republican conspiracies. The hero, Lothair, is one of the wealthiest and highest born of the aristocracy, to win whom to their respective beliefs the various parties earnestly contend, and the main plot hangs on the conflict between the Church of Rome and its enemies. Every important character, except an aristocratic Southern planter, is of noble rank, and we have to deal with both sexes. But we are disappointed in the book. It is interesting in its pictures of life and character, and often very well written, but still we tire in the perusal. It may be because we have expected too much, judging from Disraeli's former works. However, it is a book which must be read by every one who pretends to keep posted on the publications of the day, and each person must judge of it for himself.

A CATALOGUE OF THE PLANTS GROWING IN THE VICINITY OF SAN FRANCISCO. By Henry N. Bolander. (late State Botanist.) A. Roman & Co., publishers, San Francisco, 1870.

This most valuable contribution to the scientific libraries of the coast, appears in a very handsome and well arranged form. It contains the Latin and English names and the natural habitst of nearly all the phænogamous and cryptogamous plants found about a hundred miles north and south of San Francisco, and as far east as Mount Diablo. Some plants are omitted (especially the shrubby oaks) since it was impossible to determine their proper specific names. The two important families, the fungi and algæ, have been entirely omitted, not having been made the subject of investigation and study on this coast by any one as yet. The ferns, mosses, liverworts and lichens were studied by the very best authorities in America.

A NEW breed of cats is reported in the German papers. Some months ago a Lithuanian lynx escaped from a traveling menagerie at Altona, and $20 reward was offered for its capture; but in vain. Not long ago a sentinel at Kiel observed a strange looking cat-like animal coming out of the mouth of a large cannon on the ramparts, and after a short time returning with a duck in its jaws. The man got assistance, a net was spread over the muzzle of the gun, and the missing lynx was recaptured, together with a domestic cat and a litter of three young ones. These curious kittens have been transferred to the botanical gardens at Hamburg, where they have been visited by many naturalists. The Directors of the Zoölogical Garden in Paris have already offered 5,000 francs ($1,000) for one single specimen.—*Bulletin.*

EUROPE contains 70,718 miles of railway, composed of 150,000,000 cwt. of iron rails, on which 400,000 passenger carriages and 600,000 baggage cars are dragged by 18,000 locomotives, over 52,000 bridges and through 34 miles of tunnels, at a cost of $60,000,000 per annum, with a consumption of 4,000,000 tons of coal.

THE preparations at Vienna for an International Art Exhibition are nearly completed; 800 pictures have already been received. Nearly one-half of these are contributed by Viennese artists. Paris sends 88; Dusseldorf, 86; Munich, 65; Weimar, 10; Venice, 8. Belgium, strangely enough, has sent only four.

BREAK IN THE FRENCH CABLE.—Communication by the French Cable suddenly ceased on the evening of the 26th ult., between Duxbury and St. Pierre. A vessel was to leave immediately to repair it.

THE Crown Prince of Austria is called a "dull, indolent, good-natured lad, who cares for nothing but dancing and music."

THE Cunard Steamship Company have purchased a pier of the Dry Dock Company, in Hoboken, and the buildings of the Cunard Company will be removed, and the vessels sail from the new dock after the first of July.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.
Thomas Poyzer—California.
F. B. Alderson—Nevada.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hudson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

To Advertisers.

After anuary 1st, 1870, the latest hour for receiving mining and other advertisements for the M. and S. Press will be during Thursday evening, as our paper will be printed for the interior mails riday morning.

A Civil Engineer

Of thirteen years standing and highest Eastern, South American and Pacific coast references, tenders his services at moderate rates. Can present attractive inducements to capitalists. Address W. S. C., Box 1,036, San Francisco. 20v20-1m

☞Maravilla Cocoa.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

To Miners, Millmen and Metallurgists. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

Useless Expense Saved.—One of the benefits to inventors arising from honest and reliable agents is illustrated by the following correspondence:

Chico, March 24th, 1870.

Messrs. Dewey & Co.:—Yours of the 22d came to hand. We are under obligation for the information you have given us, and are satisfied without further inquiry. Your charges for examination are moderate—much less than we expected; and we will endeavor to patronize you again, hoping we will be more successful next time. We will also ask your opinion before applying for a patent. Please deduct the amount of subscription for your paper for one year, and remit the balance by express.

Respectfully, J. W. C & C. W. C.

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Webster & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

We call attention to the new portable gas burner—the only one that can be regulated to any size, flame, and burn without smoke or smell. Equal to any gas at one-fourth the cost. P. J. Philips & Co., 650 Market street, have county rights for sale for this valuable invention; also lamps for sale. No one should be without them who wants a good, cheap and safe light. 21v20-4w

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

To Farmers.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no recounting. 20v20-3m

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 5m B. F. Howland.

At the age of forty or thereabouts the eyesight requires the aid of magnifying glasses. Muller's Brazilian spectacles are acknowledged to be the best in use. *

Thomas O'Neil Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Microscopes for Scientific Investigation and Educational Purposes. Price list sent free. T. H. McAllister, Optician, 49 Nassau street, New York. 15v20-3m

Drs. Martinache & Smith, Oculists and Aurists, 313 Bush street, between Montgomery and Kearny. Hours for consultation, 12 to 3. 16v20-3m

F. Gruber, Naturalist, No. 626 California street, between Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

New Mining Notices.

Cayuga Chief Mining Company.—Location of Works: White Pine County, Nevada.

Notice.—There are delinquent on the following described stock, on account of assessment levied on the twenty-ninth day of April, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A Bolton	56, 57 59—ea 100	300	$45 00
A Bolton	58	100	hal 5 00
A Bolton	60	50	7 50
A Bolton, Trustee	147, 175—ea 50	100	15 00
A Bolton, Trustee,	159, 204—ea 100	200	30 00
A Bolton, Trustee	173	30	4 50
A Boltou, Trustee	191	40	6 00
A Bolton, Trustee,	187, 188 189, 190—ea 50	200	hal 10 00
G W Beaver	157, 158—ea 250	500	bal 25 00
J H Coleman	54	50	bal 2 50
W K Deitrich	40	500	bal 25 00
H I Davis	102, 103—ea 100	200	hal 10 00
T Deussing	128	25	hal 1 25
J A Eaton, Trustee	52	100	hal 5 00
J A Eaton, Trustee,	115, 127—ea 50	100	bal 10 00
J A Eaton, Trustee	150	10	hal 50
Bernhard Franz	208	20	bal 1 00
Beruhard Franz	209	5	hal 25
James R Garniss	176	100	bal 5 00
James R Garniss	177	50	bal 2 50
James R Garnisa	178, 179—ea 25	50	hal 2 50
James R Garniss	180, 181 182—ea 10	30	hal 1 50
James R Garniss	183, 184 185, 186 - ea 5	20	hal 1 00
E. Heathfield	113	250	hal 12 50
A. E. Hill, Trustee,	119, 122 123—ea 50	150	hal 7 50
F. A. Jennings	114	25	3 75
E D. Jackson	174	20	3 00
Chas. Kaeding	18	500	hal 25 00
Chas. Kaeding	131	25	hal 1 25
W. D. Litchfield	37	250	hal 12 50
Albert E. Lockhart	62	20	3 00
Geo. A. Lockhart	63	20	3 00
John Landers	170	90	13 50
H. K. Moors	64	33	hal 1 65
W. W. Menchew	110, 111—ea 50	100	hsl 5 00
A. Nordman	31	250	bal 12 50
S. K. Nichola	81, 82, 83, 84—ea 100	400	60 00
Geo. H. Powers	55	17	bal 85
W P Raymond	171	400	60 00
Mrs. W. P. Raymond	172	50	hal 7 50
E. L. Smith, Trustes	205 200—ea 100	200	hal 10 00
John Stark	53	50	hal 2 50
R R Swain	116	75	hal 3 75
H S Salinger	130	25	hal 1 25
W J Taylor	46, 47, 48, 49—ea 25	100	15 00
J H Wallace	107	50	hsl 2 50

And in accordance with law and an order of the Board of Trustees, made on the twenty-ninth day of April, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the company, room No. 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the twenty-first day of June, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.
Office, Room 5, 302 Montgomery street, S. F. je 4

Land Purchasers' Association—Office, No. 304 Montgomery street, San Francisco.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the third day of May, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Thomas R Hayes	1, 2, 3, 4, 5	5	$150 00
J. E. Boyce	9	1	10 00
John Bays	28	1	30 00
John A. Collison	31	1	10 00
T. H. Day	32, 33	2	20 00
L. C. King	37	1	40 00
J. F. Larrihee	38, 51, 52	3	50 00
Gustave Scott	44	1	10 00
W. Tinkirgton	46	1	10 00
A. J. Merriam	55, 55	2	40 00
Dr. G. W. Rogers	80	1	10 00
Philo Doud	87	1	20 00
H. H. Mayhew	91	1	20 00
M. L. Haas	97, 98	2	60 00
E. Ehrenforte	99	1	20 00
F. Bache	105	1	20 00
Mrs. Nellie McCarty	113	1	30 00
S. S. Sprague	114, 119	2	40 00
H. Keller	127, 128, 129, 130 131, 132, 133, 134 135, 136	10	200 00
S. W. Hoyt	138	1	10 00
H. G. Robinson	150	1	10 00
Dr. D. Colin	157	1	10 00
Mary Williams	172	1	10 00
Otis Jackson	173, 174	2	40 00

And in accordance with law and an order of the Board of Trustees, made on the third day of May, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of the Secretary, No. 304 Montgomery street, San Francisco, on Tuesday, the twenty-eighth day of June, 1870, at 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.
Office, 304 Montgomery street, San Francisco. je 4

Evening Star No. 1 Silver Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the first day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the second day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-fifth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. ju4

Office of Silver Sprout Mining Company, 408 California street, San Francisco, June 2d, 1870.

Notice.—The annual meeting of the stockholders of the Silver Sprout Mining Company, will be held at the office of the company, No. 403 California street, San Francisco, on Tuesday, the twenty-eighth day of June, 1870, at 12 o'clock M., for the election of Trustees to serve for the ensuing year, and for the transaction of such other business as may properly come before the meeting. [ju4-1m] T. B. WINGARD, Secretary.

Mason's Bread of Life, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis and Sore Throat. Price, 25 cents per box. These lozenges are free from all dangerous properties. Compounded and put up by Dr. J. H. Mason, 750 Howard st. 16v20-3m

Pinto Mining Company.—Location of Works: "Silverado," Pinto Mining District, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of May, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A. H. Ward	111	805	$80 50
Elliott J Moore	178	1610	161 00
Robert C Johnson	175	500	50 00
Robert C Johnson	176	500	50 00
Robert C Johnson	183	5316⅔	531 67
J. Naphtaly	unissued	803⅓	80 33
P C Whiting	184	35	3 50
P C Whiting	185	25	2 50
P C Whitiug	186	25	2 50
P C Whiling	187	25	2 50
P C Whiting	188	25	2 50
P C Whiting	189	25	2 50
P O Whiting	190	25	2 50
P C Whiling	191	25	2 50
P C Whiting	192	25	2 50
P C Whiting	193	25	2 50
P C Whiting	194	50	5 00
P O Whiting	195	50	5 00
P C Whiting	196	50	5 00
P C Whiting	197	50	5 00
P O Whiting	198	50	5 00
P C Whiting	199	100	10 00
John A. McQuaid	200	610	61 00

And in accordance with law and an order of the Board of Trustees, made on the second day of May, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the twentieth day of June, 1870, at the hour of twelve o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary.
Office, No. 425 Montgomery street, San Francisco. je4

Mining Notices—Continued.

Marcelina Mining Company.—Location of Works: Eureka Mining District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of May, 1870, an assessment of forty (40) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at 325 Sansome street, San Francisco.

Any stock upon which said assessment shall remain unpaid on Thursday, the twenty-third day of June, 1870, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on Tuesday, the nineteenth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. C. PALMER, Secretary.
Office, 325 Sansome street, San Francisco. m28

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada,

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of May, 1870, an assessment of three (3) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the seventh day of June, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-eighth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. my7

Office of the Placer Gold Mining and Canal Company.—Location of Works: Township No. Six (6), County of Placer, State of California

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the ninth day of April, 1870, an assessment (No. 1) of two dollars ($2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 802 Howard street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Friday, the twentieth day of May, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the tenth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. S. HALEY, Secretary.
Office of Company, 802 Howard street, San Francisco, Cal. Office hours: 6 to 8 P. M. apr16

Postponement.—The day for deeming stock delinquent on the above assessment is hereby postponed until the seventeenth day of June, 1870, and the sale thereof until Friday, the fifteenth day of July, 1870. By order of the Board of Trustees.
m28 O. S. HALEY, Secretary.

Silver Vault Tunnel and Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third (3d) day of May, A. D. 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 23 Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the ninth day of June, A. D. 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the twenty-ninth day of June, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOSEPH L. KING, Secretary.
Office, Room No. 23 Hayward's Building, No. 419 California street, San Francisco, California. my7

A Valuable Book for Inventors and Artisans.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Press office, postpaid, for $1.—*New Age.*

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

New Advertisements.

FARM MILLS.

A superior article for farm use. Operated either by hand or power. Price very low. Send for circular. Manufactured by
22v20-1m LANE BROTHERS, Washington, N. Y.

Attention to Mining Companies of Copper and Galena Ores.—A mining engineer and assayer thoroughly acquainted with practical smelting of lead and copper ores, and competent to put up all kinds of furnaces, wishes employment. References given. Please address C. T. MOHRIG, care of Schultz, Fischer & Mohrig, No. 10 Stevenson street, near First, San Francisco. 23v20-1m

TARRANT'S SELTZER APERIENT.

Dyspepsia Met and Conquered.—Pain has its uses. It indicates the seat of disease and its nature. If the locality, progress and intensity of a disorder were not manifested by the torture it occasions, the victim would be surprised by death before he was conscious of danger. The indescribable tortures which accompany Dyspepsia, preclude all doubt as to the character of the malady. Combat the enemy promptly with Tarrant's Effervescent Seltzer Aperient. This pleasant specific meets the disease at all points—in the weakened stomach, the torpid liver, the constipated bowels, the shattered nerves—and by restoring all these organs to their natural condition, effects a radical cure.

SOLD BY ALL DRUGGISTS. 23v20

Illustrate your Inventions

In the Scientific Press,

An illustrated journal of Mining, Farming, Mechanic Arts and Industries on the Pacific Coast. It costs no more for a superior engraving by our experienced artists than is usually charged for a less perfect picture. If you wish to introduce a new invention properly before the public, the first steps in so doing are important ones. A full description and correct representation in the Press will go further and prove more quickly effective than any other means.

The fact that an illustration is admitted into our columns, guarantees the invention important consideration in the minds of thousands of the most intelligent readers—at home and abroad—who would not notice it so favorably or so thoroughly, if at all, when presented through an unreliable medium or indifferent source.

The model of an invention sent to us is sufficient for making a good engraving. Sometimes a photographic view is sufficient; but it is always best accompanied with drawings or a copy of the patent. A first-class illustration has proved to be one of the best and cheapest means of obtaining purchasers for a good machine or a valuable patent.

Cuts ordered for illustration are the property of the inventor who pays for them, and can generally be used for circulars, pamphlets, books, or other newspapers. The engravings to be seen in each issue of the Scientific Press are a fair sample of the work of the artists who can always be found in our office.

DEWEY & CO.,
Publishers Scientific Press, American and Foreign Patent Agents, San Francisco.

ECONOMY AND CLEANLINESS

Are to be found in the use of the

PATENT SPRING BED.

They are the cheapest and best in the market. Manufactory on Twelfth street, bet. C and D, Sacramento. Caveat filed Aug. 9, 1869. [15v20] G. B. DEAN.

Valuable Ranch For Sale.

NEAR HEALDSBURG.—In the fine valley of Russian River three and one-half miles south of Healdsburg, on the west side of the river, is now offered for sale a splendid farm of 250 acres of land (minus eight by twelve rods occupied by a good school house), 100 of which is of the richest of Russian River bottom, eighty acres of which is now in small grain, not surpassed by any in the State, five acres in bearing orchard of the choicest selections, fifteen acres plowed for corn, and the remaining 160 acres is rich, yet rolling timbered land, five acres vineyard of choice selection. The Dwelling has ten rooms, not yet finished, and supplied by a good spring of excellent water, and cost above $12,000. The barns and outhouses are in excellent condition. The title is "Fitch Grant," which is undisputed. The entire farm is inclosed, about half with a picket and half with a rail fence, both in good condition. The farming utensils which are offered with or in the sale of the farm, are as follows: Five plows, two harrows, two cultivators, one Buckeye reaper; also twenty head of hogs. There are 200 redwood trees within about five miles of the premises, and wood enough to supply all the demands of the place. It is well known by all parties who have resided for any length of time on this coast, that the climate of Russian River Valley is lovely, healthy and not surpassed by that of any other place in the United States.

The reason for selling is, that the owner is getting too old to cultivate a farm, and wishes to close up his business and live more retired. The place is a rare bargain at the price asked for it.

For further particulars, apply to McLean & Hardy, Real Estate Agents, No. 338 Montgomery street, southeast corner of California street, San Francisco. 11v20

CANVASSERS WANTED for a New Book: THE CHEMICAL FORCES—HEAT, LIGHT, ELECTRICITY; Their Application to Important Modern Inventions and Scientific Discovery, by Thomas Ruggles Pynchon, Professor of Chemistry and the Natural Sciences, Beautifully Illustrated by 259 Engravings and by many entertaining experiments. The work is elegantly printed. All experienced agents should send for descriptive circular and terms. F. DEWING & CO., 542 California street, San Francisco, 19v20-5w

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, June 2, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ₩ 100 lbs.; Bar, 1@1½c ₩ lb; Sheet, polished, 3c ₩ lb; common, 1½@1¾c ₩ lb; Plate, 1½c ₩ lb; Pipe, 1½c ₩ lb; Galvanized, 2½c ₩ lb.		
Scotch and Eng. Pig Iron, ₩ ton	$30 00	@$32 00
White Pig, ₩ ton	28 00	@ — —
Refined Bar, bad assortment, ₩ lb.	— 03	@ — —
Refined Bar, good assortment, ₩ lb.	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
Copper.—Duty: Sheathing, 3½c ₩ lb; Pig and Bar, 2½c ₩ lb.		
Sheathing, ₩ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
Tin Plates.—Duty: 25 ₩ cent. ad valorem.		
Plates, Charcoal, IX, ₩ box	12 00	@ — —
Plates, I O Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slebe, ₩ lb	— —	@ — 42
Steel.—English Cast Steel, ₩ lb	— —	@ — 15
Quicksilver.—₩ lb	— —	@ — 65
Lead.—Pig, ₩ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ₩ lb	— 10½	@ — 11
Borax	— 35	@ — 38

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

---

THE RISDON

Iron and Locomotive Works.

INCORPORATED..........APRIL 30, 1868.
CAPITAL..........$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis. Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

JOHN N. RISDON..........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..........Secretary.
24v17-qy

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,
WILCOX'S PATENT WATER LIFTERS,
Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
Front Street, between N and O streets,
14v1 Sacramento City

San Francisco Wire Works,

No. 665 Mission Street, near Third.
SAN FRANCISCO.

C. H. GRUENHAGEN & CO.,

Wire Workers and Wire Weavers.

Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

---

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. CONNER.

MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,
Between Howard and Folsom, San Francisco.

—ALL KINDS OF—
High and Low Pressure Boilers Built.
Sheet Iron Work, Etc., Etc.
☞ Repairing promptly attended to.
17v20-6m WM. W. CANTY, Manager.

THOMPSON BROTHERS,

EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard
San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,
SAN FRANCISCO.

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,
MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description,

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

---

MACHINERY

—AT—

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

---

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery,

15v16q No. 28 Fremont street, San Francisco.

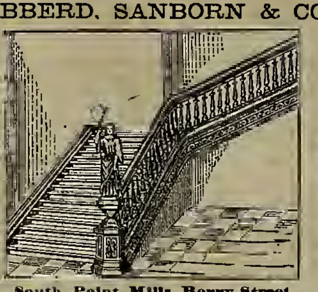
GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in tin cans only, with full directions. Take no other. Giant Cement and Miners' Rubber Cement are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco.

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

HIBBERD, SANBORN & CO.,

STAIR



BUILDERS.

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Greatest Discovery Ever Made.

MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has been the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would be to those afflicted with this painful disease, he with great difficulty and expense obtained the secret of preparing the Plaster; and during the many years MR. MAC has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will be convinced by referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street; Michael Gorman, No. 6 Front street; Mrs. W. S Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository merican Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 A. M., 2 to 4 P. M. and 7 to 9 P. M.

18v20-3m.

The Latest, Cheapest, and Most Durable.

CRANDALL'S

PATENT SPRING BED.

This invaluable Spiral Spring Bed combines all the good without any of the bad features of the common spring mattrass. It consists of a framework of springs resting on a bed of stronger springs, thus giving it nearly double the elasticity of any other bed. The springs are self-supporting, each pair being independent of the others, and consequently the tendency to sag or incline toward the middle is avoided. Unlike other spring beds, they require no upholstering, and, of course, afford no harbor for fleas or dust. The medical faculty have pronounced it the best Bed in use. It commends itself to those who have examined and used it. They invariably pronounce Crandall's Patent the best Spring Bed ever offered to the public.

These Beds are on exhibition and for sale at the Cabinet Warerooms of

JOHNSON & BEST,

No. 413 PINE STREET, RUSS BLOCK,
Between Montgomery and Kearny. Also at
639 Market Street, near New Montgomery.

Beds guaranteed to give satisfaction
Or the money will be refunded.

Refer, by permission, to the following, among the many using our Beds, who are willing to testify to their superiority:

San Francisco and Vicinity—J. B. Pierce, Esq., residence Sixteenth and Capp streets, office 315 California street; J. H. Rogers, Esq., residence Oakland Point, office 16, 17 and 18 California Market; W. Zelheer, Esq., residence 613 Geary street; James Dexter, Esq., office 430 Sansome street; John A. Roth, Esq., residence 105 Silver street. James Connor, Esq., Alameda.

N. B.—Responsible persons can have one on trial.

S. B. SNEDAKER & CO.,
21v20-6w Agents for San Francisco.

USE

DR. S. GIRARD SMITH'S

ARAMIRACULAS

—FOR—

RHEUMATISM, GOUT AND NEURALGIA

CURES GUARANTEED.

Has cured Thousands. Has never been known
One bottle will relieve you.

OFFICE, No. 121 POST STREET

TRADE

MARK.

Agents Wanted in every City and Town.—Terms Liberal.

Dr. S. Girard Smith, 621 *Kearny street.*—Dear Sir It would be hard for me to say how much I thank you for the benefit your ARAMIRACULAS has conferred on me in curing my RHEUMATISM. I was confined to my bed when I first commenced to take your medicine, and after using ONE BOTTLE I am now able to work as well as before. If you know anything about having that afflictive complaint, you must know how good it is to be cured. I will state to those who may not believe in your medicine, that they can be convinced by referring them to me. Very respectfully, yours,

ENON HARRIS,
Everard's Auction Rooms, 527 Kearny street.

Statement of an old and well-known Physician who has practiced extensively in Europe and America.

We must admit that the many systems of medicine by which we have attempted to heal the human body, and rid it of disease, from the science of ALLOPATHY down to HYDROPATHY, how little they have succeeded, time has abundantly shown by their number of failures. In the cure of RHEUMATISM, GOUT and NEURALGIA, Dr. S. Girard Smith has laid aside the old way and adopted a system, so simple, that I must admit, is so natural and direct, that it recommends itself to all who are suffering with the above diseases. And it challenges and defies all the old methods of treatment. Although I have been educated through a regular course, and graduated in Europe, I must acknowledge the right, and also give due credit for personal benefit received by the new system as practiced by DR. S. GIRARD SMITH, which induces me to bear this testimony to its merits, for the benefit of suffering humanity.

A. M. HOFFMAN, M. D.,
11v20-3m New Orleans.

Ayer's Sarsaparilla,

FOR PURIFYING THE BLOOD.

The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this ***SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears***, and other eruptions or visible forms of ***Scrofulous*** disease. Also in the more concealed forms, as ***Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia***, and the various ***Ulcerous*** affections of the muscular and nervous systems.

Syphilis or ***Venereal*** and ***Mercurial Diseases*** are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. ***Leucorrhœa*** or ***Whites, Uterine Ulcerations***, and ***Female Diseases***, are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. ***Rheumatism*** and ***Gout***, when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also ***Liver Complaints, Torpidity, Congestion*** or ***Inflammation*** of the ***Liver***, and ***Jaundice***, when arising, as they often do, from the rankling poisons in the blood. This ***SARSAPARILLA*** is a great restorer for the strength and vigor of the system. Those who are ***Languid*** and ***Listless, Despondent, Sleepless***, and troubled with ***Nervous Apprehensions*** or ***Fears***, or any of the affections symptomatic of ***Weakness***, will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents. 7v20eow-4m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, May 25, 1870.

IRON.			
Pig, Scotch, No 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No 2...............	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common..........................	87 50	@	92 50
Refined..........................	95 00	@	— —
Rods............................	100 00	@	155 00
Horse-shoe......................	115 00	@	— —
Hoop............................	125 00	@	180 00
Scroll...........................	110 00	@	145 00
Nail-rods, per lb.................	— 8¼	@	— 9¼
Spring...........................	— 9¼	@	— —
Tire.............................	— 9¼	@	— —
STEEL.			
Bars, best cast, warranted, per lb...	— 23	@	— 23¼
Sheet, best cast..................	— 23	@	— —
Sheet, second quality.............	— 20	@	— —
Sheet, third quality..............	— 18	@	— —
Saw-plates, circular..............	— 27	@	— —
Double-shear, warranted...........	— 23	@	— —
Single-shear.....................	— 19	@	— —
Montague & Co. (cast bars)........	— 18	@	— —
Machinery, round.................	— 16	@	— —
German, best.....................	— 16	@	— —
German, goat.....................	— 13¼	@	— —
German, eagle....................	— 12	@	— —
Blister, warranted................	— 16	@	— —
Blister, common..................	— 15	@	— —
Jessop & Sons', common...........	— 17	@	— —
Double-refined...................	— 26½	@	— —
Stone ax shapes..................	— 26¼	@	— —

Machinery.

THE WILSON
Patent Steam Stamp Mill.

This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELL, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the office, **229** Fremont street,
1v1 San Francisco.

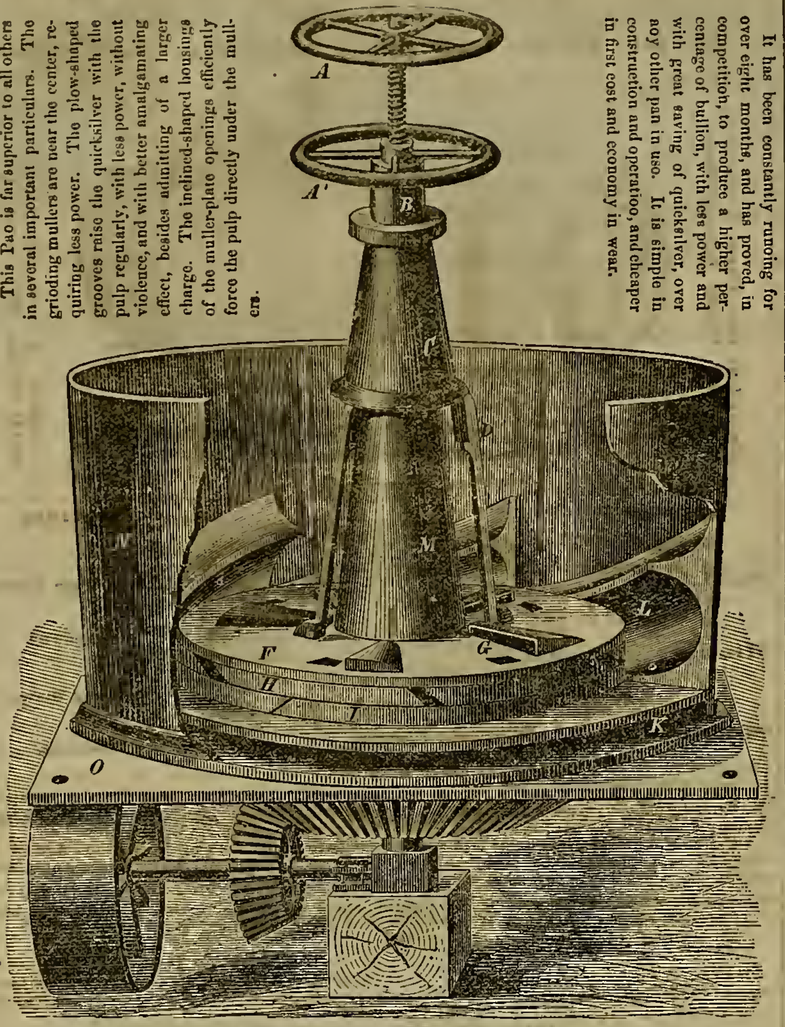
TO MILLMEN.

FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30-inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

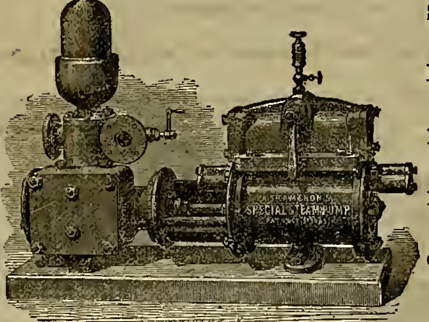
This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.

It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.



Manufactured at the Golden State Iron Works (Co-operative). 19 First street, S. F.,

Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, Gold Hill, State of Nevada, where the Pans have long been in constant operation. 15v20-1mr,1amtf



CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

MARINE

ENGINES.

SURFACE

CONDENSERS.

DAVID STODDART,

BEALE STREET.

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

Machinery for Sale.

One (1) small Engine, eight (8) inch bore sixteen (16) inch stroke, with tubular boiler twelve (12) feet long and thirty-two (32) inches in diameter, with thirty (30) two and one-half (2½) inch tubes, all complete and in running order.

One (1) engine, ten (10) inch bore, twenty (20) inch stroke, with tubular boiler, eleven (11) feet long and forty (40) inches in diameter, with thirty-eight (38) two and one-half (2½) inch tubes, all complete and in running order, with reverse motion alternative, at option of buyer, with complete hoisting and pumping machinery.

One (1) large engine, twelve and one-half (12½) inch bore, thirty-two (32) inch stroke, with tubular boiler fourteen (14) feet long and four (4) feet in diameter, (with fire box) and forty-eight (48) two and one-half (2½) inch tubes, all complete and in running order, with governor and reverse, and alternative, at the option of buyers, with hoisting machinery.

For further particulars apply to F. W. ROBINSON, at Union Hotel, Nevada City, Nevada Co., Cal. 21v20-4w

SILVER-PLATED AMALGAMATED PLATES

SAN FRANCISCO
Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

☞ The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

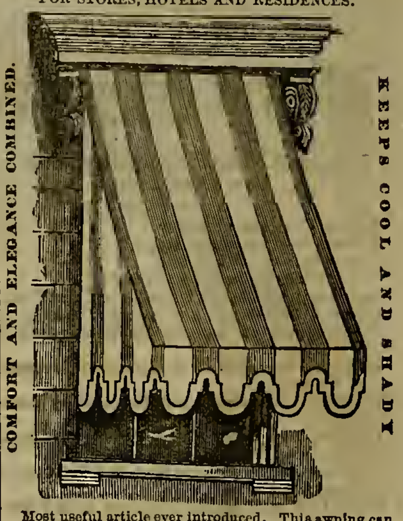
HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

Patents on the Pacific Coast.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast we say, subscribe for the Scientific Press, published by Dewey & Co., San Francisco, Cal., at $4 per year. The opening of the railway across the continent has given to all patents a much higher value in that portion of our country known as the Pacific slope, and all interested will find the paper above alluded to a valuable reference.—*Mechanic and Inventor Detroit, Michigan.*

Newly-Improved Venetian Awning,

FOR STORES, HOTELS AND RESIDENCES.



Most useful article ever introduced. This awning can be applied to the outside of any window without marring the wood-work or detracting aught from the beauty of the architecture. By the appliance of the new Patent Slide, the awning is made to come low enough to shade the longest window to the bottom, thereby protecting everything in the room from the sun, allowing a free ingress of air through the open window and giving abundance of light. Manufactured from different kinds of goods, colors and stripes, according to price and fancy, by the sole proprietors and manufacturers, J. J. WITHERS & CO., Room No. 2, up stairs, 412 Pine street, San Francisco, 11v20-3m

Free Information for Inventors and Patentees.

Our Patent Office Circular, relating to U. S. and Foreign Patents, Caveats, Patent Laws, Rights of Inventors, Valuable Hints, Illustrated Mechanical Movements, etc., comprises 48 pamphlet pages, embracing the following

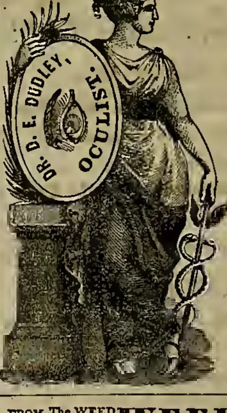
List of Contents:

Advancing Cases; Advantages, Important; Assignments, Forms, Cost, etc.; Caveats of what they Consist, Form of, Cost, how Filed effectively; Cost of Obtaining Patents; Confidential Advice; Copies of Patents Assignments, etc.; Copyrights; Dangers of Delay; Designs, Patents for: Engravings and Illustrations; Engine, Condensing-Beam—Illustrated; Extension of Patents; Foreign Patents—all Countries; Foreign Inventors; Hints to Inventors; Government Fees, List of; Home Counsel; How to Obtain Patents—Steps Necessary; Hydrostatic Press—Illustrated; Interferences; Influence at Washington; Laws (U. S.) and Decisions Relating to Patents; Lathe, Engine—Illustrated; Letters Patent—of what they Consist; Library, Reports, Law Books; Locomotive Engine—Illustrated; Medicines or Compounds, Patent for; Mechanical Movements—Illustrated; Mining and Scientific Press Office; Processes, Patents for; Record of Pacific Coast Patents; Re-issues; Rejections—Cause and Remedy; Reports of Patent Offices; Rights and Privileges of Inventors and Patentees; Saving of Time; Self-evident Facts; Selling Patent Rights; Springs, Various Kinds—Illustrated; Stamp Battery, Quartz—Illustrated; Telegraph, Patent Business by; Unsuccessful Applicants; Who can Obtain Letters Patents; What Claims can be Patented; Worthless Patents, Candid Reasoning.

This pamphlet will be furnished free on receipt of postage stamp. Confidential advice given, and every legitimate branch of Patent Soliciting business promptly and faithfully executed by

DEWEY & CO.

U. S. and Foreign Patent Agents, Scientific Press Office, 414 Clay street, San Francisco.


DR. D. E. DUDLEY, OCULIST.

Dr. Dudley, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: No. 12 Montgomery street, opp Lick House. Hours from 10 to 3. ☞ Se habla Español. On parle Français.

FROM The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED **WEED** Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Horr, 329 Kearny St. S. F., Act. **$65** TO **$500**

LAND! LAND! LAND!

YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

40,000 Acres in Fresno County;
7,000 Acres in Sonoma County;
3,680 Acres in Tulare County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above.

YOUNG & PAXSON,
16v20-3m 424 Montgomery street,

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted,
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of

Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT, Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass. GALLAGHER, WEED & CO., California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs A. S. Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
18v18-9p 519 Front street. San Francisco

BARTON & RUTTER,

Importers and Dealers in

Guns, Pistols, Fishing Tackle

Pocket Cutlery, Etc.

SPORTING APPARATUS OF EVERY DESCRIPTION.

609 Clay Street, near Montgomery.

— SOLE AGENTS FOR —

Alexander's Celebrated Pocket Cutlery

For the State of California.

JNO. C. BARTON. R. A. RUTTER.
16v20-3m16p

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes.
H. M. RAYNOR,
67 Bond street, New York.
Platinum Scrap and Ore purchased. 15v20-1y16p

E. T. STEEN,

Machinery Broker.

Engines and Boilers for Sale.

— AGENT —

Haskell's Water-lined Smelting Cupolas,

Chemical Ore Reduction Company,

"ROCKET," QUARTZ CRUSHER,

And Anti-Incrustation Powder, for Steam Boilers.

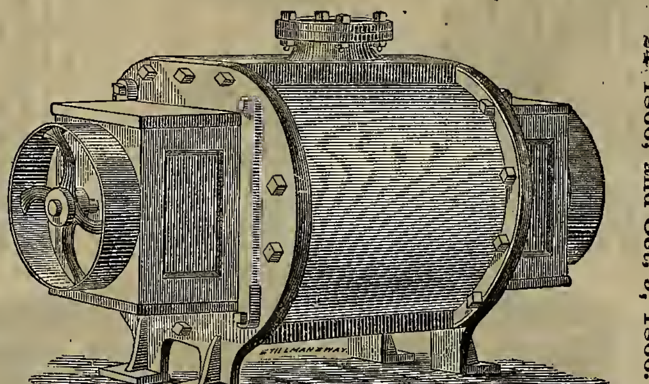
No. 433 CALIFORNIA STREET,
(14 Merchants' Exchange), 23v20

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

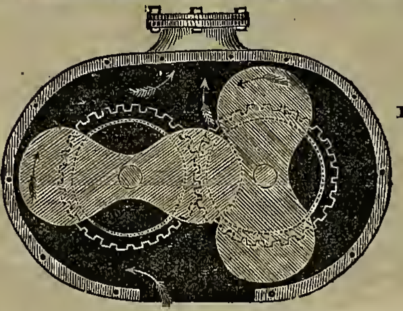
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.



REQUIRES Fifty Per Cent. LESS POWER **Than any Blower** Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency. as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**

WIESTER & CO.,

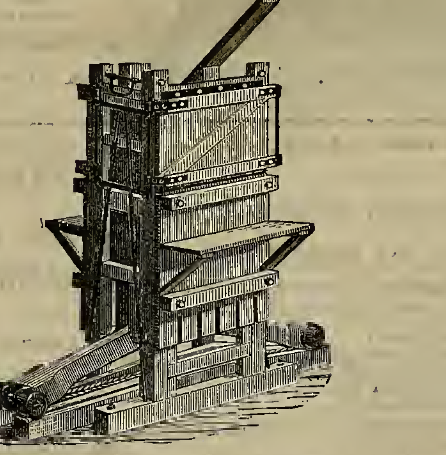
PATENT BROKERS,

No. 314 Bush Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

EAGLE HAY PRESS.



PATENTED JANUARY 10, 1865, AND JULY 24, 1866.

Here is an invention that we take pleasure in recommending. There is probably no farming implement more perfect in its line than this Press. It has advantages over any and all other Presses now in use. It costs only $300 and weighs only 1,600 pounds, which is $100 lower in price and 1,500 pounds less in weight than any other good Press on the Pacific coast Three men and a pair of horses with this Press can bale from ten to fifteen tons per day, each bale weighing from 250 to 350 pounds. The power is applied by means of two levers acting on the principle of the toggle-joint, and the pressure acquired as they approach a vertical position can scarcely be estimated. On account of the great power obtained in this Press, it is well adapted to baleing hides, rags, wool, cotton, etc. They can be built at any blacksmith and wagon shop. They cost to manufacture $150 less than any other first-class Press in the United States. A large number have already been sold, and all are giving good satisfaction. The Right to California, Oregon and Nevada will be sold in States or counties. We keep on hand well built sample Presses to furnish to parties buying territory. Any information in regard to the Press or territory can be obtained by addressing WIESTER & CO., 314 Bush street, San Francisco.

RYAN'S NEW METHOD OF MAKING WHEELS.

To make indestructible iron wheels with little labor and at a small cost is the object of this invention. The hub and spokes are all made out of a single piece of iron shaped much like that used for making a horseshoe. The great amount of labor and expense heretofore required in making wrought-iron wheels is obviated by this novel mode of construction. There probably never has been a wheel made that is so durable as the Ryan Wheel, and yet the method of construction is so simple that it can be made by any ordinary mechanic in a common blacksmith shop. All territory west of the Rocky Mountains for sale in States or counties. Thomas Ryan, of Scott's Bar, California, is the inventor. Sample wheels, and the iron from which they are made, can be seen at our office, 314 Bush street, San Francisco

WIESTER & CO.,
314 Bush Street, San Francisco.

W. T. GARRATT & CO.
CITY
Brass and Bell Founder,

Corner Mission and Fremont Streets,
MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —

HARDWARE.
BAR AND SHEET IRON,

Steel, Coal, Smiths' and Miners' Tools,
Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and

RAILWAY SUPPLIES.

— ALSO AGENTS FOR —
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY.

54 K Street, Sacramento.
7v20-ng

WILCOX'S

PATENT STEAM

WATER LIFTER.

Requiring no Engine.

Send for circular containing full explanations, price list, testimonials and references,

M. & A. WILCOX,
15v20-3m-nhxh 74 K street, Sacramento.

N W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect,
Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, Made of Fullen Rawhide, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ **Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** ns

---

The Pacific Insurance Company.

No. 423 CALIFORNIA STREET,
SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock..............................	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends.....	696.854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000....................	1,056,996 21
Cash in Banks..............................	132,240 67
United States and other Stocks owned by the Company......	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets....	146,000 00
Other Assets..........................	150,217 92
Total Assets in Gold...........	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞Insurance effected on the most reasonable terms.☜

Office, 423 California Street.
9v20-qy16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, June 11, 1870.

VOLUME XX.
Number 24.

Mechanics' Institute—Annual Report.

The regular annual meeting of the Mechanics' Institute, and the first quarterly meeting, under the new organization, was held on Thursday evening last. After some preliminary business, it was voted that hereafter the regular weekly meetings of the Institute be held on Saturday, instead of Thursday evenings as heretofore.

The President, Mr. Hallidie, submitted his annual report, in which he gave a brief review of the operations of the Institute for the past year, made a passing reference to the present condition of the State and city, their relations to the Orient, etc.; regretted the failure of the late Legislature to locate in this city the three Colleges of Mechanic Arts, Civil Engineering and Mining, and then passed to a statement of the financial condition of the Institute, from which it appears that the Library now contains 15,724 books, of which number over 3,000 have been added the past year.

The receipts for the past 16 months—including Fair receipts—have been $41,146; expenditures, $40,950, of which amount $10,000 have been paid on account of the mortgage on the building, and $5,172 for books.

The assets of the Institute (valuing the lot and building at $115,000) are set down at $153,461; liabilities, $41,234—net assets over liabilities, $112,227; showing a gain over the amount of assets reported in the last annual report of $22,853.

Annual Election.

The first annual election of the Institute, under the new organization, took place on Monday last, and resulted in the choice of the following gentlemen as Trustees: A. S. Hallidie, H. L. Davis, Geo. Pardy, Geo. Spaulding, David Kerr, Chas. R. Steiger, Howard Chapman, J. O. Hanscom, Robert Ewing, James Moffit, B. P. Bruner, Samuel H. Harmon, Henry C. Kibbe and John Roach. The election was for fourteen Trustees, seven for one year and seven for two. The gentlemen elected will draw lots for the long and short terms, and elect a President and Treasurer from among their number. The election passed off very quietly. Only 165 votes were polled.

The installation of officers occurred on Thursday evening of this week. A. S. Hallidie was elected President, Chas. R. Steiger, Vice President, H. L. Davis, Treasurer, Geo. Pardy, Recording Secretary, and H. C. Kibbe, Corresponding Secretary.

The following distribution was made by drawing lots: Long term—A. S. Hallidie, H. L. Davis, G. Spaulding, David Kerr, J. O. Hanscom, S. H. Harmon and J. Roach. Short term—Geo. Pardy, C. R. Steiger, H. Chapman, Robert Ewing, James Moffit, B. P. Bruner and Henry C. Kibbe.

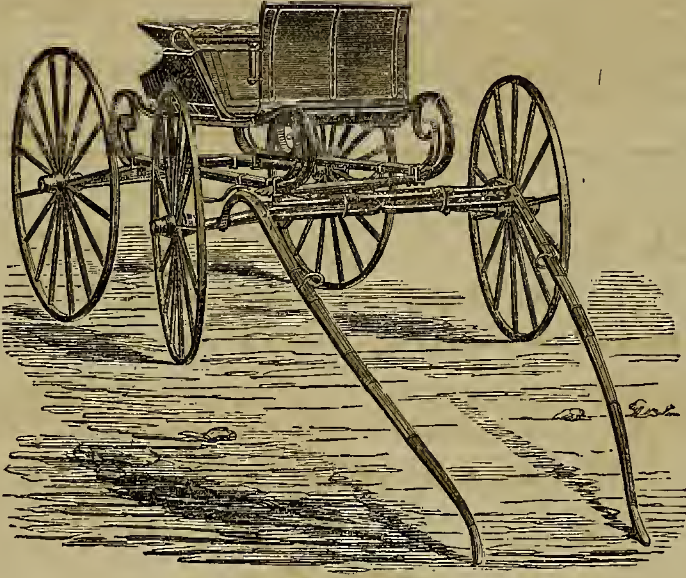
◆

We see it stated that on Wednesday an English company purchased a controlling interest (2,143 out of 3,000 shares) in the Sierra Buttes Quartz Mining Company. An agent of the purchasers started immediately to take possession of the mine.

The Balbach Buggy.

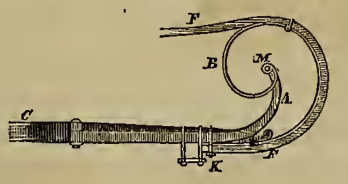
The comforts of civilization are being continually increased by worthy inventions, as the true economy of comfort in regard to health is getting to be better understood. It is a matter of no small moment to the hard worked business man, or to the tired laborer, to rest comfortably while being transferred from one place to another; and to change a painful journey into a refreshing ride or even a pleasure trip, is certainly an object worthy the attention of man.

Spring carriages may be justly reckoned among the indispensable conveniences of the age. Business and pleasure alike depend upon springs. Many and numerous are the devices now existing, and their manufacture has become an important business.



THE BALBACH BUGGY.

The leather rockaway strap—excellent as it is in many respects—lacks the elastic quality so essential to obviate the jars, while the elliptic steel springs, though breaking the jars, yet lack the rocking motion so necessary to overcome the jolting Six years ago, Mr. Balbach conceived the idea of constructing a wagon which should combine the two essentials of an easy perpendicular and a rocking motion. His first attempts have, however, been greatly improved, and our illustration shows the present light and elegant buggy which he constructs. The smaller figure serves to explain the construction of the spring.



As now made, the Balbach buggy has two parallel reaches, C, resting upon the open bolster, and connecting with the running gear. Light curved iron standards, A, in pairs, are firmly fastened by the bolts, L, L, on each side of the ends of the reaches, as shown in Fig. 2.

The beautiful curved steel spring, B, has its upper bearing within the standards, A, upon the bolt, M. The lower end of said spring is fastened to the underside of the reach, C, by the bolt, K, which may also fasten the ends of the strap, F, as seen in the figure.

The two rockaway straps, F, rest upon the curved steel springs, B, of which there are four. The carriage body is slightly curved, so as to evenly rock upon the strap, F, upon which it is fastened when ready for use. The curved steel spring, B, by having a double bearing, receives the strain under a weight evenly distributed throughout its entire length. And the greatest strength with perfect elasticity is thereby obtained. The best elastic steel spring cannot equal in ease of motion this curved steel spring while, in addition, every advantage of the rockaway motion is secured. Moreover, the saving in labor and in material, claimed in the construction of a carriage with this spring, and the cheapness of the spring itself, are important considerations for the manufacturers.

A patent for this improved spring was granted in 1869, to the inventor, Mr. John Balbach, of San José, through the agency of the SCIENTIFIC PRESS. For further particulars, or for the purchase of State or United States rights, apply to S. H. Herring, agent, care Dewey & Co., 414 Clay street, S. F.

◆

The Sierra Iron Works Company have had a number of men at work upon their property, for five or six months past, getting out fence posts and saw logs for lumber. The company are about erecting a sawmill, the first work of which will be to get out lumber for the construction of a tram-way, nine miles in length, to connect their works with the Central Pacific Railroad

Our Boston Friends now visiting San Francisco are cordially received. We judge them to be a good representation of the true type of Massachusetts business men. Many of them are wealthy, self-made men, who have gained their wealth without bluster. It is a pleasure to meet such men, so plain and unostentatious in all their intercourse.

Among others, we have received a call from Hon. Alvah Crocker, of Fitchburg, Mass., one of the heaviest paper manufacturers in the Union, well known among leading paper men, having supplied some of them constantly for over 30 years. Mr. Crocker is also one of the champions of the Hoosac Tunnel, without whose influence, skill and labors, the enterprise (which is now sure of success) would have been abandoned. He informs us that over 200 feet per month is now made in hard rock in the tunnel, and that the whole work will be finished in 1873. The tunnel will be five miles long, and not only Massachusetts, but all America may be proud of the complete success over difficulties far greater than any encountered in the Mt. Cenis Tunnel—built by the aid of two nations. As regards freights, the tunnel will bring the "Hub" one day nearer to San Francisco. Mr. Crocker speaks highly of the engineering accomplishments on the Central Pacific Railroad, such as can only be appreciated by discerning, practical railroad men. We like these practical, unassuming Boston men, and believe such visits are of mutual good.

◆

Cattle from the Mountains.—Cattle are coming to this city from almost every mountain-ward quarter. Some 220 head recently arrived via railroad from Idaho. Another and a still larger band is en route from the same locality, if they have not already arrived. The C. P. R. R. Co. have built a large corral near the freight depot at Winnemucca, Humboldt county, for the more convenient keeping and loading of cattle on the cars. Heretofore cattle reaching the line of the road near that point have been driven fifty miles along the road to reach a convenient point of shipment.

◆

Reports from Mexico state that a violent earthquake had occurred in the State of Oaxaca, and in the city of that name 103 persons were killed and 23 wounded. A third of the city is uninhabitable. The earthquake extended to the mines, where eleven persons were killed and many wounded. Buildings in all parts of the State are destroyed, and reports of additional deaths are expected.

◆

Mechanics' Institute Lecture.—A lecture will be delivered on Saturday evening before the Polytechnic branch of the Mechanics' Institute, by Prof. Thomas Price. Subject: The Relations of Chemistry to Industrial Pursuits.

◆

Printing Press Patent Allowed.—A. H. Bangle, of Brooklyn, has just received a patent on his improved hand printing Press, We expect to illustrate it in the Press.

Communications.

Letter from White Pine.

[Written for the Scientific Press.]

Editors Press:—I have been in this district during the past month, and thinking that a few items from this camp would be of interest to your readers, have determined to write you concerning what I have seen. Hamilton is the largest of the three towns here, and has a fine brick Court House, a City Hall and other large buildings. I visited the Pioneer Foundry and Machine Shop, built by J. M. Lakeman, of Grass Valley, and J. Goddard, of this place, and find them fully prepared to do any work necessary for this locality, such as making mill-castings and machinery, turning, fitting and planing smithings, boiler work, etc. They are liberally patronized, and will doubtless, under the able management of Mr. J. Goddard, prove a great accommodation to the mills of this locality.

I also see that J. V. Hall, formerly of Sacramento, has established fine boiler works in this city, and doubt not that he will do well in this branch of business, as there will be plenty of repairing required about the smelting works. He seems to fill, in the best and most satisfactory manner, all orders for wrought or sheet-iron work.

Stage Lines.

There have been two stage lines running between Hamilton and Elko: The line of Woodruff, Ennor & Co., and that of Beachey, Wines & Co. I have had an opportunity of meeting Messrs. Woodruff & Ennor, and also of seeing how they conduct their business. They are both very clever and sociable gentlemen and what we would call "self-made men." They came to the country at an early day, and have gained the acquaintance and friendship of many who have traveled over their road. They have their line very well stocked with fine horses and very comfortable four and six-horse stages, and show every attention and care for the accommodation of the traveler, as I can attest from personal experience. I am told that they have been very successful, and have enjoyed a very large share of public patronage, always giving satisfaction. They are intending to take their stages and horses and move to Palisade station, and to start a new line from Palisade to Mineral Hill, thence to Eureka and so to White Pine, thus enabling visitors to see Eureka and Mineral Hill on the way to this locality. I intend paying those places a visit in a few weeks, and will then let your readers know what they have there, and how they are prospering.

Smelting Works—Treasure Hill Mines.

White Pine does not appear as lively as it did a year ago, but this has been the case with all other camps which were built up quickly during a mining excitement. Although times are dull here now, yet I am fully convinced that this is a good mining district, and, moreover, that the base metal mines are going to be the leading ones here. The scarcity of money in the market in all parts of our country has kept the capitalists away, and hence many of the mines have been stopped. I visited a large number of the mines and found them taking out plenty of ore, but the majority of the men employed are at work extracting the base ores from the smelting works. They have been very successful in smelting latterly. The Alsop and the White Pine smelting works are busy buying and smelting the ores for the *poor miner*. They pay from $10 to $25 or even $30 per ton for ore on the dump, and thus the miner is enabled to make a nice thing, if he strikes rich ore.

The Hidden Treasure is working a full force of men, and is looking very well. It is at present under the energetic management of Capt Turner.. The Eberhardt is employing a very small number just now, and it is rumored that the well known mine has been sold to an English company, for a very large sum, of course. The Aurora South and the Aurora North are both looking well, and have a large number of workmen engaged in raising ore. And many others are doing well, of whom I have not space to make special mention.

Litigation.

I understand, and know, that there is a great deal of litigation in this camp. I would wish to say a word in regard to a case taken to the Supreme Court some four or five months ago, involving the question as to the amount of work necessary to hold a claim for one year. This has not yet been decided, and an extremely bitter feeling exists here (as a large amount of property depends on the decision) on account of the delay. It is generally understood that there is but little business now before the Court, and hence everybody asks why the decision is withheld.

No doubt your readers are aware that Judge Bettey decided that a mine should have two days' work done for every 200 feet, or, in other words, two days' work for each claim. The old miners of this district, who made the mining laws, say they meant that two days' work would hold the claim for one year.

I see, in looking over the records, that there is not one notice in a hundred which designates the *position* of the claim, the statement being made simply that a person claims 100 feet running on this ledge or lode; as a consequence, notices have been floated about from one place to another. Miners ought to *insist*, when they make the laws, that when a claim is located, there should be some definite land-marks given, to determine its position. In regard to the amount of work required to hold a claim, I incline to agree with the Judge's opinion that two days' work is little enough for each 200 feet. Then a miner knows what his prospects really are, and at the same time he shows his true intention to work the mine, and not to make 30 or 40 locations and work just enough to hold them and keep off more industrious men. Many a case has occurred in this district where a man has worked faithfully and developed a claim, and then another man has come along asserting that he has an older location, and a long bitter lawsuit has followed.

I merely give these remarks for the consideration of others, believing them to agree with the ideas of many in this district, certainly of those with whom I have conversed.

The Diamond Drill.

While on Treasure Hill I went to see the operation of the Diamond Drill, which is at work in the Montgomery mine, northwest of the Eberhardt. The manager, Mr. H. M. True, is the agent for the drill and has taken a contract to bore in this mine. They are down about 25 feet, and are taking out a core one inch in diameter. I am informed that they can drill 30 feet in 10 hours. They use 400 gallons of water and half a cord of wood per day. The drill is a grand success and many mines will be prospected by means of it. It costs only $5 per foot to sink, and the mine owners find wood and water. It affords a quick way for testing mines. The core is taken out every 12 feet, and when traces of chlorides are seen it is assayed. Mr. Young and Mr. A. Mayberry are the engineers, and they seem to run the machine very successfully. I see that your valuable paper had it illustrated, under date of May 7th, and can say that, to get a clear idea of any new improvements, people can do no better than to subscribe for the Press. W. H. M.

Hamilton, Nev.

Battle Mountain District, Humboldt Co.

Editors Press:—The Shiloh mine is at present water-logged and awaiting machinery from below. The White mine, or extension of the Shiloh, was sold to a San Francisco company some two weeks since; work will probably be resumed the coming week. The Butte mine is looking well as usual. The Little Giant, at Battle Mountain, is pounding away on $150-ore. The Buena Vista mine, at this place, is promising finely; an average of six samples taken from the lead assayed $177, silver. Mr. Wardley is now shipping some high-grade ore from this mine to San Francisco. At Copper cañon the English Company and Johnson's Central mine are turning out splendid copper ore; the ore is carbonate, red and black oxide without any admixture of iron or sulphur, and of high grade.

Churchill Company and Black Cloud, the celebrated chromate of iron mines in this district, present as black and cloudy an appearance as ever, notwithstanding the efforts to push them forward with jaw-bone.

Galena, May 29th, 1870.

Gold Mining in Siberia.

The lessee of a gold deposit, which is generally situated in the forest swamps, far from any village, as before remarked [see article on "Prospecting in Siberia" in the Press of May 21st.—Eds.], has to transport the provisions and working apparatus for his mine through the desolate woods in winter on sledges at a very great expense. Most of the hired men are exiles, the remainder generally free peasants, who have been reduced in circumstances by misfortunes or misconduct. The procuring of the necessary workmen is a matter of no small trouble and expense. Before every summer campaign, the agents of the gold diggers travel about the country, like recruiting sergeants, and after giving many fair words and some hand money, take the passport of the man engaged as a security for his appearance. But although a passport is an indispensable document in Siberia, yet the workman often find means to obtain a new one under a different name, and engaging himself to another master, defrauds the first of his hand-money.

Workmen—Their Pay and Condition.

It may be easily imagined that, as the workmen are the refuse of society, the greatest discipline is necessary to keep them in order. The system of a secret police is here extended to its utmost limits. Scarcely has a suspicious word fallen, when the director is immediately informed of it, and takes his measures accordingly. Every man knows that he is watched, and is himself a spy on his companions.

Besides free rations, the ordinary wages of a common workman are $3 a month, but more experienced hands receive $10 or even $12 The pay dates from the day when the workman makes his appearance at the residence, and thence forward also his rations are served out to him. They consist of a pound of fresh or salt meat, or an equivalent portion of fish on fast days, cabbage, and groats for soup, besides fresh rye-bread and "quas" (the favorite national beverage) *ad libitum*. The whole number of workmen employed in a gold digging sub divide themselves into separate societies, each of which select a head man, to whom the provisions for his society are weighed out, and to whom all the other common interests are intrusted. The sale of spirituous liquors is strictly forbidden, and according to law no gin-shop is allowed to be open within 13 miles of a digging.

The pay and rations alone would be unsufficient to allure workmen to the diggings, the voyage there and back being very irksome and the labor very fatiguing. An excellent plan has therefore been devised for their encouragement. The contract for each workman distinctly specifies the quantity of his daily work, consisting of a certain number of wheelbarrows of sand —from 100 to 120, according to the distance from the spot where it is dug to the place where it is washed out—each reckoned at about 120 pounds, which one party has to fill, another to convey to the wash-stands, and the third to wash. The task is generally completed by noon or early in the afternoon. For any extra labor, and on Sundays and holidays, they receive an extra pay of 40 to 50 cents for every solotnik (about four-tenths of a pound) of gold they wash. Every evening the workmen bring the produce of their labor to the office, the gold is weighed in their presence and the society credited for the amount of its share. Thus the laborer may earn quite a sum of money. If the free labor is unproductive, many of the workmen desert or give up free labor altogether, to prevent which, it is customary in many places to pay them a fixed sum for extra work.

At the end of the season the workmen are paid off and receive provisions for their home journey. Generally they spend their money in the first village they reach, in drinking and gambling, and are obliged to bind themselves anew for the next season, and receive band-money from the agent, in order to be able to return to their families. After a winter of want and privation they return to the diggings, and thus, through their own folly, their life is spent in constant misery and hard labor.

During the winter the digging is deserted, except by an under-overseer and a few workmen, who prepare for the coming campaign, receive and warehouse the provisions sent, and guard the property. The director, meanwhile, is busy making purchases and attending to getting laborers. With the last sledge-transport he returns to the diggings to receive the workmen and see that all is ready for the summer. As his situation is one of great trust and responsibility, he is well paid. Maesnikow, for instance, paid his chief director $8,000 a year; and $1,200 to $1,600, besides free station, and a percentage of the gold produced, is the ordinary emolument.

Gold Produce of Eastern Siberia.

It is thus evident that the expenses of a Siberian gold mine are very large, but when fortune favors, the undertaker is amply rewarded; an annual produce of 400, 600 or 800 pounds of gold is by no means uncommon. In 1845, 458 workmen in the gold mines of Mariinsk produced 3,260 pounds of the precious metal; in 1844, 1,014 workmen in the mine of Kresdowosdwishensk produced 3,934 pounds; and in 1842, the mine of Spasky, near the source of the Peskin, yielded 4,000 pounds. From this last mine, from 1840 to 1845, $3,200,000 worth of gold was extracted. In 1860, the Garvilow mine yielded 4,100 pounds of pure gold. But in Siberia, as elsewhere, mining operations are frequently doomed to end in disappointment, especially if the ground has not been carefully examined beforehand, as the ore often occurs very unequally distributed and in small patches.

The entire gold produce of East Siberia amounted, in 1845, to 33,956 pounds, and in 1856 to about 44,000 pounds. Latterly in consequence of increasing wages and dearness of provisions, causing many of the less productive mines to be abandoned, it has somewhat diminished. In 1860, 31,796 men, 919 women and 8,751 horses and oxen were employed in the Siberian gold mines.

Gold Produce and Rich Families of the Ural.

Less rich in gold than the province of Jeniseik, but richer in copper and iron, and above all in platinum, is the Ural, where mining industry was first introduced by Peter the Great, at the close of the 17th century, and has since acquired a colossal development. Though gold was discovered in the Uralian province of Perm as early as 1745, yet its production on a large scale is of more modern date. In 1816 the amount of gold furnished by the Ural was only 235 pounds, while in 1834 it had increased to 16,200 pounds.

The discovery of the precious metals on the estates of the wealthy mine-proprietors of the Ural, already before this among the wealthiest of the empire, has increased their riches enormously. Werch Issetsk and Werchne Tagilsk, in the province of Perm, belonging to the Jakowlew family, have an extent of over 3,000,000 acres, with a population of 11,000 souls. Besides iron and copper, their chief produce, these estates yielded, in 1834, 2,320 pounds of gold. Nishne-Taglisk, belonging, since 1725, to the Demidoffs, is a still more magnificent possession, extending over 4,000,000 acres, and with a population, in 1834, of 20,000. That year it produced, besides vast quantities of iron and copper, no less than 1,160 pounds of gold and 4,523 pounds of platinum. The town of Nishne-Taglisk has about 15,000 inhabitants. The Demidoff family have established schools for the free education and maintenance of boys, and provided for sending those who distinguish themselves to higher colleges. The palace of the family has a fine collection of paintings by the first Italian masters; but it is seldom if ever inhabited by the proprietors, who prefer Florence and Paris to the Ural. The founder of the family was an eminent gunsmith of Tula, whose abilities gained him the favor of Peter the Great and the gift of the mines on which the colossal fortune of his descendants has been raised.—*Dr. Hartwig.*

A great Polar expedition is being organized in Sweden, for 1871 and 1872, under the direction of Professor Nordenskjold, the celebrated scientific leader of the Swedish expedition of 1863. Parry's attempt to reach the Pole by pushing on to the north of Spitzbergen, is to be repeated, and it is proposed to winter on one of the Seven Islands. Professor Nordenskjold intends to proceed to Greenland this summer to purchase dogs for the sledges and procure some necessary information.

On the last day of August, 1870, will take place in Geneva, Switzerland, a congress of the geologists of the Alps. This body embraces those savants of Switzerland, France, Italy, Germany and Austria who have made a specialty of the geology of the Alps. The session will last three days, and then excursions will be made to the most interesting spots (in a geological point of view) in that vicinity.

Olives in San Diego.—The San Diego *Union* says a larger crop of olives is expected on the old Mission plantation than has been known since 1847. The yield will be four-fold that of last year. This ancient plantation seems to be renewing its youth.

Mechanical Progress.

The "Victoria Stone."

A new artificial stone, invented by Rev. H. Highton, is described by *Engineering* for May 13th: "The process of manufacture consists in mixing broken granite with hydraulic cement and steeping the whole when set in a solution of silica. Two kinds of granite are used, Mount Sorrel and Guernsey. This is broken up into small fragments on the works. It is then mixed with Portland cement in the proportions of four of granite to one of cement, sufficient water being added to render it of a pasty consistency. In this state it is filled into the moulding frames, and allowed to stand for four days to dry. It is then taken from the mould and placed in a solution of silicate of soda, where it remains for two days, when it is ready for the market. * * The material produced is known as the Victoria stone, or petrified concrete, and the objects moulded from it are flagging, sinks, mantel-pieces, coping, and cap stones, sills, stairs, and such like articles. It is not so applicable for finely cut mouldings. * * A slab of the concrete two feet wide and two inches thick resting loosely on supports two feet apart, will bear in ten days time an average weight of 700 pounds in the center. After having been steeped in the silicate bath, it will sustain more than 1,000 pounds, whilst in five months it will carry 1,700 pounds, and in nine months 2,400 pounds. The crushing strength was found by Mr. Kirkaldy to be 6,441 pounds per square inch. A block presenting a surface of six inches by nine inches, sustained a weight of nearly 160 tons. At a London brewery it has been laid to replace ordinary paving which was constantly being broken by the rough handling of barrels. Since the Victoria stone has been laid not one slab has been broken."

Furrowing in Locomotive Boilers.—The probable cause of this is thus given by John G. Winston, an English engineer: "When a boiler is perfectly cylindrical, with butt joints and the strips outside, no furrowing is observed; with the strips inside, or with lap joints, furrowing takes place. Now, in my opinion, the strips and lap joints are the obstructions, causing these furrows; the steam from the tubes, shooting the water against the edges of the plates, is repelled, and the racing of the water from the fire-box end causes a rapid current to flow parallel with the joints, this upward and repelling and onward action of the confined water inducing more friction, and, consequently, keeping this part of the boiler in a raw state, more subject to corrosion. When the edges of the plates are placed downward, they are more liable to form furrows. The best cure is by making outside strips strong enough with butt joints and a proper form of rivet, which I maintain is a double counterlap."

Steam Boilers Become Brittle by Use. Mr. Peter Carmichael recently read a paper upon steam boilers before the Scotch Institution of Engineers, in the course of which he mentioned that it had been found that "all qualities of iron get hard and brittle after the boilers have been at work more than a dozen years, more especially where exposed to the action of the fire; and that in the furnaces, even Lowmoor iron becomes as brittle as common iron in that time, and great care has to be taken in making repairs to prevent the plates from cracking. For this reason sixteen to seventeen years is long enough for a boiler to be in use, at a pressure of 40 pounds to 45 pounds. If used longer, the pressure ought to be lowered." Two boilers which had been in use nineteen years, and which required repairs, were found by Mr. C. so brittle that the rivet heads on the outside flew off when the inside heads were struck; showing that the rivets had deteriorated as much as the plates.

The Steam Man.—This machine, now on exhibition in New York, is spoken of as a rather curious automaton, much more satisfactory than the one exhibited in that city two or three years since. A Behrens rotary engine at the "stern" drives a screw which actuates worm gears, working eccentrics by which the legs are alternately moved. These legs are straight bars, set in the middle of large blocks of iron which serve as feet. The boiler is in the body of the "man," and the smoke escapes through a hole in the crown of the hat. The gait is unsteady, and the steps very short.

Strength of Cast Iron.—At a meeting of the Institution of Civil Engineers, in London May 3d, Mr. George Berkley read a paper from an abstract of which we take the following:

"With respect to cast iron, it was stated that a mixture of irons for sleepers had produced bars 2 in. by 1 in. in section, which, when placed on bearings 3 ft. apart, had on the average of 1,151 experiments during the last three years borne 33 4 cwt. placed on the centre, and castings 1½ in. in length and 1 in. square, which on the average of 1,002 experiments had borne 13.07 tons of tensile strain. * * There would be a difference of about 16 per cent. between the weight that a 2 in. by 1 in. test-bar would support when cast on edge and proved as cast, and that which it would support when proved with the underside as cast placed at the top as proved; and a difference of about 8 per cent. between the weight the same test-bar would support if cast on its side or end, and proved on edge. This difference it would be necessary to take into consideration in estimating the strength of a large casting made from the same metal as that used in the test-bars. Another, and probably the most important practical consideration, in respect of the strength of castings, was the proportions of their several parts being such as would free them as much as possible from unequal contraction in cooling. It was not often practicable to effect that which would avoid this—viz: to adopt an equal thickness of metal in all parts of the casting; and it was therefore important that means should prevent the castings from cooling too be taken to quickly."

Manufacture of Grape Sugar from Corn.—Large factories for this purpose have recently been established in New Orleans, Buffalo, and Brooklyn. The corn is steeped in weak soda lye, for the purpose of softening the husk and gluten, and is then ground wet and run through revolving sieves to separate impurities; afterwards it is made to flow through ways or troughs, in which the starch gradually settles as a white powder. The wash water is run into a large cistern, and allowed to ferment and produce a weak vinegar. The starch from the troughs is put wet into the mash tub, and treated with water containing one per cent. of sulphuric acid, for eight hours. The acid is neutralized with chalk or carbonate of lime, and the liquid evaporated to get rid of the gypsum, and afterwards further evaporated in vacuum pans, and run into barrels ready for crystallization.

Estimation of Carbon in Pig-Iron.—A weighed quantity of the iron is placed on a small porcelain boat, and introduced into a hard glass combustion tube, placed in a combustion furnace, and, when red hot, a current of chlorine gas, dried by making it pass over pieces of pumice-stone moistened with strong sulphuric acid, is passed over; the current of gas and application of a low red heat is continued until all the iron is volatilized as chlorido. The carbon left in 'the small boat is, after the apparatus has cooled, placed in a porcelain tube and burned. After being heated to redness in a current of oxygen, the products of the composition are taken up by Liebig's potash bulbs. Great care is required that the chlorine be thoroughly dry, since, otherwise, hydro-carbons may be formed and some carbon lost.

How to Use a File.—We give two or three hints from the *Irish Builder:* "In filing flat surfaces, a 'surface plate' is used to enable the operator to finish the work with accuracy. This is merely a cast-iron plate planed to a true surface. Some red lead is rubbed on this plate; then the piece of work is rubbed on, and wherever the work is reddened it shows that that part is above the level, and has to be filed down; and this testing and filing is carried on until the work is perfectly true. It saves the file to draw it back at each stroke as lightly as possible. There is economy in using the files first on brass or cast iron, and afterwards on wrought iron."

Ericsson's Submarine Attack.—Capt. E.'s new plan is based upon the idea that a projectile, so constructed that its specific gravity is the same as that of water, may be made to penetrate the surface at such an angle that the straight line it will pursue after penetrating the surface, shall bring it into contact with the submerged part of the hull of any vessel toward which it may be directed;—which, of course, would be fatal to any of the breastwork iron-clad vessels, the armor of which does not inclose the submerged portion of their hulls.

Scientific Progress.

The Newall Telescope.

Nature describes and illustrates this splendid instrument—now so far completed that it has been moved from the works of Cooke & Sons, the makers at York, to Mr. Newall's observatory. We quote and condense: "The general design and appearance of this monster among telescopes is the same as that of the well known Cooke equatorials; but the extraordinary size of all the parts has necessitated the special arrangement of most of them. The length of the tube, including dew-cap and eye-end, is thirty-two feet, and it is of a cigar shape; the diameter at the object-end being twenty-seven inches, and at the center of the tube thirty-four inches. The cast-iron pillar supporting the whole is twenty-nine feet in height from the ground to the center of the declination axis, when horizontal; and the base of it is five feet, nine inches in diameter. The trough for the polar axis alone weighs twenty-four cwt., the weight of the whole instrument being nearly nine tons. The tube is constructed of steel plates riveted together, and is made in five lengths, screwed together with bolts and flanges. The plates of the central length are one-eighth of an inch thick, and those of each end one-sixteenth thick, so as to reduce the weight of the ends as much as possible, and avoid flexure. The object-glass has an aperture of 25 inches nearly. The focal length of the lens is twenty-nine feet. Attached to the eye-end of the tube are two finders, each four-inch aperture; they are fixed above and below the eye-end of the main tube, so that one may be readily accessible in all positions of the instrument. It is also supplied with a telescope having an O. G. of 6½-inches. This is fixed between the two finders, and is for the purpose of assisting in the observations of comets and other objects for which the large instrument is not so suitable. The clock for driving this monster telescope is in the upper part of the pillar, and is of comparatively small proportions, the instrument being so nicely counterpoised that a very slight power is required to be exerted by the clock, through the tangent screw, on the driving wheel (seven-feet diameter), in order to give the necessary equatorial motion."

Floating Matter in Strong Light.—Prof. Tyndall, in his late experiments with concentrated beams of light, observed that when the track of the beam was plainly defined in the floating matter of the air, the flame of an alcohol lamp, held below the luminous band, seemed to cast into it a column of black smoke. A hydrogen flame produced the same effect, which was no doubt due to the destruction of the floating matter, and the consequent production of a non-luminous condition like that of planetary space, by the removal of all particles capable of reflecting light. It was then, however, noticed that a red-hot poker produced a similar effect, though less in degree, and that even a flash of hot water likewise developed similar effect, though with yet less intensity. The explanation of this is, that the pure air, being expanded by the heat much more in proportion than the solid particles, was caused to produce ascending currents of entire purity, the dust particles being left behind.

Size of Liquid Drops.—Quincke, of Berlin, has found that the size of drops bears a fixed relation to the chemical composition of the liquid. He has proved experimentally that all liquids, at a temperature near their liquefying point, have specific cohesions, which are proportionate to the numbers 1, 2, 3, 4, etc. Taking the specific cohesion of the metallic bromides and iodides as 1, that of mercury, the nitrates, the metallic chlorides, the sugars, and the fats will be 2; that of water, the carbonates, the sulphates, and probably also the phosphates, will be 4. In the case of the metals (referred to the same standard), the specific cohesion of lead, bismuth, and antimony is 2; that of platinum, gold, silver, cadmium, tin, and copper, is 4; that of zinc, iron, and palladium, 6; that of sodium, 12.—*Boston Journal of Chemistry.*

Speed of Electric Signals.—It is remarked that wires buried in the earth transmit slowly, like submarine cables. Wires placed upon poles, but slightly elevated, transmit signals with a velocity of 12,000 miles per second, while those at a considerable hight give a velocity of 16-000 or 20,000 miles.

Mechanical Effects of Magnetization.—The following is from a lecture by Prof. Tyndall: "The effect I wish to make manifest was discovered by Mr. Joule, and was subsequently examined by MM. De la Rive, Wertheim, Marian, Matteucci and Wartmann. It is this: At the moment when the current passes through the coil surrounding the electro-magnet, a clink is heard emanating from the body of the iron, and at the moment the current ceases a clink is also heard. In fact, the acts of magnetization and demagnetization so stir the particles of the magnetized body that they, in their turn, can stir the air and send sonorous impulses to our auditory nerves. The sounds occur at the moment of magnetization, and at the moment when magnetization ceases; hence, if a means be devised of making and breaking, in quick succession, the circuit through which the current flows, we shall obtain an equally quick succession of sounds. I do this by means of a contact-breaker which belongs to a Ruhmkorff's induction coil. A thin bar of iron stretches from one of the bridges of this monochord to the other. This bar is placed in a glass tube, which is surrounded by copper wire. The contact-breaker is placed in a distant room, so that you cannot hear its noise. The current is now active, and every individual in this large assembly hears something between a dry crackle and a musical sound issuing from the bar in consequence of its successive magnetization and demagnetization."

Hydrogen Manufacture.—Du Motay and Maréchal have suggested a new process for the preparation of hydrogen on a large scale. It consists in heating to redness a mixture of damp coals and alkaline hydrates. A mixture of hydrogen and carbonic acid is thus disengaged, and conducted over certain carbonates, which retain the carbonic acid and become bicarbonates. The pure hydrogen is collected in a gasometer to be used as required. The bicarbonates are employed as such, or as reservoirs of carbonic acid. As to the oxides produced by the carbonization of the alkaline coals, they may be utilized for the purposes of agriculture or other industries, or, better, to form the hydrates for subsequent operations, They likewise propose to produce pure hydrogen by passing ordinary illuminating gas over lime heated to cherry redness; the dry residue will be carbonate of lime.—*The Scientific Review.*

Tetrabromide of Carbon.—At a late meeting of the Chemical Society in London, Messrs. Bolas and Gloves communicated a paper on this newly discovered combination. It can be obtained by various methods, amongst others by heating bisulphide of carbon with bromide of iodine in a sealed tube to a temperature of 150 deg. Cent. for about forty-eight hours. The bromide of iodine can also be replaced by terbromide of antimony. Carbon tetrabromide is a white crystalline substance, melting at 91 deg. Cent., insoluble in water, but readily soluble in ether, chloroform, benzol, American oil, and hot alcohol, from which it is deposited on cooling in lustrous crystalline plates. Sodium amalgam reduces it first to bromoform and then to methylene dibromide. The authors propose to carry on the investigation.

Effect of Cold upon Silkworms' Eggs. M. Duclaux has lately been experimenting on the effect of certain gases in retarding the incubation of silkworms' eggs. He has also been trying the effect of cold upon the same organisms, and finds that instead of retarding the period of incubation, it accelerated it; in fact, that eggs laid in autumn and left to themselves would only incubate in spring; but if subjected to the action of a freezing mixture for forty days, they would hatch into larvæ immediately afterwards, on being submitted to the action of a gentle heat.

Movements of Protoplasm and Chlorophyll.—Borodine has seen remarkable movements of the chlorophyll-grains in terrestrial plants. In diffused light, the grains are applied to the surfaces of the cells parallel to the surface of the leaf or other organ; under direct light they promptly move away to the side walls to return when the light is diminished. Rose, more recently, concludes that these movements do not originate in the grains of chlorophyll, but belong to the protoplasm in which they are imbedded.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Globe.—*Miner*, May 28th: J. Winchester, president, is on his way from New York to push the work and erect a mill.

Ore Drift.—The upper drift in the Schenectady is following a vein said to contain the best ore ever found in the mine. It is thought the M. C. drift is fast approaching the ore chute.

The M. C. mill will next week crush several tons of rock from the Tarshish lode for two of the claims, that a test may be made.

Items.—*Chronicle*, 28th: Leviathan has contracted for 20,000 bushels of charcoal. ....A larger force is at work on the Tarshish....Mountain is assessed $2 per share.

CALAVERAS COUNTY.

Petticoat.—*Chronicle*, June 4th: G. W. Hopkins, proprietor, on Wednesday proceeded to Railroad flat for the purpose of paying all indebtedness. We are informed that negotiations for the sale of the mine are pending.

Rich Rock.—We have been shown, by Mr. Lonttit some of the richest specimens of gold-bearing quartz we ever saw. Three pans from the lead that produced the specimens yielded $1,200. Mr. Johnson, Sport Hill, is one of the owners.

Custom Mill.—The Hepburn mill, at Railroad, which has been reconstructed by A. F. Burr, will commence crushing Monday.

In Operation. — The new hoisting works of Lewis Bros., Wet gulch, commenced operations yesterday. The machinery formerly belonged to the Golden Gate Mining Co.

Railroad Flat.—Cor. of same: At West Point, I found the mills all running. Ben Carlton's has been kept busy all winter. Thoss' works are driving ahead at Smith's mill; Lascey's mill, on the Middle fork, is also in motion. The miners are all at work. Placer miners have done very well during the winter. Adley's claim, Big flat, has paid remarkably well. Johnson's, on Soaproot gulch has, been remunerative, as well as many others.

El Dorado.—Cor. of same: The camp once so rich in placer mines, has now opened out some of the richest quartz in the county. The El Dorado mine and mill has been leased to O. B. Fenner & Co. This mine has been sunk to a depth of 140 feet and opened a ledge eight feet in thickness. The Rose Hill mine has had a crushing of 70 tons of ore which yielded $10, per ton. The shaft is sunk 60 feet, with a cross cut at the bottom that shows a well-defined ledge 22 feet in width. Mr. Rodocino proposes to run a tunnel immediately, cut the ledge at a depth of 350 feet, and erect a mill of 20 stamps, capable of crushing 40 tons per day, with water power.

EL DORADO COUNTY.

The Porphyry.—Placerville *Democrat*, June 4th: On Wednesday we made a visit to this ledge on Quartz hill. We found the parties busy at work. The rock becomes harder as they go down. Free gold is found in pockets, some of them very rich. Redd & Co. have done a good deal of work. Ollis & Co., and Davis & Co., have fine prospects. Mr. Fiske has already taken out a very nice sum from his claim. H. Louis is running a tunnel into the hill, and thinks he is close upon the ledge. He has already got good prospects. Hodge & Co. have opened their claims at different points, and rumor has it that big money has rewarded them. Van Hooker showed us a fine prospect from sulphurets at his lowest depth. The rock is full of them.

Georgetown.—Cor of same: The Eureka claim after running five days and a half broke one of their dies and cleaned up twenty-four ounces of amalgam, valued at $300. This claim is the first northern extension of the Woodside. There is some free gold in the rock, and the owners say that if it will pay the expenses that they can make a good thing out of the sulphurets. There is an eight stamp battery, and it will crush a ton to the stamp per day, and they estimate that a ton of sulphurets can be saved per day, which have assayed from seventy-five to twenty-seven hundred dollars per ton.

LOS ANGELES COUNTY.

Zapata Silver Mine.—*News*, May 28th: This is in San Gabriel cañon. Dr. Winston and others, who purchased the mine some years since, have driven a tunnel in 530 feet. One foot a day is the progress now made with Giant powder. Appearances are promising.

Gold Bullion.—Yesterday 236 ounces of gold bullion, the product of the Eureka mine, Soledad, was received by J. A. Hayward & Co. Value, upwards of $5,000.

MARIPOSA COUNTY.

Struck It.—*Gazette*, June 3d: W. H. Ames has an uncommonly good thing in quartz, or talc, near the head of Hell hollow, just within the line of the Mariposa Estate. Some Mexicans found a vein which yielded gold, upon which they sunk a small shaft and took out mineral which they worked in an arastra. Mr. Ames bought out the Mexicans, and obtained a lease of the ground from the Estate. He is now down 50 feet, and has a vein of rich rock, one foot wide, and enlarging, and so soft that it is easily worked with pick and shovel. Our informant says the rock will pay $125 to $200 per ton.

Quartzburg.—*Free Press*, May 21st: All that is left of what was once the town of Quartzburg, viz.: a storehouse, dwelling, stable, corral, and outbuildings, was disposed of by Major Hardwick, a few weeks since, to the Washington Mining Co.

NEVADA COUNTY.

Branch Mint Mine.—Grass Valley *Union*, May 31st: The tunnel is into the ridge nearly 300 feet. The work is pushed day and night. The whole length required to strike the ledge is 440 feet.

Badger Mine.—Saturday steam was raised. This mine has not been worked for years.

Town Talk.—Same of June 1st: This gravel mine gave at its clean-up on Monday $1,400 for a run of ten days.

Specimens.—Same of 2d: We saw, yesterday, four quartz specimens from Brown Bros. diggings on Squirrel creek. The four were worth $90 to 100.

Moore's and Woolsey's.—*Transcript*, May 31st: The miners at both flats are busy. On Saturday one company cleaned up $6,000 and another $5,000.

Gravel.—A company of twelve have located 3,600 feet on a splendid gravel range on the head waters of Deer creek. They have sunk a shaft 95 feet and found good prospects.

Bourbon Hill.—Same of 2d: A Welsh Co. on the east slope, have made a rich strike of gravel in their claims, which they have been prospecting for years.

French Corral.—In Eddy's claims, 35 men are running 1,000 inches of water. The mill for cement is kept in operation ten hours per day. Ball & Co's claims are constantly worked, and two mills are running. The Kansas Co. have stripped off the top to the cement channel, and are putting up a mill. Glaister & Harrison French's claims are running full handed.

"Orleans."—The rock taken out thus far has more than paid expenses.

Pittsburg.—Same of 3d: After a run of six days with ten stamps, there was cleaned up from the coppers on Wednesday $4,000. The mine never looked better.

Eureka Mine.—For 12 days run of the mill ending Saturday last the yield is something above $30,000.

Lindsey.—Same of 4th: The Bros. were recently offered $110,000 for their mine in Washington township. They have 15 stamps in constant operation, and will build another mill below, of 20 stamps. The ledge is 12 feet wide.

Sale of the Coe.—5th: Minor S. Martin has sold the Coe mine for $20,000.

PLACER COUNTY.

Rich Strike.—*Stars and Stripes*, June 2d: It is reported that very rich diggings have been struck above Michigan Bluffs, and as high as 114 ounces to the pan taken out.

Ophir.—Cor. of same: Clark and others discovered a ledge, three months ago, a short distance from Ophir, from which they recently had five tons of rock crushed, which yielded $85 per ton....Erskine & Nelson are crushing their rock at Staple's mill. The rock will yield $30 per ton.... Pugh's mill is being repaired....The Empire mill is running day and night....The Green ledge is sinking deeper with even better prospects....Anton Smith's ledge, below the Good Friday, is being reöpened. The rock heretofore yielded $30 per ton. ....Slawson, of the Minnesota, had a lot of rock crushed, which paid $40 per ton. ....Simmons & Manning own a ledge near the Buckeye, Muggin's Flat, from which they had 20 tons crushed. The return showed 58¾ ounces.

Ophir.—Cor. of *Herald*, 4th: Greene & Co. have received a net profit of $100 per foot for all sinking of shafts and running drifts since they purchased the ledge.... In the Good Friday, Jacob Cowar is sinking his shaft deeper....Spear & Lyon have leased to Jones & Co., Grass Valley. the Buckeye mine.....Mr. Battis, on the Shipley, is sinking, and finds plenty of free gold and sulphurets. His vein is between two and three feet wide at a depth of 48 ft. ....The crushing of F. Simons & Co., which yielded $35 per ton, came from their mine, near the Buckeye, on Humbug Flat.

Murderer's Bar.—Hagadorn & Phillips, of Nevada City, have secured three-fourths of a mile of mining ground on the American river, near Murderer's Bar. They have 20 Chinamen at work. They expect to employ at least 100 this summer

St. Patrick.—Grass Valley *Union*, May 31st: We are informed by good authority that the St. Patrick mine has been really sold, and that Capt. S. W. Lee and W. H. V. Cronise were the purchasers. Rumor says that the amount paid is $45,000. The ledge in the shaft on Saturday was showing better average rock than has yet been taken out of the mine.

PLUMAS COUNTY.

Lone Star.—Quincy *National*, May 28th: Mr. Lawrence, the owner, is repairing the mill with the intention of working rock from the Bullion mine.

Crescent.—Cor. of same: The Crescent Company, on the 24th, cleaned up $7,000, the result of two weeks' run.

Sawpit Flat.—Cor. of same: The Buckeye claims are taking out from six to eight dollars per day to the hand. The New York Co. is washing up drift dirt, and taking out from 130 to 200 ounces for every 36 hours' run. The Eagle Co. are washing up. The hydraulic claims prospect well. The Neversweat claim has not commenced washing, but chances are favorable.

SAN DIEGO COUNTY.

Los Angeles telegram, June 2d: Many miners are leaving the Julian district, discouraged at the prospect of a legal contest with the claimants of the Cuyamac grant. Among those remaining threats of summary measures towards those whose attempts to oust them are plentiful.

Rich Ore.—Los Angeles *News*, May 28: Another batch of ore arrived in this city yesterday from the Mount Vernon mine, Julian district, that surpasses anything in richness we have ever seen from that section.

SISKIYOU COUNTY.

Telegram, Yreka, June 2d: Mining on the South Fork is opening briskly. Enfield & Biernbaum are rigging up the most complete and extensive hydraulic in the county, and will commence piping in a few days. Other companies are preparing for work on a large scale. Some specimens of quartz are received from the Mammoth ledge of Orofine, in which gold is visible.

Humbug.—Yreka *Union*, June 3d: A few companies commenced to wash last week, and the balance will get at it this week. The season has been favorable for ground sluicing.

Little Humbug.—There are but three companies now mining. They are making now, while washing up, from $6 to $8 a day to the hand. The water will hold out so that they will be able to work pretty much all summer.

Custom Work.—The Oro Fino quartz mill is crushing rock from the ledge of Lauer & Co.

SHASTA COUNTY.

Janesville.—*Courier*, 4th: The parties who purchased the Cottonwood ditch are making preparations to commence enlarging it.

Good Prospect.—Last week several strangers came into this county hunting for work. They finally went to prospecting on a bar on Spring creek. After sinking a hole several feet, they took out a panful of gravel and obtained $2.25. The second pan yielded $2.50, and all the gravel since taken out of the hole has yielded almost as high.

SIERRA COUNTY.

Reis Mine.—*Messenger*, June 4th: We learn that a letter has been received from one of the Reis Bros., stating that the mine at Sierra Buttes, would probably be sold.

Iowa.—The company are putting up their engine, and will get to work about the 4th of July. There is five feet of water in their shaft.

Howland Flat.—Cor. of same: The Old Hawkeye Co. has in the past twelve weeks taken out 1,700 ounces of gold. They have now got their diggings fairly open, and are working 40 hands. Union Company has worked several hundred feet ahead of the Hawkeye, right along the dividing line, and are taking out their 200 ounces a week. The Union is working 85 hands. The Monumental are wiping off the old black marks. The Pittsburg Co. has bought the right of way from the Monumental, and is running a tunnel to open a piece of ground.

TRINITY COUNTY.

Lower Trinity.—*Journal*, 4th: The gold dust at Cox's bar is very fine, but mining is conducted on the plan of rushing off such vast amounts of gravel, that very small pan prospects are made to pay. Wm. Ashworth has struck a rich lead on Big bar. Wm. Patterson's claim has paid well this season. Wm. McCollum, at Corral camp, is doing well.

Canon Creek.—H. McIntire has struck it rich at the lower end of the corral at Cañon city. Accounts from all quarters of the county are encouraging. Wherever any prospecting has been done rich dirt has been found.

TUOLUMNE COUNTY.

Confidence Mine.—Sonora *Democrat*, 4th: The last run for eight days turned out $9,500. Total yield for May, $36,500. This is one of those mines that several parties worked at different times at a loss.

YUBA COUNTY.

Camptonville.—Marysville *Appeal*, 2d: Very little mining is going on, water being scarce. B. P. Hogg & Co. are running their hydraulic diggings.

Timbuctoo.—We understand that the usual amount of mining is being carried on and that water is plentiful.

Arizona.

Walker's District.—Prescott *Miner*, May 21st: The Eureka mill is now idle. The recent test by Mr. Tiernan, for Shoup, Jackson, and others, has satisfied all that the ores are rich. The company are now negotiating with the owner of the mill, and it is probable that they will buy or lease it. If so, work will soon be resumed.

C. Y. Shelton is working Vernon ore in his arastra. He thinks it will yield $300 to the ton.

Big Bug.—Mill running and paying. The ledge gets better and better.

Hassayampa.—Sterling sulphurets not yet all worked. The mill is idle.

Walnut Grove.—Several rich discoveries have recently been made, and parties are preparing to arastra. The owners of claims stand ready to give a fair show to capitalists who will erect mills.

Martinez.—Shafts are being sunk upon one or two lodes. It is asserted that the ore now being taken out is extraordinarily rich.

Wickenburg.—Messrs. Beach & Block inform us that the deep shaft in the Vulture lode is down 222 feet, and the ore rich in gold. The mill is running and paying.

Pima County.—New placer mines are said to have been discovered in the vicinity of Tucson and Tubac.

Colorado.

Items.—Central City *Register*, June 1st: Perrin's working of Pewabic ore yielded 11 ounces, not 46, as we had it....Charles Hoyt will soon commence work for a Boston company on the Cashier lode, Georgetown, the eastern extension of the Terrible. ....Stotts & Converse, on the Freeland, Trail creek, are in 200 feet, and have a good vein. Clark and partner, and Chavanne & Kramer are working the Coyote, and raising very rich ore....In Idaho district, Mr. Womack is at work on the Seaton. The ore sells for from $90 to $280 per ton at the smelting works—averaging for the whole crevice $150 per ton....The Gilpin and Coaley mines are looking better than ever....A load of ore from the Veto was recently sold to Updegraff for $375 per ton. The assay was $460.72 in silver..... Several companies in Russell district have started work again, encouraged by Perrin's success on the Pewabic. Some are already doing well. Two mills are running steadily.

Items.—*Herald*, June 1st: R. O. Old has 20 tons of first-class Terrible ore on the dump, and will soon make a shipment to England. Stewart is running the second-class ore....Dickenson & Dora will enlarge their mill on Chicago creek. Four arastras will be added for amalgamating purposes. The ore will be first pulverized finely by other means....The Brown Co. will finish another button of silver on Tuesday, which will weigh 400 pounds.... Mr. Lace started up the old Conelee mill, and will run on custom ore....The stamp mills of North Clear creek are at work, mostly on custom ore....Ore from the Grass Valley claim, on the Prize lode, is yielding 9 ounces and 16 pennyweights. ....Prof Frank Dibben has leased the Belmont lode, Argentine district....F. B. Gilbert has discovered a big thing in a lode on Turkey creek near the Syracuse mill, which he has leased.

Ni-Wot.—Georgetown *Miner*, May 26th: A company of Pennsylvania capitalists has been organized to develop this lode.

The Cliff has struck a pay-streak two feet wide. A tunnel will be run along the lode to the discovery shaft.

Silver Mountain.—Peter Ellis and Paul Steele a few days ago discovered what has the appearance of being a first-class gold lead. The vein is represented to have a width of two feet; the pay-streak is two inches.

Lake County.—At California gulch the miners on the Pilot lode are doing well, having taken out 25 pounds of gold in eight days.

Montana.

Last Chance.—Helena *Gazette*, May 30th: The ditch is selling 200 inches of water to three companies on the deep ground—Taylor, Thompson & Co., Williams & Co., and Getchell & Co. Below these, Messrs. Chessman, Hunt, Peterson, and others, are doing well. Labor is very scarce. Fifty miners could find employment to work nights. Mr. Steymist recently sold his claim—four hundred feet for eight thousand dollars. Col. Williams is selling one hundred inches of water on Helena hill. Mr. McComb took out a thousand dollars after one week's run, "shoveling in.' Dewar & Co's bed-rock flume is doing well. Heony & Co. are doing well. Marshall & Co. sold out to the Chinese, who are mining on the ground day and night. Dry gulch claim owners have united to run a drain ditch to ground, which has lain for years, and is richer than anything reported from Cedar creek.

Saur Kraut.—This new gulch, near Lincoln, is six to eight miles long, and in depth, to the bed-rock, 25 to 30 feet. The Lower Drain Co. have reached bed-rock, and 25 to 50 cents were obtained to the pan; out of one shaft, $2,50 to one pan.

Gold Hill.—Four companies are at work with plenty of water. Prior & Co. have a bed-rock flume, and are working Gold hill through it. The pay ground is from 50 to 75 feet deep. The last clean-up paid $100 per day to the hand. John Hughes and James Moore are running two sluices, and clean-up $15 per day to the hand.

Blackfoot.—All the mines are being worked successfully. In Ohio gulch, five men, in two weeks, cleaned up 100 ounces of gold dust. The miners on Illinois gulch struck good pay on bed-rock. Ten ounces were obtained from eight feet square. Ophir is doing well. The same of Carpenter's Bar, and Snow Shoe gulch.

Silver Bow.—Virginia *Times*, May 25th: From 1,000 to 1,200 men are at work; they have plenty of water; the claims all pay something more than wages, and many are very rich. Wages are $6 per day, dust.

Nevada.

COPE DISTRICT.

Bullion.—Elko *Independent*, June 1st: During May $31,569 in bullion was shipped from the Argenta,

Not Bad.—Two and one-half tons of ore from the Argenta, shipped to San Francisco ten days ago, for reduction, returned $1,242 to the ton.

The Elko *Chronicle* of 5th says: Drew & Co's mill is crushing ore from the Argenta, under an arrangement to work 1,600 tons. Excelsior is yielding rock in quantities, of a quality scarcely second to that of the Argenta. The Crescent has a shaft down 218 feet; the Monitor, 26 feet; Mountain City, 70; Sunny Hill, 35; Virginia, 40; Columbne, 45; Prosper, 45 feet. The Kanawha, a new discovery, exhibits some of the finest ore we saw in the camp.

HUMBOLDT.

Battle Mountain.—Elko *Chronicle*, June 5th: At Galena, Hogan & Co. have a smelting furnace ready to run, and only await a crusher from San Francisco. The White mine was sold a few days ago to a San Francisco company for a considerable sum. The 5-stamp mill of G. W. Fox is running day and night on Little Giant ore, with good results.

Haskel & Rogers are erecting a Haskel furnace at the mines, to work ore from the Bullion mine. This mine is 30 feet wide.

REESE RIVER.

Strike at Belmont.—*Reveille*, 30th: From Mr. James Groves we learn that an important strike was made in the El Dorado South, belonging to Leon & Co. A cut through the vein near the bottom of the incline, at a depth of 237 feet, disclosed a body of magnificent ore (stete feldtite).

WASHOE.

Occidental.—Gold Hill *News*, 4th: The grading for the new mill is completed and the stone work of the foundation soon will be. The mill will be completed in 70 days from the 1st inst.

Hale & Norcross.—Owing to the re-timbering of the shaft, no ore has been raised from the lower portion during the week, but the bullion yield shows no falling off, as a large amount of ore was accumulated in the dump.

Ophir.—The southwest drifts at the 700-foot level are looking well, and are likely to find ore when they get in far enough.

Chollar-Potosi.—Yielding 165 tons daily, assays averaging $50 per ton. The Belvidere section is yielding splendidly.

Savage.—Vigorous prospecting constantly going on with no new developments.

Gould & Curry.—Daily yield, 55 tons; assays averaging $44. The El Dorado and Potosi sections are the principal sources, and some ore of very high grade is being sacked daily.

Overman.—The 226 and 500-foot levels still constitute the principal ore resources of the mine. The daily yield has decreased, owing to most of the miners being discharged for reason known to the stock manipulators. The quality of ore is improved.

Hope.—The body of ore at the lowest level continues looking well. Both mills are kept running, the daily yield of the mine being from 30 to 35 tons of $20 ore daily.

Virginia Consolidated.—Drift west at the 500-foot level, from the new shaft, is in 403 feet to-day. The rock works favorably, and good progress is made.

Sierra Nevada.—Both mine and mill running satisfactorily.

Yellow Jacket.—The rich body of ore at the 900-foot level still continues its 230 tons of ore per day, being extracted from it and the level below.

Crown Point.—Daily yield 60 tons of low-grade ore from the upper levels.

Imperial-Empire.—Shaft 1,230 feet deep. Sinking resumed. The drift west at the 1,200-foot level is in 97 feet to-day. Average assays, $25 per ton.

Sacramento & Meredith.—The new mill is hammering away at a lively rate.

Daney.—Some fair ore comes from the west breast of this mine, also from the recently discovered vein near the clay.

Belcher.—Daily yield, 70 tons; principally from the 152-foot level and above it.

Kentuck.—Daily yield about 25 tons of fair grade ore, supplying the Pioneer mill. The working force has been much reduced.

Silver City.—*Enterprise*, 3d: This place has taken a new start. The miners have at length learned that they can dig out and work a few tons of ore without being capitalists to begin with. We have heard of one man who has obtained $4,000 from 11 tons of ore, reduced by an arastra worked by hand in his cellar—two men propelling the machine by means of cranks.

WHITE PINE.

Mining Sales.—*News*: The Trench mine is "high up" in London, and will probably be sold; the Borealis was sold yesterday to local capitalists for $10 per foot; a large portion of the Hemlock and Wabash Consolidation has been engaged, at heavy figures, by telegraph, in Philadelphia; the Pogonip and Othello has been sold to Chicago parties, and the money paid; the Tom Payne has been consolidated with the Chicago Mill Co.; and the Elko will probably be sold within three days; the Hemlock and Wabash is about taking in more ground, on Chloride flat, and there is talk of uniting all the companies claiming ground on the flat west of the Original Hidden Treasure.

Items.—Noonday hoists 15 tons daily. Much of it will mill $200 per ton.....Domingo has out 300 tons ore; first class is worth $60 per ton, second, $30. Cost, ready for the mill, $2.12 per ton. The ledge has been stripped 100 feet, showing a mass of ore 90 feet wide. Hemlock & Wabash shows richer ore...Moonlight has resumed operations...Silver Wedge has a vast quantity of high-grade ore in sight, Double Eagle gives again as good ore as it did last summer.....Uncle Sam has started again. So has Featherstone.....Cariboo is one of the most promising mines on the western slope of White Pine Mountain. The ledge is 4 to 7 feet wide. Twenty tons $100 ore on dump.....Trench is shipping $700 ore.....Domingo (base) assays up to $5,000....Yellowstone has a three-foot vein of pure metal.....Bromide Tunnel will soon resume work.

Bullion.—For the week ending May 30th, $29,074. For May, per Wells Fargo & Co., $189,104.83—of which $121,213.74 was sent West, and $57,991.09 East. Of this Original Hidden Treasure shipped $56,757.15. This shipment for May was from the Hamilton office only, and does not include that from Treasure City and Shermantown, which would swell the amount to over $200,000. For the year ending May 31st, Big Smoky mill produced 233 bars, valued at $450,372.

Ely District.—The Ely Co's ground consists of Burke No. 1, Burke No. 2, Vermillion, Creole, and Ely & Co. Tunnel. True fissure, six feet wide. Rich base ore down to 20 feet. Character then suddenly changes to free milling ore worth from $75 to $500 per ton. Pioche Co. has 2,000 tons ore now on dump, and is running a ten-mile tunnel along the whole length of the claim. Dutch boys have a 4-foot ledge of 200-dollar ore, and 30 tons on dump. The Pioche Co. claims the ground. Eureka tunnel claims all blind ledges, and all the water the tunnel may reach. Bowery has a 65-foot incline, and 100 tons of $250-ore on dump. O'Connor has a 6 foot ledge of $200-ore. Ely & Co. have a 5-stamp mill, and ship $18,000 per month. Pioche is building a 10-stamp mill. Sherwood and Vance, from New York, have each shipped a 10-stamp mill to the district.

Other Outside Districts.—Patterson is looking up....Silver Park still sends in bullion....Rich strike in Sacramento district, in the Snake Range....Work suspended at Egan for mill repairs and changes....Eureka turns out large quantities of bullion from its furnaces.

San Francisco Mining Stock Market.

The operations of the Board during the past week have been rather larger than the previous week, owing in a great measure to the heavy sales of Savage, which changed hands to the extent of nearly 2,600 shares on the 7th, and to nearly that number on the day following. Original Hidden Treasure also sold largely. As a general thing, mining stocks show no improvement, some continuing to hold their own from opening rates of the week, while others are declining from day to day. From a purely speculative point of view, some agree that this is a good time to invest, but when we look to the prospective production of the various companies, at least on the Comstock Lode, the prospect is not so encouraging. We notice that the shipments of bullion from Hamilton (White Pine), through Wells, Fargo & Co.'s Express, for the month of May, aggregate $179,205, of which amount $121,214 was sent West, and $57,991 to the East. From a private source we learn that the bullion product of the White Pine region is much larger than San Franciscans generally have an idea of. What they are now mostly in need of to facilitate shipments abroad is a railroad extending from Hamilton to Elko, a distance of about one hundred miles. This road, it is said, could be constructed in the course of a year, as it can be carried over a level stretch of country the entire distance. This would give facilities for the exportation of ores not before enjoyed, and would greatly enhance the value of mines located in that region.

Crown Point—was in the market to a less extent than the previous week, selling at a slight recession. For the week ending June 3d, 152¼ tons of ore were extracted, valued at $2,289 92, equal to $15 04 per ton. From the annual report of the Secretary we take the following statement, embracing the fiscal year from May 1, 1869, to May 1, 1870:

RECEIPTS.

Bullion	$76,167 45
Premium on bullion	375 81
Assessment No. 17	60,000 00
Assessment No. 18	90,000 00
Assessment No. 19	90,000 00
From Rhode Island Mill	26,770 83
From Mine—For hoisting ore for Kentuck and Yellow Jacket Companies, etc	22,124 70
Sundries	2,616 65
Cash on hand, May 1, 1869	42,679 76
	$410,735 20

DISBURSEMENTS.

Crown Point Mine	$196,428 64
Rhode Island Mill	10,910 94
Reducing ores	59,959 10
Virginia and Truckee Railroad	56,250 00
Legal expenses	4,631 10
General expenses—Gold Hill	15,665 25
Salaries, rents, etc.—San Francisco	8,663 62
Discount and Interest	4,422 18
Taxes	7,858 19
Sundries	6,637 30
Cash on hand, May 1, 1870	39,309 08
	$410,735 20

There were 5,391½ tons of ore reduced during the year, yielding $76,167 45, showing an average of $14 12½ per ton.

ASSETS.

Cash on hand, May 1, 1870	$ 37,573 60
Jno. P. Jones (cash at Gold Hill)	1,735 48
Rhode Island Mill	60,000 00
Mine improvements, buildings, etc.	80,000 00
Stock on hand at mine	8,705 21
Stock on hand at mill	9,320 08
Virginia and Truckee Railroad Company	74,103 02
Atlantic and Pacific Telegraph Company	490 20
Ore on hand at mill, 650 tons	8,131 50
	$280,059 09

Following are the officers of the Crown Point Mining Company: J. D. Fry, A. Hayward, Robert Sherwood, A. K. P. Harmon and H. C. Kibbe, Trustees. J. D. Fry, President; C. E. Elliott, Secretary, and John P. Jones, Superintendent.

Hale & Norcross—met with moderate sales, under a very considerable decline. The ore product for the week ending June 5th amounted to 731½ tons, all from the upper mine, as follows: 175-level, 233½; 300-level, 286½, and 535-level, 211½ tons. At the same time they had 4,832 tons on hand in the dumps. On the 6th inst., $20,021 in bullion was sent forward to the office in this city. On the 5th inst. they completed repairs on the shaft, and again resumed work in the lower levels as heretofore. They are now engaged in cross-cutting the vein on the lower level at a point 150 feet north of the shaft, and the Superintendent says the prospects appear to be good for satisfactory developments. A dividend of $7 50 per share is payable since the 10th inst.

Gould & Curry—under lessened sales, continues to decline. During the week ending June 6th, they mined 401 tons, showing an average assay value of $52 30 per ton. On the seventh station, cross-cut No. 1 has been abandoned. Work was resumed in No. 3, to which seven feet were added, and to cross-cut A 16 feet were added—both drifts running in quartz. The second station incline has been connected with the 100-level, and the Superintendent thinks they will get considerable ore from that point. On the 100-level a raise is being made from the fifth floor north, which shows some ore. They have resumed work in the winze on the El Dorado level, which has attained a depth of 62 feet, and shows a little ore. The bullion returns for the month of May aggregate $94,045, against $48,722 in April.

Chollar-Potosi—has been well maintained, and the offerings increased toward the close. They extracted 1,200 tons of ore during the week ending June 3d, showing an average assay value, from car samples, of $49 75 per ton. The Belvidere section, at the extreme south end, is being stoped out 26 feet in width, three-fourths of the entire body, it is reported, being a good quality of ore. The shaft from the surface, to connect with the winze coming up from below, came to ore at a depth of 20 feet, and a favorable report is given of this portion of the mine. No change in the Blue Wing section, which promises equally as well for June as it did for May. A dividend of $1 per share is payable on and after the 10th.

Belcher—changed hands to a much larger extent than usual, at a smart decline. On the 6th inst., $13,031 in bullion was forwarded to this city. The ore-seam cut 66 feet above the 262 level does not look so well within the past week; instead of being compact, it is divided into seams, but they may join together and form a body again. In a cross-cut about 130 feet south of the north boundary line, and about 35 feet above the 162 level, some good quartz has made its appearance, and is thought to be a continuation of a body of ore under the north incline, which assays $28 to the ton. They have resumed work on the 730 level. An assessment of $4 per share was levied on the 8th inst.

Kentuck—was little inquired for, selling at declining rates. During the week ending June 3d, 195¾ tons of ore were taken from the mine, showing an approximate yield of $3,745 96, equal to $19 21 per ton.——Imperial has not advanced. On the 7th inst., the winze was 77 feet in depth, the bottom showing no change. The face of the 1200 drift is still in porphyry.——Sierra Nevada sold to a less extent than last week. The bullion yield for the month of May aggregates $14,500.——Ophir shows no advance in the face of a delinquent assessment. Mail dates of the 7th state that "the Atchison Company has commenced suit against the Ophir Company, to quiet title to 500 feet on the north end of the Ophir location." Original Hidden Treasure (W. P.) disburses a dividend of $1 50 per share on and after the 10th.——The North Star (Cal.) also disburse a dividend of $1 per share on the 10th.—*Commercial Herald.*

MINING STOCK QUOTATIONS, JUNE 9, 1870.

WASHOE.

	Bid.	Asked.		Bid.	Asked.
Alpha Con.	$ 9	$—	Gold Hill Q M Co.	$ —	$—
American	—	—	Hale & Norcross	107	108
Belcher	8½	8¾	Imperial	32	22½
Bullion	—	—	Justice	—	—
Crown Point	9¾	10	Julia	—	—
Cole, Va.	—	—	Kentuck	32	32½
Confidence	—	—	Lady Bryan	—	—
Chollar-Potosi	27	27½	Occidental	—	10
Con. Virginia	—	9¼	Ophir	11	12
Daney	—	2½	Overman	68	69
Empire	—	—	Savage	35½	36
Exchequer	—	—	Sierra Nevada	—	8
Flowery	—	—	Seg. Belcher	3	3¼
Gould & Curry	78	79	Yellow Jacket	46½	46¾

WHITE PINE.

	Bid.	Asked.		Bid.	Asked.
Aurora Con.	$—	$ 5	Noonday	—	3
Brodt	—	—	Orig. Hidden Tr.	16¼	16½
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	75c	Silver Wave	—	4½
Mammoth	1¼	1⅜	Virginia	—	3

CALIFORNIA.

	Bid.	Asked.		Bid.	Asked.
Amador	$199	$200	Eureka	$305	$ —

IDAHO.

	Bid.	Asked.		Bid.	Asked.
Golden Char't.	$ —	$ 14	Silver Cord	$—	$—
Rising Star	—	—			

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment.	Day Delinquent.	Day of Sale.
Aurora Cons., W. P., May 7, $4	June 14	July 7
Bromide Tunnel, W. P. April 20, 40c	May 55	June 13
Belcher, G. H., June 8, $4	July 11	July 30
Confidence, G. H., May 14, $10	June 17	July 8
Cherokee Flat B. G., April 14, $5	May 16	June 2
Cayuga Chief, W. P., April 29, 15c	May 31	June 21*
Cordillera, Mexico, June 8, 50c	July 9	Aug. 1*
Empire M. & M., S. co., April 22, $10	May 27	June 18
Evening Star, No. 1, W. P., June 4, 5c	July 2	July 25*
Gold Hill Quartz, G. H., May 16, $20	June 20	July 11
Hall & Van Dyke Cons., June 7, 50c	July 23	Aug. 20
Imperial, G. H., May 7, $5	June 10	July 2
Julia, Storey co., May 13, 75c	June 15	July 1
Latawana, W. P., June 2, 15c	July 14	Aug. 6*
Mammoth, W. P., May 26, 20c	July 1	July 22
Mineral City, May 12, $1	June 16	July 2
Mountain City, Elko co., April 8, 50c	May 23	July 11*
Miser's Dream, W. P., April 14, 40c	May 17	June 14*
Noonday, W. P., May 10, 30c	June 15	July 7
Nevada L. & M., Elko co., May 3, 3c	June 7	June 23*
Oriental, Sierra co., April 22, 20c	May 26	June 16
Ophir, Storey co., May 6, $5	June 9	June 30
Placer G. & C., Placer co., April 9, $2	June 17	July 15*
Pinto, W. P., May 2, 10c	June 2	June 20*
Rising Star, Idaho, April 6, 50c	May 14	June 4
Segregated Belcher, G. H., May 30, $3	July 1	July 22
Silver Wave, W. P., April 21, $3	May 23	June 13
Savage, Storey co., May 3, $7.50	June 6	June 25
Silver Vault, W. P., May 3, 5c	June 9	June 29*
Siempre Viva, Mexico, April 25, 25c	June 2	June 29
Tallulah, Sierra dist., May 10, $2	June 25	July 18
Virginia, W. P., May 14, 50c	June 21	July 6

MEETINGS TO BE HELD.

Alpha	Annual Meeting June 20
Morning Star	Annual Meeting June 15
Overman	Meeting July 7
Silver Sprout	Annual Meeting June 28*

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable June 10, 1870
Eureka, div., $7.50	Payable May 7, 1870
Golden Rule, div., 50c	Payable March 26, 1870
Hale & Norcross, div., $6	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
North Star, div.,	Payable May 5
San Marcial, div., 50c	Payable June 10, 1870
Union, div., $1	Payable May 10, 1870

——*Advertised in this journal.

England has 500 blast furnaces, which every year reduce 12,000,000 tons of ore to 4,800,000 tons of metal and which consume 14,000,000 tons of coal. The manufactured metal is worth about $160,000,000.

Farming and Gardening.

COMMUNICATIONS for this department are solicited from all parts of the Pacific States and Territories.

Grapes and Wine.

Large quantities of California wines are now being sent to the Atlantic States, while the product of our vineyards is becoming more and more appreciated there. Wine can be produced in this State at a figure so low as to give it a monopoly under the present tariff, and the greater cost of producing it in the Mississippi States. Vinters say that one gallon of good wine can be made here from fourteen pounds of grapes, and from three-quarters to one cent a pound can always be obtained for good grapes from the vinters. At the latter price grapes will pay the land-owner four times as much as he can realize from wheat or barley.

The chief aim of grape-growers should be to select none but the best varieties; for favorable results cannot be obtained from inferior fruit. Where the existing vines are inferior, they should be grafted, a process which may be easily effected by any one of the several plans heretofore proposed in the columns of the PRESS. If the vineyard is large, let a certain portion be changed every year, until all have been subjected to the knife. The grape-grower, as a general thing, should not put his grapes to press himself. It is better to sell to some experienced person who makes the manufacture of wine his especial business. When there is no such person within reasonable distance, let an association of growers be formed for the establishment of a manufactory, to be placed under the management of a competent person, where all the grapes of the neighborhood can be sent. In no other way can the production of wine be made a success.

Dealers are offering fifty and sixty cents, and more, per gallon, for extra wines, while it is with difficulty they can be prevailed upon to take inferior wines at from thirty-five or even twenty-five cents. It costs no more to raise good grapes than poor ones—while the profit is fully double.

STRAWBERRY PROFITS.—A widow lady in Santa Cruz received over $500 for the strawberries grown on a half acre of poorly-tended ground last season. It is getting to be a common thing in the East for females to plant and care for small fruits; and in every case where the land is suitable and the proper attention is bestowed, success has attended such enterprise. Could not some of our city girls better their conditions by engaging in this independent calling? Health, strength and happiness in the country, is better than the confined, restricted and insipid life of a shop-girl. No country offers better opportunity for such enterprise than California.

TREE PLANTING.—The State of Iowa planted, last year, about 15,000,000 trees, and will set out a still larger number this year. Two farmers, in one township in that State, have set out this spring 25,000 trees. This is at the rate of about five trees, annually, for each inhabitant, none too many to meet the demand for fruit, commerce, fuel and timber. California, although she is doing much in this direction, is still far behind the prairie State and her own actual need.

BLACKBERRIES.—Charles Berm, of Santa Cruz, informs us that he sold $80 worth of blackberris last season, the produce of less than a hundred plants growing along a fence in his garden. The plants were four years old.

TWENTY-TWO thousand head of sheep have been driven through Oroville within the past two weeks, for the mountain ranges, which are covered with the most luxuriant feed.

Improved Breeds of Sheep—The Wool Clip.

It is quite gratifying to observe that with the increase of the wool crop in this State, there is also a decided improvement in the quality of the fiber. Large numbers of the various high-blooded varieties are being introduced into the State from abroad, and industriously bred here, either pure or by judicious crossing.

One hundred one-year old half-breed Cotswold rams arrived in this city, from Snelling's, a few days since, to be distributed among breeders, as ordered here and in Sacramento. Their average cost was $15; average weight, 150 pounds.

Bardette Loomis, a famous Cotswold sheep-breeder of Hartford, Conn., has recently sold fifty pure-blooded rams to parties in Arizona.

G. W. Gridley, according to the Butte *Record*, has sheared the present season nineteen thousand sheep. Sixteen thousand of these, it is estimated, will average five pounds to the fleece, and three thousand lambs at two pounds per fleece; a total of eighty-three thousand pounds, or forty-one and a half tons. This is his clip for the year, and is held at twenty-five cents per pound, amounting to $20,750. Mr. Gridley expects to realize that figure in this city or ship his wool East.

Wool is arriving in this city in large quantities from the central and southern counties. Small lots are being forwarded to Stockton and other interior cities, where it is being readily disposed of at fair prices, for transhipment to this city. Large growers are forwarding their clips direct to this city, where better prices are obtained.

Oil-Meal for Calves.

A gentleman who has had some years experience in raising calves, informs us that with the use of oil-cake meal he can make skim-milk and whey equal in strength and richness to new milk. The calves like it just as well. It never physics them, and they thrive wonderfully on it. Their coats look sleek and glossy, and their eyes bright; while for healthy activity and rapid growth, new milk is not surpassed.

Oil-cake meal is very cheap, and but one pint is needed to enrich a bucket of milk. It appears to supply the necessary oil to the skim-milk, in place of the cream removed, and to further enrich the milk. It should be fed slightly warm,—about milk warm,—in little troughs made for the purpose. The calves soon learn to drink by letting them suck the fingers while dipping their noses into the feed; or a piece of white cotton cloth may be rolled up, and tacked, by one end, to the bottom of the feeding-trough. Place the opposite end, saturated with the milk, in the mouth of the calf, and he will readily suck as from the teat, and after a few trials will learn to drink. Many calves in this State are killed at birth to save the milk, when they can be easily, cheaply, and very profitably raised by feeding skim-milk or whey properly prepared in this way.

We have had some experience in feeding skim-milk, both sweet and sour, and with very good success, and we are favorably inclined to give full credit to the efficacy of oil-meal, though we never tried it. We have tried cornmeal, oatmeal and flour with skim-milk; but it is very liable to "scour," and work more injury to the calf than all the benefit amounts to. We advise our friends to try the oil-meal, and give us the results.

A HINT.—A French gardener finding a piece of woolen cloth, which had lodged in a tree, covered with caterpillars, acted upon the idea suggested, and placed woolen rags in several trees. Every morning he found them covered with caterpillars, which he easily removed.

Bones—How to Utilize Them.

There is nothing so valuable, in the form of manure, which the farmer wastes, as bones. They are exceedingly rich in plant food. The phosphorus which they contain is of the highest value to the farmer. They should never be wasted; but should always be applied to the soil, in some form. They may be applied to greater or less advantage in almost any form—buried whole, broken into fragments or splinters by pounding, ground into flour more or less fine, or dissolved by means of acids, etc.

There is no one practice among American farmers which deserves a sharper rebuke than that of permitting such vast quantities of this fertilizing material to be shipped abroad for improving the agriculture of foreign nations. Many thousands of tons collected in Chicago, Buffalo, New York and other Atlantic cities are thus shipped, every year, because our farmers will insist upon it that it don't pay to collect and utilize them at home. We are, therefore, all the more pleased to hear inquiries such as have called forth this writing, which we propose to extend to a series of several articles.

Bones, if applied whole, will occupy many years, the larger ones a century at least, in the process of decomposition, imparting all the while, slowly but perceptibly, food for vegetation. If cracked or broken their action is more rapid—indeed it is improved just in proportion to the degree of fineness to which the bones are reduced. When ground to a moderately fine powder, their action is about ten times as rapid as when employed whole. If chemically separated or dissolved in sulphuric acid, their action is three or four times as rapid as when merely ground into flour.

How to Reduce Them.

It has long been a problem how to reduce bones to fine dust or meal in the simplest and most economical manner, or otherwise make them available for use upon the farm. Our correspondent, "W.," of Weaver, suggests a small one-stamp mill, constructed similar to a quartz mill. We are of the opinion that however serviceable such a mill may be in the reduction of a brittle substance, like quartz, it would be a poor contrivance for reducing a fibrous substance, like bones.

Bone mills are usually made something after the manner of the Cornish rollers, such as are employed for crushing quartz. The rollers are arranged, one pair above another. The bones first pass between the upper ones, by which they are coarsely broken; then in succession through others, which reduce them finer and finer, until crushing has done all it can readily accomplish. They are sometimes, as a final process, passed between cutting rollers, armed with steel knives, and running very swiftly in opposite directions. A good bark mill, or any properly constructed conical crusher could no doubt be employed to advantage in crushing bones. The larger ones, however, would have to be broken up with a sledge-hammer. Rollers are very expensive, and suitable only for large bone-crushing establishments; while the conical crushers are comparatively cheap, and might be profitably put up in almost every town.

Sledge-hammering bones is sometimes attempted; but it requires a long time and hard work to crush a very small pile in this manner.

Burning Bones,

To render them brittle and easy to crush is a wasteful practice; as in the process of burning, all the nitrogenous matter, which is especially valuable, is driven off. There is a method, however, by which

Bones may be Softened and Made Brittle,

Without in any manner deteriorating from their manurial value. This may be done as follows: Collect as many bones as you desire to operate upon, and break up the larger ones with a sledge-hammer, or if you have access to a coarse grinding bark mill, all the better. Take a half hogshead, or dig a pit in clayey ground, according to the quantity of bones which you have on hand. It would be well to pound the bottom of the pit hard, and cover with clay, if dug in a porous soil, so as to prevent the escape of the liquor. Cover the bottom of the pit with a layer of fresh horse-dung, or other barnyard manure, and place thereupon a layer of bones. Repeat these layers alternately, until all the bones are thus disposed of. Moisten the heap, now and then, with water, liquid manure, or hot soap-suds. An active fermentation will be induced, under the influence of which the bones will soon become partially decomposed, soft and brittle, in which state they may be easily crushed in almost any kind of mill, or reduced quite fine on a flat rock under the face of a sledge-hammer or the head of an ax.

The addition to the heap of, say two bushels of good hard-wood ashes to a hogshead of the mixture will greatly hasten and perfect the process. The heap should remain undisturbed for six or eight months—a year would be better. It should be frequently moistened—in fact kept constantly wet, and the warmer the better.

[TO BE CONTINUED.]

Farming at Santa Cruz.

While this State is suffering throughout its whole length and breadth with a severe drouth, the farmers about Santa Cruz are luxuriating amidst a bountiful harvest. The pastures are green, the grain fields are magnificent, and the orchards are profuse in the richest foliage and in promise of fruit.

A gentle slope of low receding hills, interspersed with ravines and valleys reaches from the mountains to the sea,—the broad expansive ocean and the charming bay. The mountain forests of evergreens jut out here and there, in columns and squads towards the beach, as though alarmed at the roaring surf, and ready, with standards waving, to combat the threatening waters of the deep.

While in contrast, the well-tilled fields, the vineyards crowning the rounded hills, the gardens of vegetables, fruits and flowers are smiling peace and plenty. Then, tasteful cottage homes, midst cheerful grounds, winding roads and pleasant streets, busy factories of various sorts, churches, schools and healthful faces, all lend a cheer to the scene, and give life to the combined features of Nature, grand, sublime, mysterious and lovely.

More rain has fallen here than in most other places in the State. The proximity to the sea and protecting hills have broken the currents of drying air, and yielded moisture to the earth and growing vegetation. Santa Cruz is this year an oasis and a cheering place indeed, whether held in contrast or admired for its intrinsic beauties.

S. H. HERRING.

POSSIBILITIES OF FRUIT CULTURE.—It is difficult to set bounds to the possibilities of the improvement of fruit. The luscious peach has been produced, by careful cultivation, from a shrivelled, worthless, poisonous wild fruit, indigenous in Persia. The innumerable varieties of the apple, the prince of fruits, have all been derived from the tiny and distasteful crab apple. The once shapeless, pulpless tomato, under the hand of the careful culturist, is fast assuming large, beautiful and smooth proportions, filled with an almost seedless, rich and juicy pulp. So of almost every variety of fruit cultivated in the northern portions of the temperate zone.

The late Seth Boyden, the skillful and well-known horticulturist and strawberry fancier, said, a short time before his death, that if he was permitted to live twenty years longer, he would produce a strawberry as large as a pine apple, and as delicious as the best field strawberry. The possibilities of fruit culture are just beginning to be realized.

What I Know of Farming—No. 21.

Muck—How to Utilize It.

The time will be, I cannot doubt, when chemists can tell us the exact positive or relative value of a cord of muck—how this swamp or that pond affords a choice article, while the product of another will hardly pay for digging. There may be chemists whose judgment on these points is now worth far more than mine, since mine is worth exactly nothing. I *do* know, however, that muck is a valuable fertilizer, and that digging and composting it *does pay*. I judge that I have transferred at least three thousand loads of it from my swamp to my upland; and the effect has been all that I expected. Let me speak of muck generally, in the light of my own experience.

Wherever rocks in ridges come to the surface of the valley, plain, or gentle slope, water is apt to be collected or retained by them, forming ponds or shallower pools, which may or may not dry up in summer, but which are seldom dry late in autumn when plants are dying and leaves are falling. The latter, caught in their descent by the harsh winds of the season, are swept along the bare, dry ground, till they strike the water, which arrests their progress and soon engulfs them. Thus an acre of watery surface will often collect and retain the dead foliage of five to ten acres of forest; and next fall will render its kindred tribute, and the next, and the next, forever. There cannot be less than fifty millions of acres of swamps in our old States (including Maine); whereof I presume the larger area was covered with water until the slow contributions of leaves and weeds filled them above the level at which water is no longer retained on the surface. And still they are so moist and boggy, and their rank vegetation is so retentive, that the weeds swept in from the adjacent hills and glades are firmly retained and aid to increase the depth of their vegetable mold, which varies from a few inches to twenty and even thirty feet. In my old county of Westchester, I roughly estimate that there are at least five thousand acres of bog, whereof but a very few hundreds have yet been subdued to the uses of cultivation.

Whoever digs a quantity of swamp muck and applies it *directly* to his fields or gardens, will derive little or no immediate benefit therefrom. It is green, sour, cold, and more likely to cover his fields thickly and persistently with sorrel, eye-smart, rag-weed, pursley, and other infestations, than to add a bushel per acre to his crop of grain or roots. And thus many have tried muck, and, on trial, pronounced it a pestilent humbug.

But let any farmer turn his whole force into a bog or marsh directly after finishing his summer harvest (when it is apt to be driest and warmest), and, having freed it from water to the best of his ability, dig and draw out one hundred cords of its black, oozy substance, and he will know better than to unite in that hasty judgment. If the bog be near his farm-yard, let the muck be shoveled at once into a cart and drawn thither; but if not, let it be simply brought out in wheel-barrows and deposited, not more than two feet deep, on the most convenient bank that is well drained and perfectly dry. Here let it dry and drain till after fall harvest, and then begin to draw it gradually into the yards, and especially where it may be worked over by swine and scratched over for seeds and insects by fowls. Assuming that the farm-yard is lowest in the center and allows no liquid to escape save by evaporation, the muck may well be dumped on the dryer sides; thence, after being worked over and trampled through and through, to be shoveled into the center and replaced by fresh arrivals. A hundred cords may thus be so mixed and ripened as to be fit to draw out next May and used as a fertilizer for grain or roots, though, if not so treated, it should lie exposed to sun and wind a full year; being applied in the fall to crops of winter grain or spread upon the fields to be planted or sowed next spring. All the manure made during the winter should be spread over that which lies in the yard at least smoothly; and then new muck drawn in, to be rooted or scratched over, trampled into the underlying strata, and overspread in its turn. Thus treated, I am confident that each hundred cords of muck will be equal in value to an equal quantity of manure, though it may not give up its fertilizing properties so freely to the first crop that follows its application. I have land that did not yield (in pasture) the equivalent of half a ton of hay per annum when I bought it, that now yields at least three tons of good hay per annum; and its renovation is mainly due to a free application of swamp muck.

To those who have a good stock of animals, with muck convenient to their yards, I would not recommend any other treatment than the foregoing; but there are many who keep few animals, or whose muck-beds lie at the back of their farms, two or three hundred rods from their barns; while they wish to fertilize the fields in this quarter, which have been slighted in former applications, because of the distance over which the manure had to be hauled. If these possess or can buy good hard-wood, house-made ashes at twenty-five cents or less per bushel, I would say, mix these well, at the rate of two or three bushels per cord, with your muck as you dig it; work it over the next spring, and apply it the ensuing fall, so as to give a full year to ripen and sweeten, and it will be all right. But, if you have not and cannot get the ashes, and *can* procure dirty, refuse salt from some meat packer or wholesale grocer, apply this as you would have applied the ashes, but in rather larger quantity; and, if you can get neither ashes nor salt, use quicklime, as fresh and hot from the kiln as you can apply it. The best lime is that from burned oyster shells; I consider this, if nowise slaked, nearly equal to refuse salt; but oyster-shell lime is too dear at most inland points; and here the refuse of the kilns—that which is not good enough for mason-work—must be used. Usually, the lime-burner has a load or more of this at the clearing out of every kiln, which he will sell quite cheap if it be taken out of his way at once; and this should be looked for and secured. Being inferior in quality (often because imperfectly burned), it should be applied in larger quantity—not less than four bushels to each cord of muck.

I will not here describe the process of mixing salt with lime commended by Prof. Mapes, because it is not easy to bring these two ingredients together so as to mix them with the muck as it is dug; and, though I have used them after Prof. Mapes' recipe, and purpose to do so hereafter, I do not feel certain that any positive advantage results from their blended application as a chloride of lime. If I should gain further light on this point before completing this series, I shall not fail to impart it. —*Horace Greeley.*

American Wild Fruits.

Mr. James Lick, of San José, is the only person in this State, so far as we can ascertain, who has had the good taste and good sense to plant and cultivate that most delicious of American wild fruits the persimmon. Mr. Lick has several persimmon trees in full bearing. We ate some of the fruit last year and found it to be excellent, fully equal in flavor and development to that of the Atlantic States.

In view of the fact that every variety of fruit peculiar to the temperate zones reaches perfection here sooner than upon any other known locality on the continent, is it not suprising that our orchardists and farmers do not endeavor to cultivate some of the luscious wild fruits of the Eastern, Western and Southern States? There is the glorious Paw-paw, of Kentucky; the Chickasaw Plum, of Missouri; the Black Haw and wild Raspberry, of Indiana; the delicious Muscadine, of Louisiana and Mississippi; the Persimmon and Huckleberry, of North Carolina; the delicate Sarvace Berry and plump Dewberry, of Ohio—these and many other varieties of wild fruits, infinitely superior to the insipid trash we are now cultivating, could be easily and profitably raised in California. In addition to the wild fruits of the Eastern States, the country there, especially in the South and West, abounds with many desciduous nut-bearing trees, the fruit of which is acknowledged to be superior to anything obtained elsewhere. The Beach, the White-Hickory, the Black-Walnut, the Butter-nut, the Chesnut, the Chincopia and Pecan—all these are superb forest trees—ready growers and good bearers, and would thrive finely in this climate. We believe that California horticulturists have paid some attention to American nut-trees, but they have not given them that attention which they merit, and now that the railroad has brought us within a few days journey of the old States, we shall hope to see our farmers and gardeners ornamenting their homes with the familiar old fruit-bearing trees, such as gladdened our hearts a long time ago.—*San Jose Independent.*

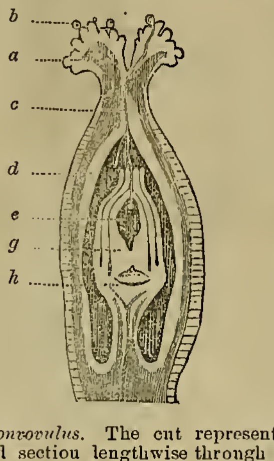
A CRUSADE against squirrels has been inaugurated in Contra Costa county. One man named Welch, has already killed over five thousand of them.

Fertilization, Fructification, Etc.

Following a description of "The Flower and its Organs," which appeared in our issue two weeks ago, we come naturally to the subject of fertilization and fructification. In describing this we quote, nearly *verbatim*, from "How Crops Grow," copying, also, from that work the accompanying illustration:

The grand function of the flower is *fructification.* For this purpose the pollen must fall upon or be carried by wind, insects, or other agencies, to the naked tip of the pistil. Thus situated, each pollen-grain sends out a slender tube of microscopic diameter, which penetrates the interior of the pistil until it enters the seed-sack and comes in contact with the ovule or rudimentary seed. This contact being established, the ovule is *fertilized* and begins to grow. Thenceforward the corolla and stamens usually wither, while the base of the pistil and the included ovules rapidly increase in size until the seeds are ripe, when the seed-vessel falls to the ground or else opens and releases its contents.

The accompanying figure exhibits the process of fertilization as observed in a plant allied to buckwheat—viz: the *Polygonum convovulus.*



The cut represents a magnified section lengthwise through the short pistil; *a* is the stigma or summit of the pistil; *b* are grains of pollen; *c* are pollen tubes that have penetrated into the seed-vessel which forms the base of the pistil; one has entered the mouth of the rudimentary seed, *g*, and reached the embryo sack, *e*, within which it causes the development of a germ; *d* represents the interior wall of the seed-vessel; *h*, the base of the seed and its attachment to the seed-vessel.

Artificial Fecundation

Has been proposed as a means of increasing the yield of certain crops. This has been effected by agitating the heads of grain, at the time when the pollen is ripe, in order to insure its distribution, by two men traversing the field, carrying a rope between them so as to lightly brush over the heads. The plan appears to have been very useful in some cases, though in many trials no good effects have followed its application. We must therefore conclude that agitation by the winds and the good offices of insects commonly render artificial assistance in the fecundating process entirely superfluous.

Hybridizing.

As the union of the sexes of different kinds of animals sometimes results in the birth of a hybrid, so among plants, the ovules of one kind may be fertilized by the pollen of another, and the seed thus developed, in its growth, produces a hybrid plant. In both the animal and vegetable kingdoms, the limits within which hybridization is possible appear to be very narrow. It is only between *closely allied species* that fecundation can take place. Wheat, oats and barley show no tendency to "mix;" the pollen of each of these similar plants being incapable of fertilizing the ovules of the others.

In flower and fruit-culture, hybridization is practised, or attempted, as a means of producing new kinds. Thus the celebrated Rogers Seedling Grapes are believed to be hybrids between the European grape, *Vitis vinifera*, and the allied but distinct *Vitis labrusca*, of North America.

Hybridization between plants is effected, if at all, by removing from the flower of one kind the stamens before they shed their pollen, and dusting the summit of the pistil with pollen from another kind.

The mixing of different varieties, as commonly happens among maize, melons, etc., is not properly hybridization; this word would be used in the long-established sense. We are thus led to a brief notice of the meaning of the terms species and variety, and of the distinctions employed in botanical classification.

Species.

The idea of species as distinct from *variety* which has been held by most scientific authorities hitherto, is based primarily on the faculty of continued reproduction. The horse is a species comprising many varieties. The same is true of the ass. The horse and the ass by sexual union produce a hybrid—the mule,—but the sexual union of mules is without result. They cannot continue the mule as a distinct kind of animal—as a species. Among animals a species therefore comprises all those individuals which are related by common origin or fraternity, and which are capable of sexual fertility. This conception involves original and permanent differences between different species.

Varieties.

Individuals of the same species differ. In fact, no two individuals are quite alike. Circumstances of temperature, food, and habits of life, may cause variation from and back again to the original; and although variation may take a seemingly wide range, its bounds are fixed and do not touch specific characters.

Among plants, varieties may often be perpetuated by the seed. This is true of cereal and leguminous plants, which reproduce their kind with striking regularity. Other plants cannot be or are not reproduced unaltered by the seed, but are continued in the possession of their peculiarities by cuttings, layers and grafts, as in fruits. Here the individual plant is in a sense divided and multiplied. The species is *propagated*, but not *reproduced.* The fact that the seeds of a potato, a grape, an apple or pear, cannot be depended upon to reproduce the variety, may perhaps be more commonly due to unavoidable contact of pollen from other varieties, than to inability of the mother plant to perpetuate its peculiarities. That such inability often exists is, however, well established, and is, in general, most obvious in case of varieties that have to the greatest degree departed from the original specific type. Thus Nature puts the same limit to variation within a species that she has established against the mixing of species.

New (Supposed) Variety of Wheat.—The Marysville *Appeal* has seen a sample of wheat thought to be a new variety. Its history is given as follows: About two years ago Mr. J. A. Pearse, of Sutter county, found among some barley a kernel of wheat which arrested his attention, it being very large, and unlike the wheat common among the farmers here, resembling the white wheat. From this one kernel he experimented, and this year he expects to have as the result three hundred bushels. The wheat is large and well filled, containing double rows, four kernels to the bunch. The heads are quite lengthy and heavy. He has christened it the "Velvet Bearded" wheat, from the soft and velvety appearance of the beards.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, June 9, 1870.

Flour, Extra, ⅌ bbl	$5 50	@	[illegible] 00
Do. Superfine	—	@	6 00
Corn Meal, ⅌ 100 lbs	2 25	@	2 50
Wheat, ⅌ 100 lbs	1 65	@	1 90
Oats, ⅌ 100 lbs	1 40	@	1 90
Barley, ⅌ 100 lbs	1 15	@	1 30
Beans, ⅌ 100 lbs	2 50	@	3 50
Potatoes, ⅌ 100 lbs	75	@	1 75
Hay, ⅌ ton	12 00	@	18 00
Live Oak Wood, ⅌ cord	9 00	@	14 00
Beef, extra, dressed, ⅌ lb	7	@	12½
Sheep, on foot	2 50	@	3
Hogs, on foot, ⅌ lb	5	@	9
Hogs, dressed, ⅌ lb	8	@	8½
GROCERIES, ETC.			
Sugar, crushed, ⅌ lb	13¾	@	—
Do. Hawaiian	8	@	11
Coffee, Costa Rica, ⅌ lb	—	@	19
Do. Rio	—	@	19
Tea, Japan, ⅌ lb	75	@	1 00
Do. Green	60	@	1 25
Hawaiian Rice, ⅌ lb	8	@	—
China Rice, ⅌ lb	5½	@	6¾
Coal Oil, ⅌ gallon	40	@	4 ½
Candles, ⅌ lb	16	@	18
Overland Butter	20	@	30
Ranch Butter, ⅌ lb	20	@	32½
Isthmus Butter, ⅌ lb	25	@	28
Cheese, California, ⅌ lb	10	@	15
Eggs, ⅌ dozen	22½	@	35
Lard, ⅌ lb	15	@	16
Ham and Bacon, ⅌ lb	15	@	16
Shoulders, ⅌ lb	9	@	10
Retail Prices.			
Butter, California, fresh, ⅌ lb	35	@	50
do. pickled, ⅌ lb	—	@	—
do. Oregon, ⅌ lb	—	@	—
Cheese, ⅌ lb	20	@	25
Honey, ⅌ lb	25	@	30
Eggs, ⅌ dozen	40	@	50
Lard, ⅌ lb	18	@	20
Hams and Bacon, ⅌ lb	22	@	25
Cranberries, ⅌ gallon	1 00	@	1 25
Potatoes, ⅌ lb	2	@	3
Potatoes, Sweet, ⅌ lb	—	@	2
Tomatoes, ⅌ lb	—	@	—
Onions, ⅌ lb	3	@	5
Apples, No. 1, ⅌ lb	4	@	6
Pears, table, ⅌ lb	5	@	[illegible]
Plums, dried, ⅌ lb	10	@	12
Peaches, dried, ⅌ lb	10	@	15
Oranges, ⅌ dozen	50	@	75
Lemons, ⅌ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ⅌ lb	—	@	25
Soap, Pale and C. O.	10	@	12
Soap, Castile, ⅌ lb	15	@	18

Scientific Press.

W. B. EWER............................SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance..................$4 00
One copy, six months, in advance.................. 2 60
Delivered by city carriers, per month.. 50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month........................ 3 00
One column, one month........................ 40 00
One column, one year........................ 400 00
Legal notices and special advertising at favorable rstes.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, June 11, 1870.

Table of Contents.

The Balbach Bnggy—Ill.392
Ore Smelting at White Pine—Ill.............401
Our Boston Friends.....393
Mechanics' Institute....393
Monterey...............400
Patent Vise and Tool Holder—Ill...........400
The San Francisco Mint404
Lake County News......404
Fnll List of Patents....401
To Correspondents......400
New Incorporations.....397
S. F. Stock Market......397
S. F. Shareholders' Directory....... 397
S. F. Metal Market..... 407
New York Metal Markct.406
Letter from White Pine.394
Gold Mining in Siberia.394
Battle Monntain........394
FARMING AND GARDENING.—Grapes and Wine; Oil-Meal for Calves; Improved Breeds of Sheep—The Wool Clip; Farming at Ssnta Cruz; What I Know of Farming; Fertilization, Fructification, Etc.; Ill. American Wild Fruits, etc............399
MECHANIOAL PROGRESS.—The Victoria Stone; Furrowing in Locomotive Boilers; Strength of Cast Iron; How to Use a File; The Steam Man, etc..385
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Colorado, Nevada, Montana snd New Mexico.......................396
SCIENTIFIO PROGRESS —The Newall Telescope; Floating Matter in Strong Light; Mechsnical Effects of Magnetization; Hydrogen Manufacture; Size of Liquid Drops; Effect of Cold upon Silkworms' Eggs, etc..............392

Notices to Correspondents.

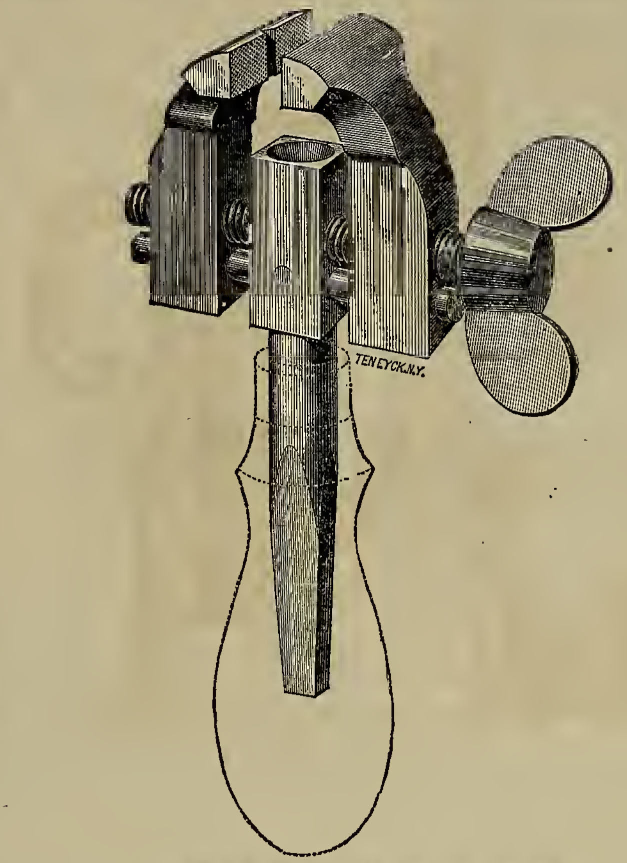
Blasting by Electricity.—A correspondent inqnires where he can obtain a suitable battery for firing blasts by electricity. We believe there is a party in this city who has several electro-magnetic machines, which he will furnish at from $10 to $50, according to power. These machines fire the charge directly by the electric spark, employing a small cartridge of fnlminating powder to ignite the principal oharge; while the galvanic batteries fire directly by converting the eleotricity into heat by means of the resistance to the current presented by a small platinum wire, which connects the main wires with the charge. The former are most convenient, requiring no chemicals, and probably, in proportion to their cost, superior in effect to the galvanic batteries, while the latter require much care and skill to keep them in order. An electro-magnetic machine of sufficient intensity for the purpose of our correspondent would probably cost $25; although a lower-priced one might possibly answer. The special oartridges reqnired for each discharge will cost about fifteen cents.

Crushing Bones.—"W. W.," of Weaver, will find some information upon the subject of his query in the agricultural department of the present issue. Mr. "W." is anxious to learn the cost of a mill suitable for crushing bones. Will some of our millmen furnish us an answer? Onr correspondent suggests the use of a stamp mill, with a single stamp weighing about 100 pounds. He thinks that would be sufficient to crush the hardest knuckle-joint. We should recommend a rotary or conical crusher; perhaps a small "rock-breaker" would answer the pnrpose of reducing them to small pieoes, to be subsequently put through a rotary crusher for reduction to a state of flour. We shonld be pleased to receive any suggestions upon this matter, which presents a good and open field to our inventors. We need a cheap and efficient bone mill. Who will fnrnish it?

The San Francisco Microscopical Society has fully organized by the adoption of a constitution and the election of the following officers: Dr. J. B. Trask, President; Gregory Yale, Vice President; H. G. Hanks, Corresponding Secretary; H. C. Hyde, Recording Secretary; E. Neustadter, Treasurer; H. G. Bloomer, Librarian. The regular meetings of the Society will be held ou the first Tuesday of each mouth.

Patent Vise and Tool Holder.

Since the introdnction into general trade of twist drills, reamers and various tools not formed with shanks for the bit brace, there has been an increasing demand for a chuck or tool holder suitable for shanks of all forms. The engraving herewith published is a very clear and accurate representation of a tool which not only meets the above demand, bnt has also many other valnable uses. It is, properly speaking, a hand vise, and as such, its parallel jaws griping the work firmly, and its wooden handle always central with the piece held, make it a most excellent and superior article. By removing the wooden handle, denoted by dotted lines in the engraving, a shank is disclosed, which may be driven into a half-inch hole in a bench or crack in a post, when it becomes a neat stationary vise for light work. By inserting this shank in a bit brace and placing the butt end of any tool in the cup at its top and turning the thumb-screw till the jaws hold it firmly, one may do any kind of boring, drilling, reaming or tapping. These are its main purposes, but the owner will find hundreds of uses for it as occasion requires. It is well made, and of the best material, and is sold at a comparatively low price. It weighs but twelve ounces, and will be a serviceable companion for travelers, as well as most ussful for mechanics and amateurs. It is called Steven's Patent Parallel-jawed Hand and Bsnch Vise and Tool Holder, and is manufactured by the inventor, W. X. Stevens, of East Brookfield, Mass., to whom applications for further information may be addressed.



STEVENS' PATENT VISE AND TOOL HOLDER.

◆

The San Bernardino Tin Mines.—The company which some months ago discovered the mines of tin about 32 miles in a northwest direction from San Bernardino have sent a lot of ore to this city to be assayed, and the results are reported to be so satisfactory that the San Bsrnardino *Guardian* says they intend at once to proceed with the development of the mine.

◆

The centennial anniversary of the founding of Monterey under the auspices of Father Junipero was celebrated on the second of the mouth in a most happy and successful manner.

Monterey.

We have room only for the following extract from the letter of our correspondent, who was present at the late centennial celebration at Monterey:

Taking passage on the steamer Senator at Santa Cruz, on this bright and beautiful morning, I was equally delighted with the excursion, and with the jovial company of Pioneers, who thought of time only for its honors, and forgot age in joyous, light-footed and careless-hearted mirth. Twenty-six miles across a bsantiful bay brought us to Monterey. The town itself is more Mexican than American in appearance, and so of its inhabitants. To thoroughly appreciate this statement, one must be conversant with Mexican towns. The hospitality of the inhabitants were sumptnous indeed, and without price.

Although its native forests are incomparable, yet but very few trees of any sort are cultivated. I saw but very little land under tillage; but the crops are all looking finely wherever cultivated. With the possible exception of grapes, every sort of choice fruit could be bountifully produced; but not one-tenth part of what is now consumed here is so produced, and not one-hundredth part of what should be used is grown about this place.

The intelligent, enterprising class of people that cultivate the soil and make homes, that render the country prosperous and the cities wealthy, have been debarred from this place by narrow, selfish, incorrigible land monopolies. The ever prosperous spirit of industrial progress, the civilizing, conquering spirit of energy has been lacking, and is still forbidden to enter and make homes for a happy people; therefore improvement, stability and general good seek other channels, and Monterey, despite her venerable age, her natural advantages of soil, climate, fine harbor, etc., is but a mean, insignificant pueblo, while her last claim to the dignity of city is about to pass away from her in the loss of the county seat, now at this place.

This is but one example of what wicked monopolists have done and are doing for this State. Its effects are not altogether local, either. The State is suffering through its length and breadth from exclusive monopolies.

The fearful drought of '63 and '64 that impoverished many individuals was a great benefit to the State by opeuing agricultural lands to the settler that had remained closed by herds of mustang stock, and would have remained so to this day had it not been for the destruction of the same. Many is the prayer offered that some condign disaster may again fall that will free every league of such lands, so that settlers can be put in honest possession. The useless, ruinous and exclusive policy now too often enforced is a curse to the conntry. And it is evident that the monopolist himself is far from satisfied or happy in his vast possessions.

S. H. Herring.

◆

A Laurel Palace.—On Tuesday afternoon the billiard rooms of the Lick House were thrown open to a number of invited guests, and were visited by quite an assemblage of ladies and gentlemen. They are fitted up in exquisite taste, with frescoed walls, velvet carpets, comfortable chairs and tables of California wood and of California manufacture. The bar-room adjoining is one of the handsomest, perhaps *the* handsomest, we have ever seen in the United States or in Europe. The California laurel certainly is a most exquisite wood for decorative purposes of the kind. In fitting up the rooms the best of taste is displayed. The proprietors, Messrs. Lewis & Woodward, have expended some $25,000 in furnishing the two rooms.

◆

The Southern Pacific Railroad Subsidy.—The election on Tuesday to determine whether San Francisco should donate one million dollars to aid in constrncting the Southern Pacific Railroad, passed off very qnietly, and excited, apparently, but very little general interest, as indicated by the fact that only 9,400 votes were cast. The proposition was dsfeated by 124 votes. It is a mattsr of surprise that so few, comparatively, voted. Last September, at the city elections, 21,404 votcs were cast.

◆

University for Women.—A New York telegram of June 8th says that, in accordance with a call signed by President Barnard, of Columbia College, President Webb, of the College of the City of New York, and other gentlemen eminent in educational matters, a public meeting was held last evening, and a project was started for the establishing of a university of the highest class for women, in that city. Rev. Drs. Thompson, Thornton and Crosby spoke in favor of the enterprise, and a committee of influential gentlemen to collect money was appointed.

◆

San Diego seems to be determined to have the matter of the Cuyamaca grant settled. It is working very injuriously to the interests of the miners to have this thing undecided, as naturally capitalists are unwilling to invest in mines which they are liable to see slipping out of their hands any day, or which may involve them in long and expensive lawsuits. It concerns not only San Diego, but also the whole State, to have such matters definitsly decided at the earliest moment.

◆

Rusting of Iron.—Dr. Calvert's experiments show that moisture and oxygen are not all that are wanted to produce oxidation. Carbonic acid must bs associated with these to produce any considerable amonnt. In dry oxygen, iron does not rust at all; in moist oxygen, but little; but in a mixtnre of moist carbonic acid and oxygen, very rapidly.

◆

Owing to long continued dry weather in France, fires in the woods have been of quite frequent occurrence of late. On June 6th a fire occurred in the beautiful forest of Fontainbleau, near Paris, sweeping over hundreds of acres. The people turned out and succeeded in checkiug the flames.

◆

Tornado in Illinois.—Last Saturday a terrible tornado passed over a portion of Scott county, Illinois, destroying orchards and crops, blowing down trees, miles of fencing, etc. No loss of lifs so far as heard from.

◆

Quartz Mill for Sale.—The attention of millmen and those wishing to purchase is directed to an advertisement on page 405 of ths preseut issue.

Ore Smelting at White Pine District, Nevada.

Editors Press:—About four years ago, when White Pine district was first discovered, detached fragments of ore, or so-called float-rock, were found from the very crest of White Pine mountain down to its base on both sides or slopes; but few veins, however, were then discovered and located, and none of these were at that time further developed than by a few days' work on each claim, as required by the mining law. It was found that those ores contained a great deal of what miners call "base metal," by which they mean all ores containing either sulphides, oxides or carbonates of iron, lead, zinc or antimony. Those ores cannot be worked by the common mill process, and consequently these mines were not looked on as at all valuable, and they laid undisturbed for a few years, until the discovery of the Eberhardt and Hidden Treasure mines, in 1868 and 1869, when thousands rushed to the new El Dorado; and as all could not be so fortunate as to find an Eberhardt mine, many turned their attention to White Pine Mountain and named it Base Metal Range. Hundreds of veins were discovered, and every stain of green, brown or blue, whether on quartz limestone or dolomite, was located.

The principal mines consisted of carbonate of lead ore, yielding by smelting process 50 to 55 per cent. of lead, and from $15 to $29 in silver. Other ores mixed with copper went generally better, some as high as $150 per ton. As to the quantity of ore, and how long it will hold out, I do not venture to say, and only time and development can tell. In the spring of 1869, the indications were such as to warrant the erection of several smelting works, with the prospect of getting ore enough for all.

The first furnace was an upright cupola, built of common country rock lined with sandstone. It was erected in what is called Sawmill Cañon, at Swansea. The blast was obtained by a common fan driven by horse-power. Several tons of ore were smelted, and then the fan burst and the horses ran away. A second attempt to run by steam-power was not more successful; the roof caught fire, the concern was burnt down, and there was an end of that establishment.

The next furnace was erected by myself at Swansea, at what is now known as the White Pine Smelting Company's Works. The first furnace was an upright-shaft furnace, of a trapezoidal shape inside, being twenty-four inches in the clear and twelve feet high. The lining was made of a fire-proof sandstone found close to the furnace. The air was supplied from a Root's blower, driven by a four-cylinder engine capable of driving four such blowers. The second furnace was of double the size of the first, and built of the sandstone heretofore mentioned, cut in blocks twelve inches thick, and well bound with iron. It needs no further outside shell or wall to keep it together. This furnace ran through about fifteen tons of carbonate of lead ore from the Miser's Dream mine, which yielded 55 per cent. of lead and about $30 in silver. A small addition of clay or loam answered as a flux. The charcoal used was of the best quality, made from mountain mahogany and nut pine. About fifteen to twenty bushels were used to the ton of ore, and cost, delivered at the works, thirty cents.

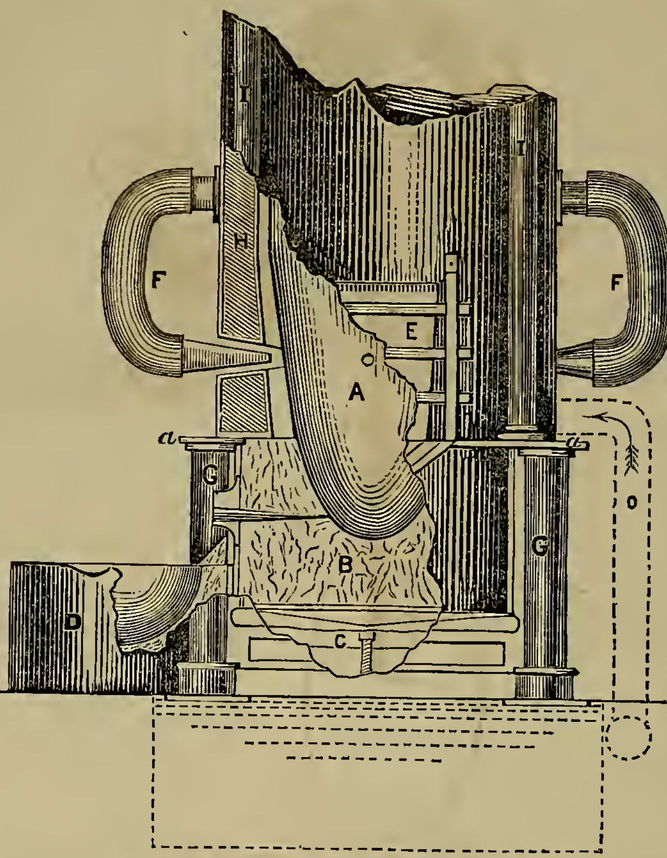
These smelting works were built in a substantial and workmanlike manner, at a cost of about $20,000, and have so far proved a practical success and a benefit to the miners, as hundreds of tons of ore have been purchased and reduced in them. During the last twelve months at least forty furnaces have been erected of various shapes and styles, but, as far as I know, they all have failed, and especially the reverberatory furnaces. The continual trouble was that the bottom burned out or cracked, and the metal leaked through. In most cases it was more the incompetency of the proprietors and smelter than the fault of the fire-proof material. They had the same as we used. Another blast furnace has recently been started at Hamilton, and ran about thirty days, and was considered a great success. The amount of fuel they used I cannot state.

The advantage of a blast furnace for smelting ore is, that more heat is utilized than in a reverberatory. In England, where coal, as for instance, in Swansea, is only five shillings per ton, it is of less consequence if they lose one-half the heat or more; but in White Pine, where charcoal costs two cents per pound, we have to study the most economical plan. Besides, to build reverberatories to reduce fifteen tons per day costs four times what it does to erect a single blast furnace of the same capacity.

I will now state the defects and difficulties to be encountered in running an ordinary brick or stone furnace, and will also show how these defects can be overcome.

The first trouble is, with regard to the hearth or bottom, which is commonly made of clay and charcoal rammed into the solid brickwork and then cut out to the desired shape. It is allowed gradually to dry and then heated up gently for a day or two to drive out the moisture. If this is not done or the furnace is heated up to soon, the metal begins to boil and the whole mass often gets cracked or porous, the metal penetrates it and soon will leak out wherever it finds an outlet, or it impregnates the surrounding bricks or stone to a very great extent. Thus I found lately in a furnace bottom, which had been used for some time, several tons of metal diffused throughout the sandstone, which was so solidly cemented together by the lead that it took ten days to cut it out. This is not only expensive but delays the repairing for at least two weeks, and the metal is nearly all lost, as it will not pay to smelt the penetrated sandstone to get out the lead. Solid stone or fire-proof brick hearths have also been tried, but they are entirely impractical. We have no better material than clay or charcoal in certain proportions, and if that be used carefully and rammed on a very solid foundation, in many cases it will last for a long while. Since writing the above, I have heard of an explosion having taken place in one of the furnaces at White Pine, which knocked out the front and rear. It was attributed to starting the furnace before it was sufficiently dry.

The second trouble is the burning out of the lining around and above the tuyeres This is generally effected by the overheating of the charge. I have not yet seen on a clay furnace a pressure gauge. As a general rule, a larger blower is used than is actually needed to supply the requsite amount of air, and the driving power is often run twice as fast as at other times, and of course gives an unsteady blast. Most of the furnaces erected have not been built by men who have studied metallurgy, and people do not want anyone who knows the business as a profession, because one or two Freiberg students have made blunders. They condemn them all, and rather take unexperienced men and spend four times as much in experiments, as is necessary.



PLAN FOR CONSTRUCTING A SHAFT FURNACE.

An experience of fifteen years in smelting leads me to propose a new plan for the construction of blast furnaces, which I think can be extensively used with profit in our mining districts in many cases, and which will be understood from the annexed drawing and description.

The upper part of the furnace is constructed of masonry in any proper manner. That part, however, where the greatest heat is produced, consists of a wrought-iron shell, H, which acts as an air-chamber, and also for the protection of the lining of the furnace. The air as it comes from the blower passes through the pipe, o, into this shell, keeping it cool, and thence through the tuyeres, F, into the furnace. This shell rests on an iron plate, *a*, supported by four posts, G, one at each corner. The upper part of the furnace is also supported independently on iron posts, I. The shaft is lined inside with about three inches of fireclay, for the protection of the iron. If preferred, water may be used instead of air for cooling the shell. The bottom or hearth of the furnace is movable. It is made of strong boiler iron, either round or square, and is filled with the material used at present at White Pine, pounded down and cut into shape. It can be run in and out on wheels, and firmly secured in place by screws or similar contrivances. It will be of advantage to have constantly on hand an extra hearth, so that when the one in use burns out, it can be replaced very quickly by a fresh one. The expense of building such a furnace will not be one-half of that required for brick structures, while it will last longer and can be put up in two days. The ironwork costs in San Francisco less than five hundred dollars, and adding to this the expense of freight and lining, the total will not be over $700.

The improvement of a movable hearth can also be applied to furnaces already constructed of brickwork or to Haskell's water-lined, and for reverberatory furnaces.

In the next I will give you the description of what I consider an improvement of great value applicable to reverberatory and other furnaces where much heat is lost. The waste heat, amounting in some cases to three-fourths of that used, will all be returned to the fireplace.

J. Mosheimer.

* * *

The Yosemite Claim.—A telegram from Washington, under date of June 6th, states that the Senate Committee on Public Lands report adversely on the bill granting a portion of the Yosemite valley to Hutchings & Lamon, which is considered equivalent to a rejection of the bill.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending May 31st.

Carriage and Railroad-Car Wheels.—Almond F. Cooper, San Francisco.

Tongs for Rigging.—George Dohn, Sacramento, Cal.

Percussion Fuse.—William Gardner, San Francisco.

Method of Distilling in Vacuo.—Frederic Gutzkow, San Francisco.

Tension-Wheel for Sewing Machine.—John H. Mooney, San Francisco, Cal., assignor to Samuel Hill, same place.

Wheel-Carriage Seed-Sower.—John H. Cole, Vacaville, Cal.

Excavating Machine.—Andrew W. Hansen, Stockton, Cal.

Nut-Locking Washer.—Robinson Rutter, Vallejo, Cal.

REISSUE.

Needle for Sewing Machines.—Mary P. Carpenter, San Francisco, Cal.—Patent No. 99,158, dated January 25, 1870.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

* * *

Lake County Items.

The Lower Lake *Bulletin* makes reference to the industrial interests of Lake county, from which we condense as follows:

Quicksilver.—The quicksilver mines on the Knoxville road appear to be progressing as usual. The Redington Quicksilver Company reduced the wages of many of their hands the first of April. The new furnace at the Manhattan mine is undergoing some alteration. The Reed mine is to be opened shortly and a force of men put on.

Borax.—The California Borax Company have their lands rented out to stock ranchers; the waters in the lake has not yet fallen sufficiently for a re-commencement of work. At the Little Borax Lake everything wears a favorable appearance, quite a lot of borax being on hand ready for shipment.

Sulphur.—The sulphur works have stopped for a time, as they already have several months hauling of sulphur on hand.

Springs.—Among the places of summer resort, the Seigler Springs stands prominent. These springs are a natural curiosity in their way; water hot, cold and chalybeate, springing forth within a circle of a few hundred yards, and affording opportunities for bathing unrivalled elsewhere upon the coast.

Marble and Lime.—A marble quarry has recently been discovered in Morgan Valley. The lime quarry in that neighborhood supplies the surrounding country with a better quality of lime than can be found elsewhere in the State.

The Farming Interest.—There is a promise of abundant crops. The grain crop of Lake county will exceed the crop of any previous year. Roads, however, are needed, and a farming population that will work and develop their own lands. The *Bulletin* says: "We have too many farmers who seem content to eke out a bare subsistence from year to year, whose buildings and farms can hardly be called improvements, and whose thriftless mode of conducting their farms rather tends to depreciate than enhance the value of them. This class of individuals invariably ask the highest price for their land, as they are well aware that it is their only means of ever making anything out of them. The result of having a superabundance of these people in any community is, that valuable lands lay unimproved, worthless alike to the owners and to the State, for the former hold the property for a speculative price without enhancing its value by improvement or cultivation, save to a very limited extent. They are, in fact, speculators, as they are evidently not producers, and, in common with all speculators or speculative objects, to be of any public benefit, should be assessed and taxed in the same proportion to their speculative value that is adopted in the assessment and taxation of other property whose value is fixed and settled."

Constantinople has been visited by another conflagration. Several thousand houses were destroyed and over thirty lives lost, and at last accounts the fire was still unsubdued.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 Merchant Street. 5v20-3m

J. S. PHILLIPS, M. E.,
CONSULTING ENGINEER
Examiner of Mines, etc.,
423 Washington street.......... ....San Francisco

(Having had 33 years' experience in Europe and America,) supplies drawings and designs for Pumping, Hoisting, Crushing Separating, Roasting, Chlorinizing, Milling, Lixiviating, Precipitating, and Smelting Works. Minerals analyzed, and advice given for beneficial treatment. Lessons on the Discrimination and Assay of Minerals by Blowpipe, Chemicals, Scorifier and Crucible. 4v17tf

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.
DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,
DENTIST.
Office, 313 Bush Street, near Montgomery.

Is a regular graduate, with twenty years experience in practice. 14v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

Farmers and Mechanics
BANK OF SAVINGS,
No. 235 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.
Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 Clay Street, bet. Kearny and Montgomery, San Francisco. 23v20-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO,

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.

California File Manuf'g Co.
437 Brannan Street, bet. Third and Fourth.
W. Wusthoff, L. Kramer, M. Harris, J. Burke.
REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,
At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,
No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. Meerschaums Mounted with Silver. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

D. BOYLE. JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line promptly attended to.
Second Department.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v20tm

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

F. SCHOENER,
METAL SPINNER
All kinds of Metal spun to order. Give me a call at No. 10 Stevenson Street, fourth story Pioneer Mills.
14v20-3m

NOTICE.
HYDRAULIC HOSE MANUFACTORY.
Hose made to stand any pressure—from 100 to 300 foot fall. Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery street,
Room No. 16, up stairs, San Francisco.
Gold Pens Repaired. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.
All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 Stevenson Street, near First, Pioneer Mills. 25v19-3m

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

"ENTERPRISE"
SAWING AND PLANING MILL.
D. A. MACDONALD, J. H. MACDONALD,
JOSEPH MCGILL, H. CHAPMAN.
D. A. MACDONALD & CO.,
Manufacturers of DOORS, SASHES, BLINDS AND MOULDINGS, 217 to 225 Spear street, and 218 to 226 Steuart street, between Howard and Folsom, San Francisco. ☞Finishing Work for buildings constantly on hand and got up to order. 20v20-3m

FROM **$65** The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the **WEED** Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt. TO **$500**

FARM MILLS.
A superior article for farm use. Operated either by hand or power. Price very low. Send for circular. Manufactured by
22v20-1m LANE BROTHERS, Washington, N. Y.

Metallurgy and Ores.

MINING SCHOOL.
Mosheimer's Practical Mining School
Will be reopened by the FIRST OF JUNE, and practical instruction given in all branches of Assaying, Crushing, Amalgamating Concentrating, Smelting and Refining Ores; also Erecting Furnaces and Reduction Works of every kind. To give all miners a chance to learn Assaying of Ores (what everyone ought to) I have reduced my former charge for

Assaying Ores..............................	$ 50.00
To work Gold and Silver Ores....................	100.00
Smelting and Refining, including Assaying......	150.00

Many gentlemen who have been taught in my establishment will bear testimony that in a few days they learned more than they expected to learn in a month. Before going into mining, every man ought to know how to test ores, and then he will go to work with prudence and never fail to be successful. Apply to
J. MOSHEIMER,
Office, 328 Montgomery street; Works, 2,005 Powell street, San Francisco. 22v23-3m

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street, San Francisco.
Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.
Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 23v20-3m

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
☞Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.

H. H. LAWRENCE..............................	Manager.
J. A. MARS......................................	Assayer.

Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

CRUCIBLES! CRUCIBLES!
EUGENE DE SABLA,
COMMISSION MERCHANT,
AND SOLE AGENT FOR
J. H. GAUTIER & CO'S CELEBRATED
American Blacklead Crucibles,
No. 310 DAVIS STREET,
SAN FRANCISCO. 20v20-3m

HAYWARD & COLEMAN
IMPORTERS AND REFINERS
—OF—
Illuminating, Lubricating,
—AND—
PAINT OILS,
CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.
—ALSO—
Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!
An elegant and complete assortment.
SOLE IMPORTERS OF
Devoe's Illuminating Oil,
PATENT CANS.
5v17-tf **414 Front street, San Francisco**

Railroads and Steamers.

SHORT ROUTE.

The following time will take effect
Sunday..................................April 24, 1870.

GOING NORTH—Daily (Sundays Excepted).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
7:00 A. M.	11:45 A. M.	11:20 A. M.	1:00 P. M.
4:00 P. M.	7:15 P. M.	8:20 P. M.	9:30 P. M.
ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M.

GOING SOUTH—Daily (Sundays Excepted).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M.	6:45 A. M.	6:15 A. M.	10:30 A. M.
1:15 P. M.	2:15 P. M.	3:15 P. M.	7:30 P. M.
ON SUNDAYS.			
10:15 A. M.	3:00 P. M.	2:30 P. M.	6:45 P. M.

TICKETS for sale at 313 Montgomery street, or on board steamer New World R. S. MATTISON, Superintendent.
L. C. FOWLER, General Freight and Passenger Agent.
N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf.
Vallejo, April 24, 1870. 13v20-1y

Pacific Mail Steamship Company.—For New York, via Panama. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.
June 3......................................COLORADO,
Connecting with Alaska.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

June 1—Steamer JAPAN, Captain Freeman.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.
13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation
COMPANY,

Steamer CAPITAL.........	CAPT. E. A. POOLE
" CHRYSOPOLIS..............	CAPT. A. FOSTER.
" YOSEMITE	— —
" CORNELIA...	CAPT. W. BROMLEY
" JULIA.........................	CAPT. E. CONCKLIN.

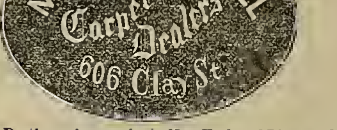
Two of the above steamers leave BROADWAY WHARF at **4** o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.
Office of the Company, northeast corner of Front and Jackson streets.
B. M. HARTSHORNE,
13v12 President,

SPAULDING & BARTO,

BOOK AND JOB PRINTERS,
Scientific Press Office,
NO. 414 CLAY STREET,

CARDS,
BILL-HEADS,
RECEIPTS,
CIRCULARS,
HAND-BILLS,
POSTERS,
LABELS,
AND
PRINTING OF ALL KINDS FOR BUSINESS MEN
BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,

Neatly, Correctly and Promptly Printed.



M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞Can compete in prices with any other dealer. 24v20-3m

$1. Postage Paid. $1.

A CHEAP AND HANDY BOOK

—FOR—

Mechanics, Inventors and Students.

SCIENTIFIC PRESS

NEW EDITION

—OF—

507 MECHANICAL MOVEMENTS.

PUBLISHED BY

DEWEY & CO.

LIST OF CONTENTS.

Æolipile.
Balance, Compensation: Barometer; Blower, Fan; Brake, Friction.
Cams; Capstans; Centrolinead; Clutches; Chasers; Clamps, bench and screw; Cock, four-way; Column, oscillating; Compasses, proportion; Counters of revolutions; Coupling, union; Crank—substitute for the, variable; Cranks, bell and compound; Cyclograph.
Differential Movements; Brag-link; Drill—Fiddle and Persian; Drills, Cramp; Brop; Brum and Rope; Driver, Pile; Dynamometers.
Eccentrics; Ejectors, Bilge; Ellipsograph. Engine, Bisk; Engines—Rotary, Steam, Valve Gear for; Epicyclic Trains; Escapements.
Fountain, Hiero's; Fusees.
Gasometers; Gauge, Bisecting; Gauges, Pressure; Gear, Steering; Gearing—Bevel, Brush, Capstan, Conical, Crown, Eccentric, Elliptical, Face, Friction, Internal, Irregular, Multiple, Mutilated, Scroll, Sector, Spur, Step, Stud, Sun and Planet; Gearing—Variable, Worm; Governors; Guides; Gyroscope.
Hammers - Atmospheric, Bell, Compressed Air, Trip, Steam; Helicograph; Hook—Boat-detaching, Releasing; Hooks, Centrifugal Check; Hyperbolas, Instrument for Drawing.
Intermittent ovements.
Jack—Hydrostatic, Lifting; Joint—Ball and Socket, Bayonet, Universal.
Ladder—Folding, Self-Adjusting; Lazy-tongs; Level, Self-recording; Lever—Bell-crank or Elbow, Knee; Lewis; Link Detachable Chain.
Machine—Bohnenberger's, Brilling, Polishing, Punching, Warp-dressing; Main, Flexible Water; Maintaining Power; eter—Gas (wet and dry), Water; ill—Barker's, Crushing, Tread, Wind; Miscellaneous ovements; otion—[illegible] rusting Traverse, Rocking, Self-reversing, Shuttle; Motions—Feed, Link, Parallel, Pump, Traverse, Variable Traverse.
Pantograph; Parabolas, Instrument for Brawing Paradox, Mechanical; Pendulum, Conical; Pendulums, Compensation; Pinion—Lantern, Mutilated, Slotted, Two-toothed; Power, Horse; Presses, Hydrostatic; Propeller, Screw; Pulley—Expanding, Friction; Pulleys—Anti-friction Bearing for, Chain; Pump—Air, Balance, Bellows, Chain, Diaphragm, Steam-siphon; Pumps—Bouble-acting, Force, Lift, Rotary; Punching Machine.
Rack—Mangle, Mutilated; Racks and Pinions; Ram, Montgolfier's Water; Ratchets and Pawls; Regulator—Gas, Watch, Reversing Motion, Self; Revolver; Rollers, Oblique; Rolls—Anti-friction, Brawing, Feed; Rulers, Parallel.
Saw—Endless Band, Gig, Pendulum; Screw, Archimedes, Bifferential, Bouble Reversed, Micrometer; Screws—Endless, Right-and-left Hand; Sectors; See-saw; Shears; Stamps; Stand, Mirror; Stop—for Hoisting Apparatus, for Lantern Wheels, for Ratchet Wheels, for Spur Gear; Stops for Winding Watches.
Test, Friction; Throttle, Spinning; Toggle-joint; Tongs, Lifting; Trap, Steam; Treadles.
Water, Machines for Raising: Weir, Self-acting; Wheel Cam, Lantern, Persian, Pin, Rag, Sprocket, Steering, Waved; Wheels—Crown, Mangle, Paddle, Water; Windlass—Chinese, Friction; Windmills; Wipers.

This book is bound in cloth, and embraces 122 pages. The illustrations are plain, and each figure is clearly described on the page opposite to it. It is a low-priced book for its kind, and there are few persons who have to do with machinery, or are interested in understanding the science and principles of motion, who will not be benefitted and satisfied by its purchase.

A liberal discount made to the trade. Single copies, $1—sent postage free. Address orders,

DEWEY & CO.,
Patent Agents, San Francisco.

E. T. STEEN.

Machinery Broker.

Engines and Boilers for Sale.

—AGENT—

Haskell's Water-lined Smelting Cupolas,

Chemical Ore Reduction Company,

"ROCKET" QUARTZ CRUSHER,

And Anti-Incrustation Powder, for Steam Boilers.

No. 433 CALIFORNIA STREET,

(14 Merchants' Exchange). 23v20

ARCHITECTS AND BUILDERS

[Are invited to examine an invoice of

Marbleized Slate Mantels.

As these mantles are so perfect an imitation of the most costly Italian Marble, and can be furnished at so much less cost, they are being placed in the finest houses in New York and other Eastern cities.

J. B. HUNT.
No. 716 Montgomery street, San Francisco.
May 5th, 1870. 19v20.

I. O. O. F.

THE NEW AGE,

A Weekly Journal of Sixteen Pages.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

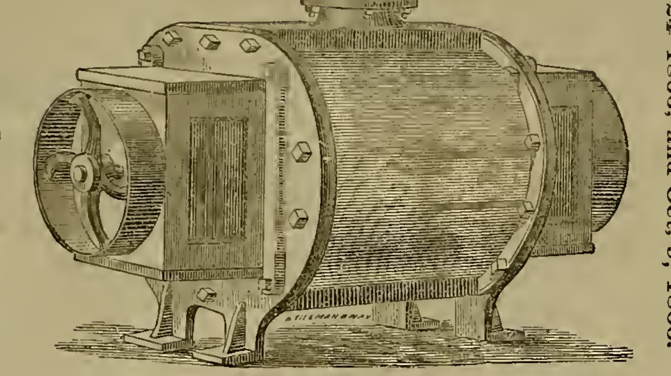
Is devoted to Odd Fellowship, the Arts and Sciences and General Literature; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Belivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

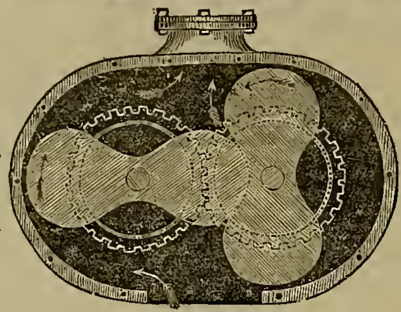
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24 1866; and Oct. 9, 1866.

ADAPTED FOR Smelting, Foundry, Mining and Steamships.



REQUIRES Fifty Per Cent. LESS POWER Than any Blower Now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

Caution.—Purchasers will find it to their advantage to apply direct to the Stockton Agency. as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
Globe Iron Works, Stockton, Cal.

4v16-3m

THE FIREMAN'S

FUND

INSURANCE COMPANY.

OFFICE.

S. W. Corner California and Sansome Streets

SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL	$500,000 00
SURPLUS	267,115 63
TOTAL ASSETS	$767,115 63

B. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BONB, Secretary.

13v20-3m

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2,500 secured for $6.

HOWARD & HOWE,

General Agents for the Pacific Coast.

No. 338 Montgomery street, corner California, Room 7.

Agents Wanted. 14v20-3m

Pacific Bank.

PETER H. BURNETT..........President.
FORD H. ROGERS..........Cashier.

REMOVED

To its new Banking House, northwest corner of Sansome and Pine streets.

O. P. SUTTON, Secretary.

San Francisco, March 30, 1870. 15v20-2m

THE CALIFORNIA

Silk Manufacturing Company.

Incorporated March 4, 1870.

OFFICERS:

JAMES T. DEAN..........President.
JAMES MILBURN..........Secretary.
ROBGERS, MEYER & CO..........Treasurers.

Company's office, 121 Post Street, San Francisco.
12v20-3m

WONDERFUL

Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

No Exaggeration, but a stern reality, verified by the undersigned:

Bear Doctor: I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, John Stapleton,
California street, San Francisco.

To W. J. Crowly, M. B., No. 20 Montgomery street, San Francisco. 19v20-2m

---

OCCIDENTAL

Insurance Company

OF SAN FRANCISCO.

Cash Capital, - - - - - - $300,000

GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. Rothschild, Secretary. 20v17

DR. F. SCHULTZ,

NO. 114 KEARNY STREET,

SAN FRANCISCO.

Office Hours—From 8 to 11 a. m. and from 2 to 6 p. m.

PARTICULAR ATTENTION GIVEN TO

SORE EYES, NEURALGIA,

RUNNING SORES and RHEUMATISM.

16v20-3m

LAND! LAND! LAND!

YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

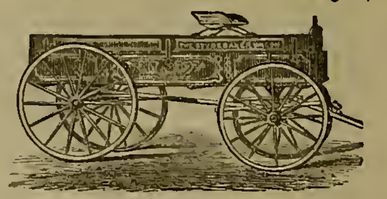
40,000 Acres in Fresno County;
7,000 Acres in Sonoma County;
3,680 Acres in Tulare County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above.

YOUNG & PAXSON,
424 Montgomery street.
16v20-3m

Scientific Press.—Bewey & Co. are the publishers of this sterling paper It is devoted to the dissemination of mining, farming and scientific knowledge, besides containing miscellany of interest.—*Monterey Republican*

The Celebrated Studebaker Wagon,



Manufactured by STUDEBAKER BROS MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

First.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover.

Second.—They are made by experienced mechanics.

Third.—The lightest running and most durable Wagon in the market.

Fourth.—Their Thimble Skeins never break, while all others do.

Fifth.—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not

Sixth.—The only Wagon in which the Slope Shoulder Spoke is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying.

Seventh.—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction.

Eighth.—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road.

Ninth.—Last, but not least, Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others. Sold by

COPELAND & DEFREES,
K street, bet. Seventh and Eighth,
SACRAMENTO, CAL.

Pioneer Agents for the Pacific Coast. 15v20-3m

AMES & WOOLVERTON,

General Agents for the Pacific Coast

FOR THE CELEBRATED

STUDEBAKER

Farm and Team Wagons,

Manufactured at South Bend, Indiana.

OFFICE and GENERAL BEPOT

—WITH—

THE KIMBALL MANUFACTURING CO.,

SAN FRANCISCO, CAL.

Orders and correspondence solicited. 15v20-3m

E. A. ARCHIBALD,

MANUFACTURER OF

Cast Iron Hubbed Wheels,

BY HIS PATENT PRESS PROCESS.

—ALSO—

Axles and Team Wagons of every Description.

METHUEN, MASS.

Particular attention given to Wheels for Portable and Fire Engines.

All my Wheels have my name cast on the hub, and are made by my Patent Press Process. By this new method the wheel is so compressed in every part that shrinkage or yielding of the part with all its attendant evils is wholly obviated, even in the driest climate. Any one understanding my process will be convinced of this. Send for illustrated circular.

20v20 E. A. ARCHIBALD.

BULL'S HEAD STOCK MARKET,

JUNCTION OF

Hayes, Ninth and Market Streets.

SAN FRANCISCO.

H. B. PURDY & CO.,

—DEALERS IN—

CATTLE AND HORSES.

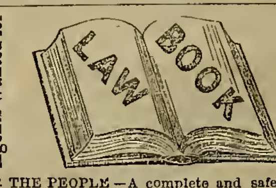
Work Oxen always on hand.

WAGONS AND HARNESS BOUGHT AND SOLD ON COMMISSION.

Good Barns, Sheds, Corrals, and all other necessary accommodations. 21v60-3m

---

Agents Wanted for



Chamberlin's New

FOR THE PEOPLE—A complete and safe guide for the correct transaction of every kind of business. *This is the only new work of the kind published for many years.* Cut out and return this advertisement to F. DEWING & CO., 542 California street, San Francisco. 12v20-13t

---

SAN FRANCISCO

STARCH WORKS.

LAVERY'S SNOW-FLAKE

YEAST POWDER.

Corner Eighth and Brannan Streets.

Office, 302 California street, up stairs.

22v20-3m W. J. LAVERY & CO.

New Incorporations.

The following have filed certificates of incorporation with the County Clerk, San Francisco:

California Immigrant Association.—May 26th. Object: To encourage immigration from Europe to California. It has no capital stock. Principal place of business, this city; duration, 50 years. Directors: A. Austin, W. E. Eichelroth, Adolph Muller, G. Holland, L. C. Gunn, W. H. Clary, Thomas Wallace, Geo. Claussenis, H. W. Fortune, Geo. Eidenmuller, E. V. Sutter, B. Sharboro, Geo. D. Roberts, Herman G. Muller and John B. Felton.

Pacific Wire and Wire-Rope Manufacturing Co.—May 27th. Object: To engage in and carry on the business of manufacturing metals, wires, wire-ropes, telegraph cables, and other products, and selling the same. Capital stock, $100,000, in 1,000 shares. Trustees: A. S. Hallidie, Jonathan Kittredge, Robert Watt, Joshua Gray, David Farquharson, Charles F. Marwedel and Edward Kruse.

Confidence Co.—May 31. Object: To mine for gold and silver on the Confidence ledge in Tuolumne county, State of California. Capital stock, $800,000; divided into 8,000 shares. Trustees: Ben. Holliday, Jesse Holliday and William Norris.

Zeile Mining Co.—June 3d. Capital stock, $100,000; divided into 1,000 shares. Trustees: Frederick Zeile, John Zeile and Solomon Heydenfeldt.

Jennie A. Consolidated M. Co.—June 4th. Capital stock, $2,200,000, divided into 44,000 shares. Trustees: T. W. Mulford, J. E. Purdy, E. M. Smith, T. R. Horton and T. L. Fitch.

The following have been recorded in the Secretary of State's office, Sacramento:

Sacramento City Railroad Co.—May 26th. Directors: N. D. Thayer, George W. Chesley, P. H. Russell, H. F. Hastings, J. C. Garland, Robert Hamilton and E. G. Robinson.

Noyo River and Round Valley R. R. Co. May 26th: The proposed road is to run from the mouth of the Noyo River, in Mendocino county, to Round Valley, in the same county, a distance of forty-five miles. Capital, $150,000; divided into 1,5000 shares. Directors: S. W. Gloserer, E. Janisen, C. C. Gurnee, Thos. W. Moore and R. Stretch.

San Diego Banking Co.—June 3d. Capital stock, $100,000. Trustees: A. E. Horton, Bryant Howard, Mathew Sherman, Joseph Nash, E. M. Morse, A. H. Hathaway, W. H. Cleveland, Columbus Dunham and James M. Pearce.

National Tin M. Co.—June 3rd. Capital stock, $10,000,000. Trustees: Chalmers Scott, R. C. Brown, Ward Bradford, J. P. Abbott and A. H. Gilbert. Principal place of business, San Diego.

Meetings, Elections, Etc.

Steam Navigation Co.—May 23d. Trustees: B. M. Hartshorne, W. H. Taylor, A. Redington, A. Hayward, Lloyd Tevis, S. F. Butterworth, W. C. Ralston, John Bensley and William Alvord.

Humboldt Savings and Loan Society. May 26th. Directors: Adolph C. Weber (President), E. D. Keyes (Vice President), John Wieland, Joseph Frank and David Porter; Treasurer, A. Gansl; Secretary, A. Hartman; Attorney, Julius George.

Ascendant M. Co.—June 6th: Trustees: L. L. Alexander (President), Albert Shephard (Vice President), R. A. Robinson, L. B. Drew, and D. McLaren (Secretary).

Silver Wave M. Co.—June 6th. Trustees: D. W. Folger, E. W. Woolsey, J. E. Perkins, W. P. Pritchard and E. F. Hall, Jr.

Mammoth S. M. Co.—June 6th. Trustees: John Sime, Nathaniel Page, S. Linkton, George Congdon, Alfred Wheeler, Otis V. Sawyer and J. W. Winter. At a meeting of the Board, the following officers were chosen: President, S. Linkton; Vice President, George Congdon; Treasurer, B. F. Hastings; and Secretary, Joseph L. King.

Bromide Tunnel Co.—June 6th. Trustees: J. E. de la Montagnie (President), O. Dickinson, Jr., C. W. Kellogg (Vice President), N. C. Efford, F. S. Weeks and Charles Lambert. Henry Boyle was reappointed Secretary.

Paul Tract Homestead Association. June 6th. Trustees: Louis Gerstle, H. A. Crane, M. L. Citron, C. D. Wheat, F. B. Wilde, A. B. Stout and James E. Damon. Following are the officers chosen: President, H. F. Williams; Vice President, S. Arnheim; Treasurer, W. C. Ralston; Secretary, F. B. Wilde.

Crown Point M. Co.—June 6th. Trustees: J. D. Fry (President), A. Hayward, Robert Sherwood, A. K. P. Harmon and H. C. Kibbe. C. E. Elliott was elected Secretary, and J. Jones, Superintendent.

California Silk Manufacturing Co. June 7th. Trustees: James T. Dean (President), R. O. Page, T. H. Purvis, J. D. Johnston and James Milburn (Secretary).

New Mexico Mining Items.

The New Mines—A correspondent of the Boise City *Statesman* writes April 29th from Ralston, Grant county: I will venture the assertion that the half has not been told, both as to cubic yards and pounds troy. No mine that has ever been discovered within this country or South America bears any resemblance. Imagine a ledge of fine milling rock standing perpendicularly above the surface for thousands of feet in length without a break—ten to two hundred feet wide, and above the surface sixty feet in height—and you have some idea of these mines."

Somebody at Fort Bayard writes April 25th to his dear uncle in San Francisco: "I have struck it at last. These mines are near Apache pass, six miles from Barney Station, on the direct route from Tucson to Santa Fé. I easily get by smelting 32 cents per pound—$640 per ton—from my rock. I am on the main lead, and on a half a dozen more. Two hundred feet I have for *you*. White Pine is poor in comparison. If one half of what California sharps say is true, $500,000 wouldn't buy me out."

◆

Intelligence of Fishes.—A writer in a recent English work, "The Angler and Naturalist," says: That fish are not so stupid as many people suppose, is proved by a little incident which was observed at the Zoological Gardens. In some plate-glass tanks were a pike and several perches. These fishes took no notice of our entrance, and continued perfectly supine, though the keeper walked several times past their tanks, as if about to feed them; but when he walked away from them toward the cupboard where the net, with which the baits were caught, was kept, the stolid demeanor of the fish, both pike and perch, gave way to the most intense excitement. They rushed to and fro across their enclosures, straining their noses against the glass, erecting their fins, and exhibiting every token of agitation; and when the keeper, having taken the net, proceeded with it toward the bait tank, the whole shoal fastened their eyes upon him, following every movement, and constantly veering round, as if under magnetic attraction, toward whichever part of the room he turned. It was evident that these fish knew where the net was kept, that the keeper was going to fetch it, and that his doing so was a preliminary to their being fed.

To Print on Fruits.—When a handsome fruit is intended to be shown at a fair or sent to a friend, it will add something in the way of novelty to have its name or that of some person printed indelibly upon its surface. This may be done in several ways, but the most common methods are as follows: Just before the fruit has attained its maturity, cut from tough, thin paper the name proposed and paste this upon the side of the specimen most fully exposed to the sun. That portion of the fruit covered by the paper will assume a different color from the other, and when ripe the paper is removed, leaving the name distinctly visible. Upon squashes and melons, names and figures may be indelibly impressed by slightly scratching the surface while they are growing.

The Gypsies in the Hop-Garden, in Pesth, have a curious way of looking after the honesty of their money collector. The person entrusted with the mission of taking the hat round among the crowd has a living fly put in his left hand, while he holds the hat with his right. When he returns with the funds he must bring the fly back alive, as a sign that he has not taken any money from the common property; but if the fly be wanting, or even dead, he does not get his share of the money.

Remedy for Ear-ache.—M. Duval says he has found relief in severe ear-ache, other means failing, from a mixture of equal parts of chloroform and laudanum, a little being introduced on a piece of cotton. The first effect is a sensation of cold, then numbness, followed by a scarcely perceptible pain and refreshing sleep.

Heavy shipments of wool and furs, from Utah and other Western Territories, are being made to the East. A number of cars so loaded passed through Omaha last week.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Traveling Agents.

Wm. H. Murray, California and Navada.
S. H. Herring—California.
Thomas Poyzer—California.
F. B. Alderson—Nevada.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfraw.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orabood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hudson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

☞ Maravilla Cocoa.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

To Miners, Millmen and Metallurgists. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

It is a great thing for elderly persons to have their fading eyesight restored to its youthful perfection. This can be done by Muller, who is recognized as the optician of the Pacific coast. His Brazilian spectacles, properly fitted and adjusted, are superseding all others in use. *

Attention to Mining Companies of Copper and Galena Ores.—A mining engineer and assayer thoroughly acquainted with practical smelting of lead and copper ores, and competent to put up all kinds of furnaces, wishes employment. References given Please address C. T. MOHRIG, care of Schultz, Fischer & Mohrig, No. 10 Stevenson street, near First, San Francisco. 23v20-1m

We call attention to the new portable gas burner—the only one that can be regulated to any size, flame, and burn without smoke or smell. Equal to any gas at one-fourth the cost. P. J. Philipa & Co., 550 Market street, have county rights for sale for this valuable invention; also lamps for sale. No one should be without them who wants a good, cheap and safe light. 21v20-4w

Inquire Within.—The mouth is like a house to let. However pretty it may be externally, it is impossible to judge of its merits until you have seen the inside. If behind the ruby doors there are plenty of pearl-white fixtures, you will exclaim at once, "How beautiful!" To impart the utmost possible brilliancy, there is nothing like fragrant Sozodont. *

"Spalding's Glue" mends everything. *

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

Brooklyn, Cal., May 31st, 1870.
Messrs. Dewey & Co.—Dear Sirs—Accept my thanks and congratulations for your prompt and efficient measures in securing the approval of my claims. Yours, very truly, A. H. Banole.

To Farmers.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no recounting. 20v20-3m

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 5m B. F. Howland.

Mason's Bread of Life, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis and Sore Throat. Price, 25 cents per box. These lozenges are free from all dangerous properties. Compounded and put up by Dr. J. H. Mason, 750 Howard st. 16v20-3m

Thomas O'Neil Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Microscopes for Scientific Investigation and Educational Purposes. Price list sent free. T. H. McAllister, Optician, 49 Nassau street, New York. 15v20-3m

Drs. Martinache & Smith, Oculists and Aurists, 313 Bush street, between Montgomery and Kearny. Hours for consultation, 12 to 3. 15v20-3m

F. Gruber, Naturalist, No. 525 California street, between Kearny and Dupont, San Francisco. Birds and animals stuffed to order. 13v20-3m

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

New Mining Notices.

Cordillera Gold and Silver Mining Company, Chihuahua, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of June, 1870, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 321 Washington street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the ninth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the first day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.
Office, 321 Washington street, San Francisco. jul1

Latawana Mining Company—Near Hamilton City, White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of June, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the fourteenth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the sixth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.
Office, 514 Merchant street, Room 25, San Francisco, California. jul1

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the third day of May, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
H C Kibbe.	unissued	2000	$60 00
R P Johnson	unissued	2000	50 00

And in accordance with law, and an order of the Board of Trustees, made on the third day of May, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, room 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the twenty-eighth day of June, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. jul1

Silver Vault Tunnel and Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the third day of May, A. D. 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bartlett, Pliny	11	100	$5 00
Benedict, Newton,	47	5	25
Bivins, B F	247	6	25
Bivins, B F	249	5	25
Bivina, B F	250	5	25
Bivins, B F	251	5	25
Cherry, J W	306	100	5 00
Dore, Benjamin	85	5	25
Dore, Benjamin	86	5	25
Dore, Benjamin	87	5	25
Dore, Benjamin	88	5	25
Dore, Benjamin	91	5	25
Dore, Benjamin	95	10	50
Dore, Benjamin	96	10	50
Dore, Benjamin	97	10	50
Dore, Benjamin	98	10	50
Dore, Benjamin	103	10	50
Dore, Benjamin	104	10	50
Dore, Benjamin	171	50	2 50
Doro, Benjamin	172	50	2 50
Dore, Benjamin	173	50	2 50
Dore, Benjamin	211	100	5 00
Dore, Benjamin	213	100	5 00
Dore, Benjamin	259	100	5 00
Dore, Benjamin	292	80	4 00
Dore, Benjamin	315	500	25 00
Dore, Benjamin	317	1000	50 00
Dore, Benjamin	325	1000	50 00
Dore, Benjamin	327	500	25 00
Dore, Benjamin	328	100	5 00
Dore, Benjamin	330	200	10 00
Dore, Benjamin	331	320	16 0
Davis, H J	150	50	2 50
Davis, H J	151	50	2 50
Davis, H J	152	50	2 50
Davis, H J	153	50	2 50
Ecker, George	206	1000	50 00
Fox, H	201	10	50
Haskell, J M	185	20	1 00
Baskell, J M	190	50	2 50
Herrin, E W	221	50	2 50
Herrin, E W	222	50	2 50
Herrln, E W	301	100	5 00
Hunter, James	123	200	10 00
Hunter, James	124	200	10 00
Hunter, James	125	200	10 00
Hyde, George	154	50	2 50
Hyde, George	155	50	2 5
Hyde, George	155	50	2 5
Hyde, George	157	50	2 5
Haskell, J M, Trustee	340	400	20 00
Jordan, George	121	50	2 50
Jordan, George	122	50	2 50
Kimball, G H	243	5	2
Leavitt, C	147	50	2 50
Leavitt, C	148	50	2 50
L dd, C J	204	100	5 00
Mesick, Mrs M A	81	100	5 00
Mesick, Mrs M A	82	100	5 00
Mesick, Mrs M A	83	100	5 00
Mesick, Mrs M A	84	100	5 00
Pesinger, John H	200	100	5 00
Root, N T	318	25	1 25
Root, N T	319	25	1 25
Shaeffer, J W	332	900	45 00
Turner, F D	338	100	5 00
Taylor, J F	320	1000	50 00

And in accordance with law and an order of the Board of Trustees, made on the third day of May, A. D. 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the Company, room No. 23, Hayward's Building, No. 419 California street, San Francisco, California, on Wednesday, the twenty-ninth (29th) day of June, A. D. 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOSEPH L. KING, Secretary.
Office, Room No. 23, Hayward's Building, No. 419 California street, San Francisco, California. jul1

Mountain City Mining Company.—Location of Mine: Cope District, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the eighth day of April, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Brown, Geo W	unissued	250	$125 00
Enright, John T	unissued	650	325 00
Greek, H J	unissued	500	250 06
Meder, Moses A	unissued	5410	2705 00
Rogers, F A	11	500	250 00
Rogers, F A	12	200	100 00
Rogers, F A	13	100	50 00
Rogers, F A	14	100	50 00
Rogers, F A	15	50	25 00
Rogers, F A	16	50	25 00
Rogers, F A	17	50	25 00
Rogers, F A	18	10	5 00
Rogers, F A	19	10	5 00
Rogers, F A	20	10	5 00
Sweaney, A P	unissued	250	125 00
Tregaskie, Mrs E J	unissued	50	25 00

And in accordance with law and an order of the Board of Trustees, made on the eighth day of April, 1870, so many shares of each parcel of said stock as may be necessary will be sold as public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Monday, the eleventh day of July, 1870, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office, 408 California street, San Francisco. jul1-2w

Mining Notices--Continued.

Cayuga Chief Mining Company.—Location of Works: White Pine County, Nevada.

Notice.—There are delinquent on the following described stock, on account of assessment levied on the twenty-ninth day of April, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A Bolton	56, 57 59—ea 100	300	$15 00
A Bolton	58	100	bal 5 00
A Bolton	60	50	7 50
A Bolton, Trustee	147, 175—ea 50	100	15 00
A Bolton, Trustee	159, 204—ea 100	200	30 00
A Bolton, Trustee	173	30	4 50
A Bolton, Trustee	191	40	6 00
A Bolton, Trustee	187, 188 189, 190—ea 50	200	bal 10 00
G W Beaver	157, 158—ea 250	500	bal 25 00
R G Brown	73	100	bal 5 00
J H Coleman	54	50	bal 2 50
W K Deltrich	40	500	bal 25 00
H I Davis	102, 103—ea 100	200	bal 10 00
T Deussing	128	25	bal 1 25
J A Eaton, Trustee	52	100	bal 5 00
J A Eaton, Trustee	115, 127—ea 50	100	bal 10 00
J A Eaton, Trustee	150	10	bal 50
Bernhard Franz	208	20	bal 1 00
Bernhard Franz	209	5	bal 25
James R Garnise	176	100	bal 5 00
James R Garnise	177	50	bal 2 50
James R Garnise	178, 179—ea 25	50	bal 2 50
James R Garniss	180, 181 182—ea 10	30	bal 1 50
James R Garniss	183, 184 185, 186—ea 5	20	bal 1 00
E. Heathfield	113	250	bal 12 50
A. E. Hill, Trustee	119, 122 123—ea 50	150	bal 7 50
F. A. Jennings	114	25	3 75
E. D. Jackson	174	20	3 00
Chas. Kaeding	18	500	bal 25 00
Chas. Kaeding	131	25	bal 1 25
W. D. Litchfield	37	250	bal 12 50
Albert E. Lockhart	52	20	3 00
Geo. A. Lockhart	63	20	3 00
John Landers	170	90	13 50
H. K. Moore	64	33	bal 1 65
W. W. Merrehew	110, 111—ea 50	100	bal 5 00
A. Nordman	31	250	bal 12 50
S. K. Nichols	81, 82, 83, 84—ea 100	400	50 00
Geo. H. Powers	55	17	bal 85
W P Raymond	171	400	60 00
Mrs. W. P. Raymond	172	50	bal 7 50
E. L. Smith, Trustee	205 206—ea 100	200	bal 10 00
John Stark	53	50	bal 2 50
R R Swain	116	75	bal 3 75
H S Salinger	130	25	bal 1 25
W J Taylor	46, 47, 48, 49—ea 25	100	15 00
J H Wallace	107	50	bal 2 50

And in accordance with law and an order of the Board of Trustees, made on the twenty-ninth day of April, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the company, room No. 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the twenty-first day of June, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.

Office, Room 5, 302 Montgomery street, S. F. jc 4

Evening Star No. 1 Silver Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the first day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the second day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-fifth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. ju4

Marcelina Mining Company.—Location of Works: Eureka Mining District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of May, 1870, an assessment of forty (40) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at 325 Sansome street, San Francisco.

Any stock upon which said assessment shall remain unpaid on Thursday, the twenty-third day of June, 1870, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on Tuesday, the nineteenth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. O. PALMER, Secretary.

Office, 325 Sansome street, San Francisco. m28

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

Land Purchasers' Association—Office, No. 304 Montgomery street, San Francisco.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the third day of May, 1870, for the monthly installment due May first, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Thomas R Hayes	1, 2, 3, 4, 5	5	$150 00
J. E. Boyce	9	1	10 00
John Bays	28	1	30 00
T. H. Day	32, 33	2	20 00
L. C. King	37	1	40 00
J. F. Larribee	38, 51, 52	3	60 00
Gustave Scott	44	1	10 00
W. Turkington	46	1	10 00
A. J. Merriam	55, 56	2	40 00
Dr. G. W. Rogers	80	1	10 00
Philo Doud	87	1	20 00
H. H. Mayhew	91	1	20 00
M. L. Haas	97, 98	2	60 00
E. Ehrenforte	99	1	20 00
F. Backe	105	1	20 00
Mrs. Nellie McCarty	113	1	30 00
S. S. Sprague	114, 119	2	40 00
H. Keller	127, 128, 129, 130 131, 132, 133, 134 135, 136	10	200 00
S. W. Hoyt	138	1	10 00
H. O. Robinson	150	1	10 00
Dr. D. Cohn	157	1	10 00
Otis Jackson	173, 174	2	40 00

And in accordance with law and an order of the Board of Trustees, made on the third day of May, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of the Secretary, No. 304 Montgomery street, San Francisco, on Tuesday, the twenty-eighth day of June, 1870, at 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.

Office, 304 Montgomery street, San Francisco. jc 4

Pinto Mining Company.—Location of Works: "Silverado," Pinto Mining District, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of May, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A. H. Ward	111	805	$80 50
Elliott J Moore	178	1610	161 00
Robert C Johnson	175	500	50 00
Robert C Johnson	176	500	50 00
Robert C Johnson	183	5315⅔	531 67
J. Naphtaly	unissued	803⅓	80 33
P C Whiting	184	35	3 50
P C Whiting	185	25	2 50
P C Whiting	186	25	2 50
P C Whiting	187	25	2 50
P C Whiting	188	25	2 50
P C Whiting	189	25	2 50
P C Whiting	190	25	2 50
P C Whiting	191	25	2 50
P C Whiting	192	25	2 50
P C Whiting	193	25	2 50
P C Whiting	194	50	5 00
P C Whiting	195	50	5 00
P C Whiting	196	50	5 00
P C Whiting	197	50	5 00
P C Whiting	198	50	5 00
P C Whiting	199	100	10 00
John A. McQuaid	200	610	61 00

And in accordance with law and an order of the Board of Trustees, made on the second day of May, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on the twentieth day of June, 1870, at the hour of twelve o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary.

Office, No. 426 Montgomery street, San Francisco. je4

Office of Silver Sprout Mining Company, 408 California street, San Francisco, June 2d, 1870.

Notice.—The annual meeting of the stockholders of the Silver Sprout Mining Company, will be held at the office of the company, No. 408 California street, San Francisco, on Tuesday, the twenty-eighth day of June, 1870, at 12 o'clock M., for the election of Trustees to serve for the ensuing year, and for the transaction of such other business as may properly come before the meeting. [ju4-1m] T. B. WINGARD, Secretary.

SELL YOUR PATENTS

For the Pacific Coast through WIESTER & CO., Patent Brokers, 314 Bush street, San Francisco. 24v20-1w

PIERRE A. FORTIER,

Practical Optician

105½ Montgomery Street, up stairs.

The only manufacturer in the United States who can make Glasses adapted to any imperfection of sight. Prices very moderate. 24v20-3m

Quartz Mill for Sale,

Within four miles of a station on the Central Pacific Railroad. A QUARTZ MILL, nearly new, consisting of

A superior 40-horse power Engine (Adams' make), with Boiler,
Heavy 5-stamp Battery,
Chili Mill,
Two 5-feet Wheeler & Randall Pans,
Two Settlers,
And one Hendy Concentrator,

Together with a large amount of Shafting, Pulleys, Pumps, etc., will be sold at HALF THE ACTUAL VALUE, if applied for soon. Inquire at this office. 24v20-1m

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

— AND —

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

— ALSO —

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v14-3m9p

New Advertisements.

Thursday Evening.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

R. A. SWAIN & CO.,

IMPORTERS AND DEALERS IN

Earthenware, French Porcelain,

GLASSWARE,

Lamps, Lanterns,

CUTLERY,

— AND —

FANCY GOODS,

N. E. Corner Sansome and Pine Streets.

24v20-3m

REDUCTION IN FARE

FROM

San Francisco to New York

— AND —

BOSTON,

— VIA —

THE CHICAGO, BURLINGTON AND MISSOURI RIVER RAILROAD.

NEW YORK	$138 00
BOSTON	139 25

Ticket Office, No. 208 Montgomery Street.

24v20 SAM. A. LEWIS, Agent.

MERCANTILE LIBRARY

GIFT CONCERT.

$500,000 GIFTS.

Attention of mechanics is called to the

$500 PREMIUM OFFERED

— FOR THE —

BEST MODEL OF TWO WHEELS

— OF —

GLASS AND IRON,

Two motions, if possible, to carry NINE HUNDRED POUNDS WEIGHT, and to be as transparent as possible. 24v20-3w

MEDICAL DEPARTMENT

— OF THE —

University of the Pacific.

The EIGHTH COURSE OF LECTURES will commence on TUESDAY, JULY 5th, and continue five months, with an intermediate vacation of two weeks.

Medical Faculty.

A. J. Bowie, M. D., Emeritus Professor of Surgery, and President of the Faculty.
J. F. Morse, M. D., Emeritus Professor of the Principles and Practice of Medicine.
J. P. Whitney, M. D., Emeritus Professor of Physiology.
Henry Gibbons, M. D., Professor of the Principles and Practice of Medicine and Clinical Medicine.
L. C. Lane, M. D., Professor of Surgery and Surgical Anatomy and Clinical Surgery.
Edward Bentley, M. D., Professor of Descriptive and Microscopic Anatomy and Pathology.
R. Beverly Cole, M. D., Professor of Obstetrics and Diseases of Women and Children.
Isaac Rowell, M. D., Professor of Diseases of the Genito Urinary Organs and Orthopedic Surgery.
Wm. F. McNutt, M. D., Professor of Physiology.
Wm. F. Smith, M. D., Professor of Ophthalmology and Otology.
Thomas Price, M. D., Professor of Chemistry and Toxicology.
Henry Gibbons, Jr., M. D., Professor of Materia Medica and Therapeutics.

Fees for the Full Course	$130 00
Matriculation Fee (paid but once)	5 00
Graduation Fee	40 00
Demonstrator's Ticket	10 00

The Lectures will be given in the Chapel of the City College, Stockton street, south of Geary.

HENRY GIBBONS, Jr., M. D.,
Dean of the Faculty.

24v20-1m

The large majority of United States and Foreign Patents granted to inventors on the Pacific coast during the past few years, have been obtained through the agency of Dewey & Co., publishers of the Scientific Press. Established in the year 1860, we have an extensive patent library, with full record of cases on this coast, and can give the best and most reliable advice as to the patentability of new inventions.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.

August 2, 1869. 6v19-1m

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in different specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—Chemistry and Mineralogy. 2—Civil Engineering. 3—Mechanical Engineering. 4—Mining Engineering and Metallurgy. 5—Agriculture. 6—Natural History and Geology, and 7—Select Course.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School." New Haven, Conn. v18-1y15p

MAGAZINES.	P.An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number.

TARRANT'S SELTZER APERIENT.

A Blessing Infinitely Multiplied.—The discovery of the Seltzer Spring has been a blessing to thousands; but the extension of its medicinal benefits to the whole civilized world through the medium of Tarrant's Effervescent Seltzer Aperient is a boon which no form of words can adequately describe. It is as if millions upon millions of Seltzer Springs—branches of the parent fountain, and in all respects the same—had sprung up spontaneously everywhere, annihilating dyspepsia, strengthening the debilitated, curing biliousness, abating fever, purifying the blood, cheering despondency, and diffusing health and hope far and wide. Such are its happy effects.

SOLD BY ALL DRUGGISTS.

CHOICE POULTRY.

Light Brahma and White Leghorns.

We are now booking orders for a few trios of the above named fowls, bred from choice imported stock. Will commence delivering in July. All orders filled in rotation, as received.

☞ A few clutches of eggs for setting from the above named breeds.

NICHOLS & WILLARD,
Importers and Breeders of Choice Poultry, Fruit Vale Avenue, Brooklyn, Alameda county, California.
20v20-3m

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, &c., etc. Prompt execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, June 9, 1870.

Iron.—Duty: Pig $9 per ton; Railroad, 60c ℔ 100 lbs.; Bar, 1@1½c ℔ lb; Sheet, polished, 3c ℔ lb; common, 1½@1¾c ℔ lb; Plate, 1½c ℔ lb; Pipe, 1½c ℔ lb; Galvanized, 2½c ℔ lb.

Scotch and Eng. Pig Iron, ℔ ton...	$30 00	@$32 00
White Pig, ℔ ton	28 00	@ — —
Refined Bar, bad assortment, ℔ lb..	— 03	@ — —
Refined Bar, good assortment, ℔ lb.	— 04	@ — —
Boiler, No. 1 to 4	— 04¾@	— —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½@	— 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½

Copper.—Duty: Sheathing, 3½c ℔ lb; Pig and Bar, 2½c ℔ lb.

Sheathing, ℔ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22

Tin Plates.—Duty: 25 ℔ cent. ad valorem.

Plates, Charcoal, IX, ℔ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℔ lb	— —	@ — 42
Steel.—English Cast Steel, ℔ lb	— —	@ — 15
Quicksilver.—℔ lb	— —	@ — 65
Lead.—Pig, ℔ lb	— 7½@	— 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℔ lb	— 10½@	— 11
Borax	— 35	@ — 38

Machinists and Foundries.

FULTON
Foundry and Iron Works.
HINCKLEY & CO.,
MANUFACTURERS OF
STEAM ENGINES,
Quartz, Flour and Saw Mills,
Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.
N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON
Iron and Locomotive Works.
INCORPORATED..........APRIL 30, 1868.
CAPITAL..........$1,000,000.
Corner of Beale and Howard Streets,
SAN FRANCISCO.
Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.
Directors:
S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.
JOHN N. RISDON..........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..........Secretary.
24v17-qy

UNION IRON WORKS,
Sacramento.
WILLIAMS, ROOT & NEILSON,
MANUFACTURERS OF
STEAM ENGINES, BOILERS,
CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,
WILCOX'S PATENT WATER LIFTERS,
Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
Front Street, between N and O streets,
14vl SACRAMENTO CITY

San Francisco Wire Works,
No. 665 Mission Street, near Third,
SAN FRANCISCO.
C. H. GRUENHAGEN & CO.,
Wire Workers and Wire Weavers.
Sieves, Riddles, Screens for Quartz, Cement, Flour and Rice Mills, Flower Stands, Hanging Baskets, Tree Guards, Fenders, Spark Guards, on hand and made to order. 13v20-3m

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. CONNER.
MINERS' CO-OPERATIVE BOILER SHOP.
228 FREMONT STREET,
Between Howard and Folsom, San Francisco.
— ALL KINDS OF —
High and Low Pressure Boilers Built.
Sheet Iron Work, Etc., Etc.
☞ Repairing promptly attended to.
17v20-6m WM. W. CANTY, Manager.

THOMPSON BROTHERS,
EUREKA FOUNDRY,
129 and 131 Beale street, between Mission and Howard San Francisco.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

ESTABLISHED 1851.
PACIFIC IRON WORKS,
First and Fremont streets,
SAN FRANCISCO.
IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.
Steam Engines and Boilers,
MARINE AND STATIONARY,
IRON AND BRASS CASTINGS,
Mining Machinery of Every Description,
And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.
☞ Particular attention paid to Jobbing Work and Repairs.
N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,
Howard st, between Fremont and Beale, San Francisco.
Flue or Tubular Boilers, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.
Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.
Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.
To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.
Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.
To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

MACHINERY
— AT —
GREATLY REDUCED RATES.
Miners' Foundry & Machine Works,
235 TO 245 FIRST STREET,
SAN FRANCISCO.
This Establishment is now working upon the
CO-OPERATIVE PLAN,
And are thereby enabled to manufacture
MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES,
And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
13 and 15 Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA BRASS FOUNDRY,
No. 125 First street, opposite Minna,
SAN FRANCISCO.
All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.
☞ PRICES MODERATE. ☜
P. GALLAGHER. J. H. WEED V. KINGWELL

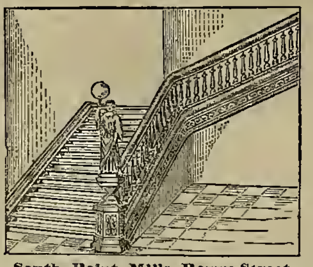
CITY IRON WORKS COMPANY,
CLERC & CO.,
IRON FOUNDERS,
Steam Engine Builders and Makers of all kinds of Machinery.
16v16q No. 28 Fremont street, San Francisco.

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,
SAN FRANCISCO.
J. C. THWING & CO.,
Successors to T. G. Durning & Co.
Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867. 2v17

ICE. ICE.
On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.
AMERICAN RUSSIAN COMMERCIAL CO.
D. E. Martin, Superintendent,
16v20-qy 714 and 716 Battery street.

HIBBERD, SANBORN & CO.,



STAIR BUILDERS.
South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Greatest Discovery Ever Made.
MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has been the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would be to those afflicted with this painful disease, he with great difficulty and expense obtained the secret of preparing the Plaster; and during the many years MR. MAC has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will be convinced by referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street; Michael Gorman, No. 6 Front street; Mrs. W. S Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository merican Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 A. M., 2 to 4 P. M. and 7 to 9 P. M.
18v20-3m

The Latest, Cheapest, and Most Durable.
CRANDALL'S
PATENT SPRING BED.
This invaluable Spiral Spring Bed combines all the good without any of the bad features of the common spring mattrass. It consists of a framework of springs resting on a bed of stronger springs, thus giving it nearly double the elasticity of any other bed. The springs are self-supporting, each pair being independent of the others, and consequently the tendency to sag or incline toward the middle is avoided. Unlike other spring beds, they require no upholstering, and, of course, afford no harbor for fleas or dust. The medical faculty have pronounced it the best Bed in use. It commends itself to those who have examined and used it. They invariably pronounce Crandall's Patent the best Spring Bed ever offered to the public.
These Beds are on exhibition and for sale at the Cabinet Warerooms of
JOHNSON & BEST,
No. 413 PINE STREET, RUSS BLOCK,
Between Montgomery and Kearny. Also at
630 Market Street, near New Montgomery.
Beds guaranteed to give satisfaction
Or the money will be refunded.
Refer, by permission, to the following, among the many using our Beds, who are willing to testify to their superiority:
San Francisco and Vicinity—J. B. Pierce, Esq., residence Sixteenth and Capp streets, office 315 California street; J. H. Rogers, Esq., residence Oakland Point, office 16, 17 and 18 California Market; W. Zelheer, Esq., residence 613 Geary street; James Dexter, Esq., office 430 Sansome street; John A. Roth, Esq., residence 105 Silver street. James Connor, Esq., Alameda.
N. B.—Responsible persons can have one on trial.
S. B. SNEDAKER & CO.,
21v20-6w Agents for San Francisco.

DR. D. E. DUDLEY, OCULIST.

Dr. Dudley, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: No. 12 Montgomery street. opp Lick House. Hours from 10 to 3. ☞ Se habla Español. On parle Français.

H. S. CROCKER & CO.,
Importing Stationers,
DEALERS IN
BLANK BOOKS,
Envelopes, Writing Paper,
NEWS, BOOK, AND FLAT PAPERS.
CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.
STEAM
PRINTING ESTABLISHMENT.
Everything in the Printing line at
SHORT NOTICE AND LOW RATES.
Nos. 42 and 44 J Street,
SACRAMENTO.
☞ ORDERS PROMPTLY FILLED. 24v19xtf

Ayer's
Hair Vigor,
For restoring Gray Hair to its natural Vitality and Color.

A dressing which is at once agreeable, healthy, and effectual for preserving the hair. *Faded or gray hair is soon restored to its original color with the gloss and freshness of youth.* Thin hair is thickened, falling hair checked, and baldness often, though not always, cured by its use. Nothing can restore the hair where the follicles are destroyed, or the glands atrophied and decayed. But such as remain can be saved for usefulness by this application. Instead of fouling the hair with a pasty sediment, it will keep it clean and vigorous. Its occasional use will prevent the hair from turning gray or falling off, and consequently prevent baldness. Free from those deleterious substances which make some preparations dangerous and injurious to the hair, the Vigor can only benefit but not harm it. If wanted merely for a
HAIR DRESSING,
nothing else can be found so desirable. Containing neither oil nor dye, it does not soil white cambric, and yet lasts long on the hair, giving it a rich glossy lustre and a grateful perfume.
Prepared by Dr. J. C. Ayer & Co.,
Practical and Analytical Chemists,
LOWELL, MASS.
PRICE $1.00.
Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento. Wholesale Agents. 26v18-1y

Agents! Read This!
We will pay Agents a salary of $30 per week and expenses, or allow a commission, to sell our new and wonderful inventions. Address M. WAGNER & CO., Marshall, Mich. 21v20-2m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

New York City, Saturday, May 28, 1870.

IRON.

Pig, Scotch, No 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No 2...............	38 00	@	39 00
Swedish, ordinary sizes...........	140 00	@	155 00
Common............................	87 50	@	92 50
Refined...........................	95 00	@	— —
Rods..............................	100 00	@	155 00
Horse-shoe........................	115 00	@	— —
Hoop..............................	125 00	@	180 00
Scroll............................	110 00	@	145 00
Nail-rods, per lb.................	— 8¼	@	— 9¼
Spring............................	— 9¼	@	— —
Tire..............................	— 9¾	@	— —

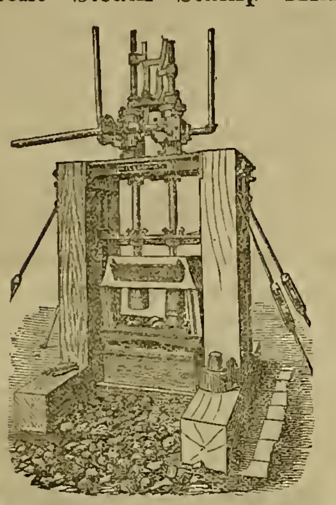
STEEL.

Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast..................	— 23	@	— —
Sheet, second quality.............	— 20	@	— —
Sheet, third quality..............	— 18	@	— —
Saw-plates, circular..............	— 27	@	— —
Double-shear, warranted...........	— 23	@	— —
Single-shear......................	— 19	@	— —
Montague & Co. (cast bars)........	— 18	@	— —
Machinery, round..................	— 16	@	— —
German, best......................	— 16	@	— —
German, goat......................	— 13½	@	— —
German, eagle.....................	— 12	@	— —
Blister, warranted................	— 16	@	— —
Blister, common...................	— 15	@	— —
Jessop & Sons', common............	— 17	@	— —
Double-refined....................	— 26½	@	— —
Stone-ax shapes...................	— 26½	@	— —

Machinery.

THE WILSON

Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

Notice.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,
1v1 San Francisco.

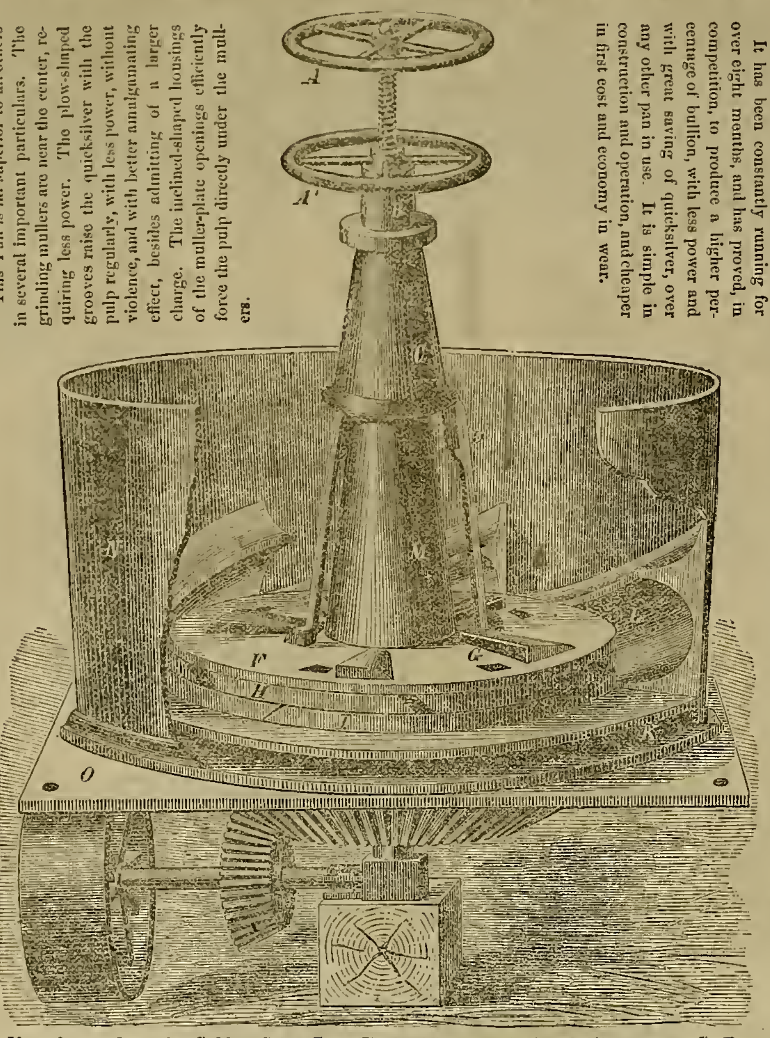
TO MILLMEN.

FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30 inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad, at Auburn if required. For particulars apply to W NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

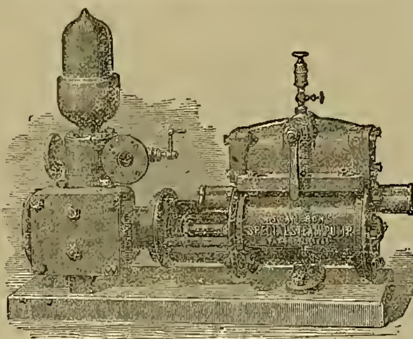
This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.

It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.



Manufactured at the Golden State Iron Works (Co-operative). 19 First street, S. F.,

Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, Gold Hill, State of Nevada, where the Pans have long been in constant operation. 15v20-1mr,1amtf



CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

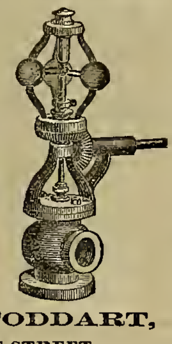
INJECTORS.

MARINE

ENGINES.

SURFACE

CONDENSERS.



DAVID STODDART,

BEALE STREET.

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

Machinery for Sale.

One (1) small Engine, eight (8) inch bore sixteen (16) inch stroke, with tubular boiler twelve (12) feet long and thirty-two (32) inches in diameter, with thirty (30) two and one-half (2½) inch tubes, all complete and in running order.

One (1) engine, ten (10) inch bore, twenty (20) inch stroke, with tubular boiler, eleven (11) feet long and forty (40) inches in diameter, with thirty-eight (38) two and one-half (2½) inch tubes, all complete and in running order, with reverse motion alternative, at option of buyer, with complete hoisting and pumping machinery.

One (1) large engine, twelve and one-half (12½) inch bore, thirty-two (32) inch stroke, with tubular boiler fourteen (14) feet long and four (4) feet in diameter, (with fire box) and forty-eight (48) two and one-half (2½) inch tubes, all complete and in running order, with governor and reverse, and alternative, at the option of buyers, with hoisting machinery.

For further particulars apply to F. W. ROBINSON, at Union Hotel, Nevada City, Nevada Co., Cal. 21v20-4w

SILVER-PLATED AMALGAMATED PLATES

SAN FRANCISCO Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. Full weight of Silver deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for Builders, Plumbers and Gunsmiths. Old Goods of all kinds re-plated for hotels, restaurants, etc.

☞The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. full assortment of Plated Goods and Cutlery for sale at low rates.

E. O. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞All work done at the lowest prices. 1v20-3m

Patents on the Pacific Coast.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast we say, subscribe for the Scientific Press, published by Dewey & Co., San Francisco, Cal., at $4 per year. The opening of the railway across the continent has given to all patents a much higher value in that portion of our country known as the Pacific slope, and all interested will find the paper above alluded to a valuable reference.—*Mechanic and Inventor Detroit, Michigan.*

Illustrate your Inventions

In the Scientific Press,

An illustrated journal of Mining, Farming, Mechanic Arts and Industries on the Pacific Coast. It costs no more for a superior engraving by our experienced artists than is usually charged for a less perfect picture. If you wish to introduce a new invention properly before the public, the first steps in so doing are important ones. A full description and correct representation in the Press will go further and prove more quickly effective than any other means.

The fact that an illustration is admitted into our columns, guarantees the invention important consideration in the minds of thousands of the most intelligent readers—at home and abroad—who would not notice it so favorably or so thoroughly, if at all, when presented through an unreliable medium or indifferent source.

The model of an invention sent to us is sufficient for making a good engraving, Sometimes a photographic view is sufficient; but it is always best accompanied with drawings or a copy of the patent. A first-class illustration has proved to be one of the best and cheapest means of obtaining purchasers for a good machine or a valuable patent.

Cuts ordered for illustration are the property of the inventor who pays for them, and can generally be used for circulars, pamphlets, books, or other newspapers. The engravings to be seen in each issue of the Scientific Press are a fair sample of the work of the artists who can always be found in our office.

DEWEY & CO.,
Publishers Scientific Press, American and Foreign Patent Agents, San Francisco.

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the best blasting powder, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

MARTIN'S Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

GIANT CEMENT. GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, Miners' Rubber Cement, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up in tin cans only, with full directions. Take no other. Giant Cement and Miners' Rubber Cement are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

CRANDALL'S PATENT SPRING BED.

COOLEY & GREEN, Proprietors.

Manufactory, corner Front and M streets, Sacramento. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. Orders receivd at our manufactory, or at our agencies, as follows.

S. B. SNEDAKER, 413 Pine street, S. F.
W. H. SARLES, San Jose.
MR. NICHOLS, Stockton.
IRWIN & GARNETT, Oakland.
MR. MURPHY, Vallejo.
22v20 E. A. TOMPKINS, Grass Valley.

DEWEY & CO.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
Illustrated Circulars Free.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of

Melting Pots, Portable Furnaces,
CRUCIBLES, and other fire-standing Goods,
Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs A. S. Hallidie & Co, Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT,
Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested tho Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass.
GALLAGHER, WEED & CO.,
California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of tho Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred tho Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty-per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,
A. S. HALLIDIE & CO.,
18v18-9p 519 Front street. San Francisco

Engraver Wanted.

A good WOOD ENGRAVER can obtain steady employment and first-class wages at this office.

BARTON & RUTTER,

Importers and Dealers in

Guns, Pistols, Fishing Tackle

Pocket Cutlery, Etc.

SPORTING APPARATUS OF EVERY DERCRIPTION.

609 Clay Street, near Montgomery.

— SOLE AGENTS FOR —

Alexander's Celebrated Pocket Cutlery

For the State of California.

JNO. O. BARTON. R. A. RUTTER.
16v20-3m16p

A Good Agent

Is wanted, on liberal terms, to travel for the SCIENTIFIC PRESS.

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes.
H. M. RAYNOR,
57 Bond street, New York.
Platinum Scrap and Ore purchased. 15v20-1y16p

WIESTER & CO.,

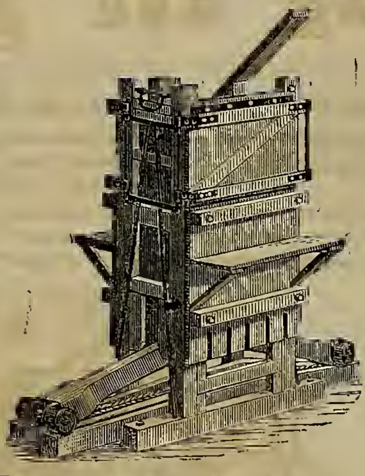
PATENT BROKERS,

No. 314 Bush Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

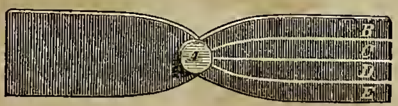
EAGLE HAY PRESS.



PATENTED JANUARY 10, 1865, AND JULY 24, 1866.

Here is an invention that we take pleasure in recommending. There is probably no farming implement more perfect in its line than this Press. It has advantages over any and all other Presses now in use. It costs only $300 and weighs only 1,500 pounds, which is $100 lower in price and 1,500 pounds less in weight than any other good Press on the Pacific coast Three men and a pair of horses with this Press can bale from ten to fifteen tons per day, each bale weighing from 250 to 350 pounds. The power is applied by means of two levers acting on the principle of the toggle-joint, and the pressure acquired as they approach a vertical position can scarcely be estimated. On account of the great power obtained in this Press, it is well adapted to baleing hides, rags, wool, cotton, etc. They can be built at any blacksmith and wagon shop. They cost to manufacture $150 less than any other firs-class Press in the United States. A large number have already been sold, and all are giving good satisfaction. The Right to California, Oregon and Nevada will be sold in States or counties. We keep on hand well built sample Presses to furnish to parties buying territory. Any information in regard to the Press or territory can be obtained by addressing WIESTER & CO., 314 Bush street, San Francisco.

RYAN'S NEW METHOD OF MAKING WHEELS.



To make indestructible iron wheels with little labor and at small cost, is the object of this invention. The hub and spokes are all made out of a single piece of iron. It is first forged down at the ends to the thickness required for the spokes, leaving a hub in the center. The ends are then split into four or more strips each, as shown in the cut above. A represents the hub; B, C, D, E, when spread to their proper position, form the spokes to one-half the wheel. When the other half is split and spread in a similar manner, the spokes are then rounded and shoulders formed on them ready to receive the tire or rim. It is claimed that the great amount of labor and expense heretofore required in making wrought-iron wheels is obviated by this novel mode of construction. There probably never has been a wheel made that is so durable as the Ryan Wheel, and yet the method of construction is so simple that it can be made by any ordinary mechanic in a common blacksmith shop. All territory west of the Rocky Mountains for sale in States or counties. Thomas Ryan, of Scott's Bar, California, is the inventor. Sample wheels, and tho iron from which they are made, can be seen at our office, 314 Bush street, San Francisco

NEW LIGHT ON A NEW PRINCIPLE.

Gas for everybody in the city and in the country. Equal to coal gas at one-half tho cost. The gas is generated and burned in a new style Vapor Lamp. No wick, no chimney, no explosion; and no man who is out of business and has a few dollars should fail to purchase a County or State Right and commence making money. Parties owning territory get the Lamps at manufacturers' prices. Call and examine the Light or write for particulars.

WIESTER & CO.,
314 Bush Street, San Francisco.

J. S. PHILLIPS, M. E.,

Examiner of Mines, Consulting Engineer, Mineral Assayer,

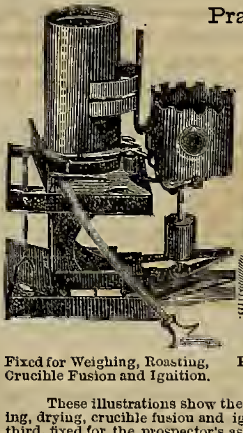
ANALYST, ETC., ETC.

No. 423 Washington Street, San Francisco.

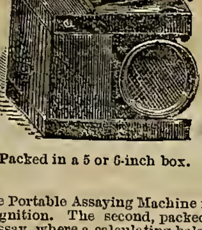
Inventor of the Explorers', Miners', Millers' and Smelters' Friend, the Prospectors' "WEE PET" Assaying Machine, etc., which obtained a Gold Medal at the San Francisco Mechanics' Institute Fair of 1869.

Practical Instruction in Assaying.

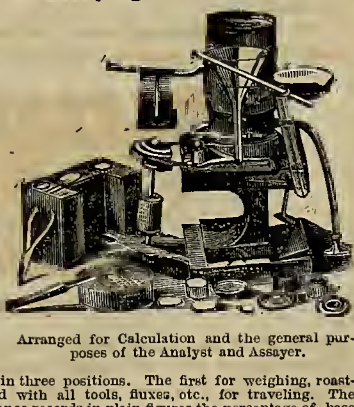
Patented Sept. 7, 1869.



Fixed for Weighing, Roasting, Crucible Fusion and Ignition.



Packed in a 5 or 6-inch box.



Arranged for Calculation and the general purposes of the Analyst and Assayer.

These illustrations show the Portable Assaying Machine in three positions. The first for weighing, roasting, drying, crucible fusion and ignition. The second, packed with all tools, fluxes, etc., for traveling. The third, fixed for the prospector's assay, where a calculating balance records in plain figures the percentage of base metals, thousandth's fine, or $ per ton of bullion, and the dollars (or oz.) per ton of gold and silver assays; for the analyst to fuse ten or twenty grains, alone, on charcoal, or with an alkaline carbonate, etc., for open and close test tubing, or to dry, sublime, evaporate, boil, distill, filter, etc.; showing also the tools and flux-box.

This Machine is intended for prospectors, who can, after a few hours of instruction, assay their own rock, at a cost of ten cents per assay, which can be performed so much more easily in the field that it must supersede all other methods. Price, $100, which includes instruction, tools, calculating balance, weights, fluxes, etc.

W. T. GARRATT & CO.

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal
CASTINGS,
Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —

HARDWARE,
BAR AND SHEET IRON,

Steel, Coal, Smiths' and Miners' Tools,

Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and

RAILWAY SUPPLIES.

— ALSO AGENTS FOR —

ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY.

54 K Street, Sacramento.
7v20-ng

WILCOX'S

PATENT STEAM

WATER LIFTER.

Requiring no Engine.

Send for circular containing full explanations, price list, testimonials and references.

M. & A. WILCOX,
15v20-3m-nhxh 74 K street, Sacramento.

N. W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws:

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect,

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE.
At tho lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, Made of Fulled Rawhide, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ **Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** ns

---

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,

SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.
9v20-qy16p

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

San Francisco, Saturday, June 18, 1870.

VOLUME XX.
Number 25.

Bracket Pattern Dead-Stroke Hammers.

Metal workers and others often need a light hammer which will give a quick light blow, without requiring so much power as is furnished by the heavier hammers. For striking up tin, copper or cold iron, such a hammer is particularly useful, and an efficient device of the kind would probably find a wide use.

The necessity of a light class of hammers, permitting an enlarged space between the hammer-frame and the anvil-bed, led a Philadelphia firm to make the "Bracket Pattern" hammer, of which a correct idea can be formed from the annexed cut. This appears to be a very neat and effective device, which can be worked very rapidly, and which can be easily placed where most convenient. There are four sizes made, in which the weight of the ram is 5, 15, 25 and 50 pounds, and which cost at the shop in Philadelphia $125, $250, $300 and $450 respectively.

As before stated such a device admits of quite an extensive application. For shovel makers, the two larger patterns are highly recommended, for cold hammering their moulds for the purpose of stiffening or finishing them. To saw-makers, who need a light blow for reducing the "fash" left by toothing, the manufacturers offer their 5-pound hammer as a most efficient and expeditious tool; and many others will find them most useful and ecomomical. The hammers are sent out with treadle attachment and everything finished to start them, after the hammer is bolted to its frame and the anvil-bed to the block on which it is to stand.

There is a large field on our coast for just such a device as this, and the many artisans who do considerable work in the way of light forging, planishing, etc., would do well to examine the hammer, which has met the approval of manufacturers to a large extent. Further information on the matter can be obtained by applying to Philip S. Justice, 14 N. Fifth street, Philadelphia, or 42 Cliff street, New York.

◆

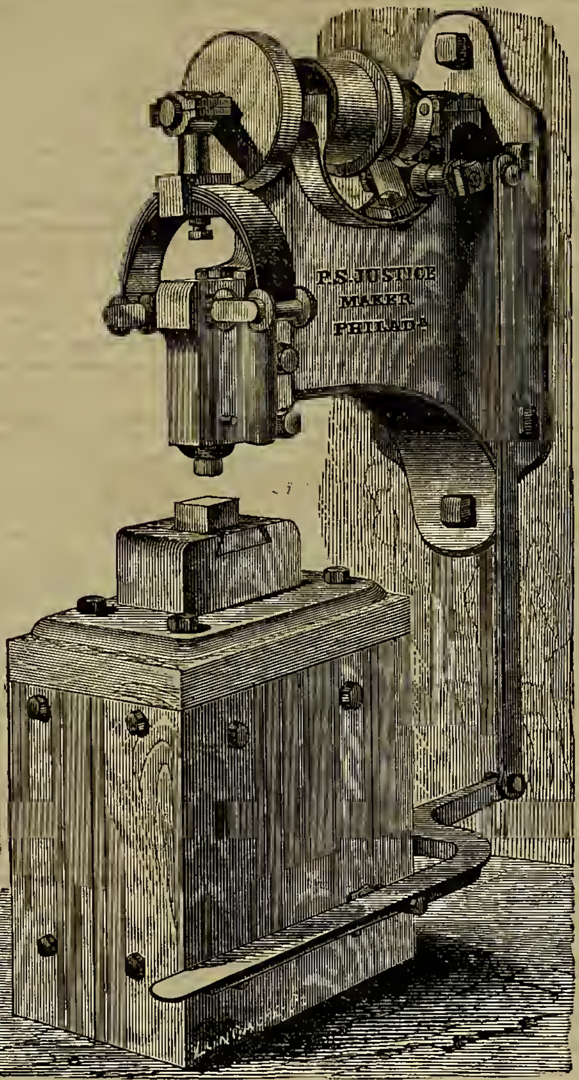
Charles Dickens is dead. The announcement has carried sorrow wherever the English language is spoken. There is no person now living who has won so large a share of the affections of the people everywhere, no writer or statesman who has exerted so universal an influence, as this master of wit and pathos. His wonderful power of description, his superabundant humor, have made him beloved throughout England and America, and made his death a public loss.

◆

A Very Fair Yield.—Mr. H. C. Jones, of Sutter county, up to the 10th inst., had harvested and threshed 205 acres of barley, with an average yield of 27½ bushels to the acre.

◆

Steamship Line to Australia.—The *Call* has been informed that a new line of steamships between this port and Australia will be inaugurated about the first of July.

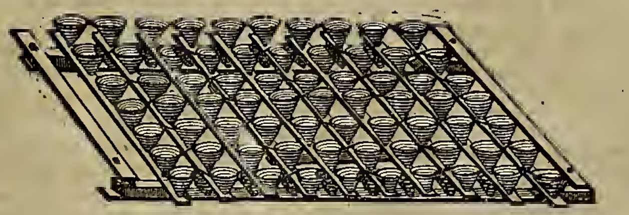


SHAW & JUSTICE'S BRACKET PATTERN DEAD-STROKE HAMMER.

Crandall's Patent Spring Bed.

Sancho Panza blessed the man who invented sleep. He might have gone a step farther and blessed the men who render that invention of easy and comfortable application.

His second blessing would include a large number of persons. The cook, the doctor, all in fact whose efforts conduce to the mental and physical health of mankind, would deserve a chronic or periodic share, and an especially large portion would, of right, be reserved to the inventor of spring beds. According to all accounts and testimonials, the inventor of the device here illustrated would have made Sancho a supremely happy man, and have evoked his heartiest benedictions. By this construction it is sought to provide a bed as easy as that "of roses" of the poets, without allowing the presence of thorns of any kind. The bed consists simply of a framework of springs, resting on one of stronger springs, and thus greatly increasing the elasticity commonly obtained. These springs are self-supporting, each pair being independent of the others, and thus the tendency to sag or incline towards the middle is avoided. They are light, durable and elastic, and present no harborage for bugs or other vermin. The mattress is laid on the springs and can be removed and aired at will. The whole is exceedingly simple.



CRANDALL'S PATENT SPRING BED.

The names of many prominent citizens of this city are given as willing witnesses of the superior quality of this device, which is now coming extensively into use, as we are informed. It is certainly worth the trouble for housekeepers to examine the bed. It is manufactured by Messrs. Cooley & Green, corner of Front and M streets, Sacramento, who have as agents S. B. Snedakar, 413 Pine street, S. F.; W. H. Sarles, San José; Mr. Nichols, Stockton; Irwin & Garnett, Oakland; Mr. Murphy, Vallejo; and E. A Tompkins, Grass Valley.

◆

Tin Ore from San Bernardino.—A second lot of tin ore, some 500 pounds, has been received in this city from the recently discovered tin mines near San Bernardino county. The San Diego *News* is informed that it is from a ledge 80 feet wide! The ore comes to this city for the purpose of enlisting capital for the developing of the mine. The idea of the existence of workable tin-bearing lodes in various portions of the southern part of the State, seems to be gaining ground, and we trust that capital will soon be found to fully settle the question one way or the other. The question of title, we believe, has had much hitherto to do with the investment of capital in this direction, and, indeed, we are not even yet informed whether that difficulty has been entirely removed.

We have heard of another lot of "tin ore" which has been forwarded to this city, and which contains "silver enough to pay all expenses." We do not believe that it is *tin* ore at all.

◆

Earthquakes.—According to advices from Japan, that country has experienced, in the vicinity of Yokohama, a severe earthquake. The volcano of Asayama, after a rest of a very great length of time, has had an eruption, causing the peasantry to quit the fields in terror. In Mexico, the earthquake at Oaxaco, previously mentioned, is reported as most severe, destroying almost the whole of the southern part of the city, and injuring the buildings throughout the place. One hundred and three persons are reported killed.

◆

Another Wreck.—The North Pacific Transportation Company's steamer Active, Capt. C. E. Lyons, left here for Victoria on the 4th inst. with 117 passengers. On the 5th, it struck a rock off Cape Mendocino. The vessel commenced to leak so badly that it was necessary to beach her. The passengers were safely transferred to the land. The passengers, according to a resolution, compliment the Captain on his conduct after the accident.

◆

The work of harvesting is now well under way, and the grain crop is likely to turn out much better than was expected four or five weeks since. At all events, the increased price, now and prospective, will bring the net returns for the present crop fully up to that of last year.

Communications.

Mines on the Western Slope of White Pine Mountain.

[Written for the Scientific Press.]

While at Hamilton I stopped at Dr. Spaulding's hotel. This is a fine establishment, and seems to be the general headquarters for those who come to stop for a short time. The Doctor is an old pioneer who came to the land of gold in '49, and who concluded finally to settle down in White Pine. He has built a good hotel here, the best in the district, and I can assure anyone coming hither that they can find a very comfortable house by stopping at Spaulding's.

I have had the opportunity of going over the western slope of White Pine Mountain, where I visited a large number of mines. The Trench is looking very well indeed. The Superintendent showed me a small specimen of native silver, the first I have seen here. Ore is being extracted which is valued at $700 per ton. According to the *Daily News*, an ably conducted sheet, $75,000 have been recently offered, and refused, for the mine. I think it is, without doubt, the biggest thing here at present.

The Vanderbilt and Uncle Sam mines, taken up by Mr. Hanson in 1865, at Mohawk Cañon, are looking finely, and show some fine rock. In this cañon, on the left hand side, is the first ledge discovered in the district, in 1865, by Messrs. Morrill & Leathers, and called the Mohawk. It can be traced for a distance of 800 feet, and contains base ore which must be smelted. Among the locations at this place may be mentioned the Crown Point, Honest Indian, Wyoming and others, all looking splendidly. I am informed that the rock from the Honest Indian has run from $95 to $238 per ton, and is being worked by Mr. James Devlin, one of the owners. It is situated about 300 feet above the Mohawk ledge, running parallel with it, is about two feet wide on the surface, and is without doubt a very promising mine.

Passing on to the old Morrill & Leather's Cañon, about three miles due west, I visited the ledge named after the early prospectors, Messrs. Morrill & Leathers. This ledge is one of the longest, and as wide as any, which I have seen. The old company has commenced operations and is taking out fine ore. The ledge was *re-located* by the Montabella S. M. Co., and called the Perley lode, after the well-known lawer, Judge Perley. A suit is to be commenced concerning the matter, to determine whether the old company has done the necessary amount of work to hold their claim from 1865 to the present year.

Not far from this is the Queen City, located by Mr. A. J. Brown and others. Mr. B. is the Deputy Recorder here, a fine gentleman and an old miner in the section. He has another promising claim on the Zavala ledge. This is two feet wide, is being worked by a small force of men, and shows very fine ore, some of the very best, indeed, which I have yet seen. The Montabella Company made some good locations here in May, 1869, which are looking admirably well. The Niagara (located in 1865, as the Mammoth) ledge has also been re-located by this company.

I also visited the Murray ledge, located last year. This appears to be a very valuable mine, and the company has on the dump some very fine ore, which assays from $100 to $150 per ton. The rock contains rich galena, and is partly decomposed. This, like the other ledges here, runs east and west, and there is a general dip into the hill of about 45°. The hillsides are rough and precipitous. In the cañon are some fine springs and a plenty of wood, which would render easy the running of smelting furnaces. There are none as yet, I understand, on this (the west) side of White Pine Mountain, but I am convinced that a well-managed company here would do a very profitable business, as there is plenty of ore. There is no difficulty in getting charcoal, and many men are now employed in making this useful article The Monte Cristo mill has been running steadily for some time, but is going to make way for one of Mr. Stetefeldt's furnaces, which will be a great gain for the district.

The Cariboo ledge is located near the base of the mountain, and is the property of the White Pine S. M. Co. It is large and well defined and well charged with ore of a high grade. About forty tons of $100-ore have been taken from the mine and are now on the dump. The vein pitches into the mountain at an angle of about 40°, and shows a degree of uniformity and permanency rarely seen in the mines of the district. It is from four to seven feet wide, and steadily increasing in size as explorations are extended into the mountain. About $2,000 worth of work has been done on this claim. The ledge is favorably situated for profitable working, being near the Monte Cristo mill. There is also an abundance of wood and water in the immediate vicinity. Estimating the ore to be worth $100 per ton in the ledge, which is putting it low, it can, with the advantages of the locality, be mined and milled for $20 per ton—leaving a clear profit of $80 on every ton reduced. The Porcupine ledge is situated near the celebrated Trench mine, and bids fair to develop into one of the best mines in the district. The present developments are not as extensive as those on the Cariboo, but it presents the most favorable indications of opening quite as well, if not better. The ore is of a free order, and is easily treated by simple mill process. Assays run from $100 to $1,200, and it is safe to estimate that the entire body of ore in the vein will yield $100 to the ton in silver, and from $10 to $15 in gold. Work on an extensive scale will be inaugurated on this ledge before long. These statements, with regard to the Cariboo and Porcupine ledges, were given me by the very gentlemanly reporter of the Elko *Independent*.

I might write concerning other operations, but have given you enough for this time. The formation on this slope is limestone and slate, and is *said* to be older than that of Treasure Hill. The idea prevails here among miners that there is a very large mother-vein running through the mountain, and that these veins mentioned are merely feeders. While I have no proofs of the correctness of this idea, I, of course, am unable to disprove it, and so mention it merely for what it may be worth. So much I believe, that there is good ore here which will pay well those who will work diligently and in good faith. The camp is now looking up and business is improving.

Hamilton, Nevada. W. H. M.

Smelting in Cerro Gordo, Inyo County.

[Written for the Scientific Press.]

Editors Press :—In accordance with my promise, I will now proceed to describe the *modus operandi* of the base metal workings in this camp.

The galenas are first charged into a reverbatory furnace, and there smelted with about one-third of their *bulk* of rich silver quartz, forming what is commonly called here *slag*, but which in reality is a rich lead *matt*, which is run out on the ground and allowed to cool and is then broken up, and piled away to be used again in the blast furnace.

The blast furnace is a circular one, about 8 feet in the clear in height and 20 inches in diameter in the clear at the bottom, with an inside batter of 95° to the top of the eight feet, built of fire brick, 14 inches long, moulded in the form to make the inside diameter above stated, and 12 feet in circumference on the outside. It is hooded over all at the top with common red brick, having a square hole in the side of the hood, 18x24 inches to admit the charges. The fire brick are made of Kaolin (of which we have an abundance here), mixed with one-third of pure white quartz sand, merely dried in the sun.

Furnaces built in this way run from 12 to 15 days. The charges consist of

5 parts matt or slag;
1 " raw galena ore, broken to egg size;
1 " raw silver rock, broken rather smaller;
2 " galena and iron oxides;
1 " carbonate of lime,
with about 2 bushels of charcoal.

The charges are regulated by decreasing or increasing as necessity requires. The molten lead carries the fine metals the ore contains with it to the bottom, and runs into a receptacle in front of, and on a level with, the bottom of the furnace. The slag also runs into this receptacle and overflows, and runs off, where it cools, and is wheeled away and dumped into a pile, as of no farther use. When the receptacle in front of the furnace is nearly full of molten metal, it is tapped at the bottom, and the lead allowed to run into a hole or pot, made of fire clay sunk into the earthen floor of the building. Here it is permitted to stand a while, to collect what is here called "fierros" (being in reality a very rich matt, containing silver, copper, iron and antimony), which rises to the top of the pot, and forms a very hard scum, varying in thickness from half an inch to three inches. When this scum is removed, the lead is dipped with an iron ladle and poured into iron moulds, forming pigs 83 pounds in weight. This sized furnace ages 80 such pigs in 24 hours when the furnaces are running well.

In my next I will give you the results of the operations in other parts of the Owens River country. Crowquill.

Cerro Gordo, June 6th, 1870.

Quartz Mining in Victoria.

In looking over the history of mining in Victoria, one finds it a matter of great interest to compare the statistics given in the earlier and the later years. For instance, we find that in 1862, 16,703 men extracted and worked 567,208 tons of quartz, which yielded an average of 10 dwt., 22 grs., or $10.88 per ton. There were 461 steam engines of 8,055-horse power in the aggregate employed in hoisting and crushing quartz, and 82 machines, driven by other than steam power, employed in crushing. In 1868, 14,079 men extracted and worked 886.228 tons, which yielded an average of 10 dwt. 15.37 grs., or $10.16 per ton. There were 602 steam engines of 11,045-horse power, 66 machines driven otherwise than by steam, and 5,997 stamps.

According to these statistics, it appears that the number of quartz miners decreased in this time. But it also appears that the smaller number of laborers extracted a larger amount of quartz, notwithstanding the fact that much of the ore must have been taken from lower depths, where, of course, the labor and the expense must have been much greater. Again, it may be noticed that in 1863 the average earning of quartz miners for the year was $615.94; for 1868, it was $828.31. The average yield remained about the same, being a little less in 1868; but probably the improved methods would have raised the average in the earlier days.

Such facts as these are certainly anything but adverse to the prospects of mining as a business. Well may Mr. Smyth remark in his work, to which reference has been made so often in the Press: "The records of the mining department show that the average yield of gold from quartz crushed at Ballarat is very low. This, instead of having a prejudicial effect on mining operations generally, has been singularly beneficial. It has induced economy in working, brought into use and to completeness many excellent appliances for saving fine gold, and has served to train managers and workmen better and more effectually than any mining-school teaching could do. If not a direct benefit to Ballarat, it has had a remarkable effect on quartz mining generally; leading to the use of simple, easily-worked appliances, and proving that care and skill in the use of these are often sufficient to compensate for any inherent defects in them." M.

Appleton's Journal.—The number of journals devoted to literature and art is a strong indication of the increase of taste among our reading public. We have previously spoken of several of these, and it is a pleasure to me to-day to recommend another, not a new one, however, which deservedly enjoys a large degree of popularity. *Appleton's Journal* has now nearly reached its fourth volume. Published weekly, attractively illustrated, with frequently a large extra cartoon, and filled with choice sketches, essays and stories, it is a most pleasant companion for the family circle, and a choice addition to any table. We have long read it with pleasure, and the reception of the last number leads us to give it a hearty recommendation to our friends on the coast.

The curled leaf appears to be seriously troubling the peach trees in some portions of the State.

Farming in Santa Clara.

Throughout the Santa Clara valley I find many settlers that have "seen the elephant" of early mining excitement, and have endured the hardships of life in the mountains. Wherever these individuals are settled with their families, prosperity, if not riches, is commanded by that liberal spirit of enterprise which is a characteristic of old Californians. And by the intelligent toil and habitual energy so sure of success in such industrial occupations as do not depend on "luck and chance" as mining must, or at least does depend, they are sure to win the rewards of honest labor. Any man that will earnestly and intelligently apply himself to a business that he can manage, as the occupation of a piece of land of the right size, can succeed in making more than a mere living, and in developing some good.

Among others, my attention has been attracted to the comfortable, well-cultivated, beautiful, orderly and houselike place of Mr. W. A. Z. Edwards, who lives near San José. With but forty acres of ground—enough, he says, quite as much as he can do justice to—he has a dairy of seven very excellent cows, from which he raises as many calves yearly, and makes a large quantity of superior butter. He last year sold butter to the value of $634.25, besides using freely from it for his family, as well as liberally of fresh milk. The buttermilk and skim-milk, fed to the pigs and chickens, was also a source of considerable profit. He has a fine imported Alderney bull (the only pure-blooded one that I have seen in California), six years old, that he is breeding his cows to. He aims to produce a superior butter-making dairy stock.

The reputation of the Alderney stock as as butter-makers, stands ahead of all others. Mr. E. says that the Ayershires will yield more milk, but that the Alderney will make the most butter. With good feed, five quarts of milk will yield a pound of butter. The Alderney breed of stock is small, but well formed, docile, active, and with capacious stomachs. They can easily travel about, are hearty eaters, and, when feed is plenty, enjoy the quiet and rest so necessary for good milk stock. Mr. E. has several fine crossed yearlings and calves that he prizes very highly. He is ardently in earnest, and practically asserting his interest in this enterprise. I took some statistical notes from him, but having lost the same, can give only such a superficial idea as forcibly impressed my mind. His pastures, his fields, his orchard, his garden, everything, shows a provident management and an economical but liberal care. With his forty acres, he has a better home, makes more money, and has more and better stock than many farmers with 400 acres.

This State is open to a thousand worthy enterprises; enterprises that should be regarded as something more than speculation; enterprises that rise superior to land-grabbing and insatiable thirst for more; legitimate, earnest, honest enterprises that will reward the worthy, and that invite the intelligence, the labor, the capital, the energies of the people. There are many places, many worthy enterprises in this valley, as beautifully and as frugally and intelligently managed; many that I might, and some that I intend to notice. But whether studied into and expatiated upon, or simply glanced at or passed over, they are none the less valuable in themselves, while they are the foundation of all meritorious success, the promise of prosperity and the assurance of advancement in material progress. S. H. Herring.

Cave Remains prove Nothing.—"'Granting that the cave-men co-existed with cave-carnivores in Europe, what hinders us from supposing that these stone-folk were emigrants from Asia, who leaving behind them a high civilization sank in the scale by a corrupt life, like the Boers of South Africa? The quality and quantity of food has a marked effect upon the *physique;* a low forehead may signify a life of misery and want rather than a primitive type of human kind. Is the age of stone in Western Europe necessarily the stage of universal infancy? Are not the Red Men our contemporaries? We find troglodytes and stone-ages all along the track of human history; we have yet to discover the first stone-age of the *race*."—*Prof. Orton.*

Mechanical Progress.

Another Arrangement for Burning Petroleum.

We condense the following from the Philadelphia *Engineer:* "On May 26th we were present at the trial of Whipple & Dickerson's new process. It may be briefly described as follows: Steam from the boiler passes into the fire-box, where it is forced through a small iron super-heater, thence it passes through a pipe into a cylindrical generator four feet high and two and a half in diameter, which contains six hundred copper tubes of half an inch in diameter. The steam passes into these tubes, and the oil is contained in the spaces around them. This intense heat converts the oil into a gaseous vapor with great rapidity. As fast as generated, the vapor passes into a receiver, which encloses the generator like a water jacket; then rising through a layer of sponges in the dome of the machine to steady the flow, the gas passes through a pipe to the fire-box, and escapes through a frame of burners, like ordinary gas, and there burns with a flame and heat far greater than any produced with coal. In addition to this, just at the point in the dome where the vapor passes into the pipe which conveys it to the fire-box, a jet of this super-heated steam is turned into the same pipe, and at high temperature and pressure mingles with the carbon vapor, and both pass into the fire-box, where they are both consumed.

At the foundry in which this process is in operation, there has been a saving of nearly one-half in coal, with an increased efficiency."

The Martin Process in America.—The London *Engineering* gives a letter from a New Jersey steel-maker at whose establishment have been made several important improvements over the original, as regards the manner of working. The product resulting is unsurpassed. We quote detached paragraphs: "We have succeeded best in the manufacture of soft steel, and are now using it largely for boiler plate, for which it is admirably adapted. One of the tests given by the locomotive builders is to punch a rivet hole at the usual distance from the edge of a sheet, and then drive taper drifts through the hole till it breaks. It is usually found that the diameter of the hole is doubled before the metal is burst apart, and the same occurs if the plate is first heated red hot, and cooled off in water. * * When the percentage of carbon does not exceed 0.25 per cent., the steel possesses the singular property of being very decidedly toughened by plunging in water at a red heat. After this treatment it is much stiffer, yet so far from being brittle as to resist the effect of bending better than before. * * From the experience which we have had we are satisfied that this is to be *the* process for the manufacture of superior grades of soft steel, and though it may not quite compete with the Bessemer process in cheapness, yet the steel so far surpasses that in quality as to enable it to be used for purposes whose requirements the Bessemer steel is unable to meet."

New Rolling Mill.—At the late meeting of the Iron and Steel Institute,—says *Engineering* of May 13th,—"a new form of rolling mill by Mr. Brown was exhibited by a model, this mill consisting of a double pair of rolls driven in opposite directions, and in which the working grooves of each pair are placed opposite to blanks or large recesses in the other pair of rolls. This mill has the drawback as compared with the Dowlais mill, which it most resembles, that it requires additional length of rolls to allow for the blank spaces or grooves. Compared with the mill "three rolls high" it offers decided advantages, and compared with the reversing rolling mill it presents the advantage of having a continuous movement in all its parts."

New Process for Fixing Dyes.—Mr. Kipping, of Manchester, Eng., dissolves gelatin in water, and adds bichromate of potassa in the proportion of 3 ozs. to 20 ozs. of gelatin. This is done in a dark room. To this the coloring matter is added. The goods, after being submitted thereto, are exposed to the action of light, whereby the pigment becomes insoluble in water, and the color therefore fast.

Slight Loss in Transmitted Compressed-Air Power.

"The value of the recent experiment at Galena consists in its demonstration that the loss of power is so slight as to be of no special consequence compared with the important pecuniary gain which would result from the substitution of air power for steam power. In that experiment it was found necessary to transmit compressed air from the surface, where it was obtained by air pumps, worked by a steam engine of 10-horse power, through pipes down a shaft of 1,300 feet in depth, in order there to work a pump for expelling the foul air to the surface. It was found that the air, thus compressed, formed at that distance a motive power equal to a 9-horse power engine on the spot; that the loss of one-tenth in power arose almost wholly from the friction of the air pumps, and in only a very slight degree from the transmission of the air through the pipes."

The *Bureau* remarks: "While steam would cool and lose its power in any attempt to transmit it through pipes a few score feet, compressed air could be transmitted for thousands of feet. Hence, if the machinery for compressing the air be erected in one block so protected as to be fire-proof, the pipes will carry the power to the machinery in any number of blocks, which being thereby freed from the introduction of heat into their premises, may be surrounded by any quantity of combustible matters without increasing liability to fire. Where block after block is filled with saw and planing mills, wagon and blind factories, and even foundries, machine shops, and grist mills, the reduction of insurance would amount to a saving of hundreds of thousands annually."

Testing the Duty of Steam Engines. At a late meeting of the Polytechnic Association of the American Institute, Dr. Van der Weyde, after explaining various methods for doing this, named as preferable the one which consists in recording the units of heat carried off by the exhaust steam. By simply providing a condensing engine for any specific time with a definite quantity of water as a condensing agent, and noting, by means of a thermometer, the degrees of heat communicated to it by the condensation of the steam, the quantity of heat carried off by the exhaust may be found by a simple calculation. The units of heat thus carried off in the exhaust are of course so much abstracted from the force employed to drive the piston, and the less this quantity of heat, other conditions being equal, the more efficient the engine for a given expenditure of fuel.

An English Stone-Breaker.—We find the following feeble attempt at an evasion of Blake's patent, described in the usual English style, in one of our exchanges: "In constructing the apparatus, the fixed jaws are placed vertically, as in some of the machines now used, but the crushing block or movable jaw is made with two faces or working surfaces, and this block is made to oscillate on a center placed either above or below a central point midway between the two fixed jaws. As an obvious modification, instead of a single oscillating block, two movable blocks, connected together by links or other equivalent devices, but mounted on distinct shafts, may be used. It is preferred to actuate the crushing block or blocks by means of an eccentric mounted on a horizontal shaft, which passes through an opening made in the block or between the two blocks."

Turning Alloys.—The hardness of zinc, copper and tin alloys causes them to blunt the edge of the turning tool when in the lathe. It is said that if the point of the tool be moistened with petroleum, the work will proceed as readily as with red-hot metal. Steel tempered to a light yellow has been turned with the greatest facility by using a mixture of two parts of petroleum and one of oil of turpentine.

Improvement in Relay Magnets.—The *Telegrapher* describes one which consists in arranging the connections of a relay so that the main circuit is divided, one-half passing through each helix, and uniting again on the opposite side, instead of having the conducting wire of the two spools continuous, as in the usual manner. It will be seen that the total resistance will be reduced one-fourth

Scientific Progress.

An Island Electrified.

A curious discovery has been recently made at the French Company's telegraph station on the little island of St. Pierre Miquelon. It was found that the delicate Thomson receiving instruments used by the French Co. were so seriously affected by earth-currents that the signals were often unreliable. The inconvenience was removed by laying an insulated wire from the station to the sea, and attaching to it a large plate of metal immersed therein; this plate becoming practically the earth for that station, and less liable to change, as to its electrical condition, than the rocky soil of the island. Upon placing the Thomson instrument in the course of this 3-mile insulated wire, it was found that the messages of another telegraph line—the Anglo-American—the station of which is also on the island, could be read. This latter company receives messages from Newfoundland, and sends them to Sydney, using a powerful battery and the Morse signals. These messages were in several instances automaticaly recorded by the sensitive Thompson apparatus of the French company when made to form part of the insulated connection aforesaid. We quote the explanation from *Nature:*

"It must be clearly understood that the American lines come nowhere into contact, or even into the neighborhood of the French line. The two stations are several hundred yards apart, and yet messages sent at one station are distinctly read at the other; the only connection between the two being through the earth; and it is clear that they would be so received and read at fifty stations in the neighborhood at once. The explanation is obvious enough; the potential of the ground in the neighborhood of the stations is alternately raised and lowered by the powerful battery used to send the American signals. The potential of the sea at the other end of the short insulated line remains almost, if not wholly, unaffected by these, and thus the island acts like a sort of great Leyden jar, continually charged by the American battery, and discharged in part through the short insulated French line. Each time the American operator depresses his sending key he not only sends a current through his lines, but electrifies the whole island, and this electrification is detected and recorded by the rival company's instruments.

It is clear that unless special precautions are taken at isolated stations, an inquisitive neighbor owning a short insulated wire might steal all messages without making any connection between his instrument and the cable or land line. Luckily, the remedy is simple enough. All owners of important isolated stations should use earth plates at sea, and at sea only. This plan was devised by Mr Varley years ago, to eliminate what we may term natural earth currents, and now it should be used to avoid the production of artificial earth-currents which may be improperly made use of."

Dawson vs. Darwin.

Prof. Dawson, in the *Canadian Naturalist,* objects to the Darwinian theory, for divers reasons, and holds to the "modern ideas of derivation." He considers the hypothesis advocated by Prof. Cope in his memoir on the "Origin of Genera," read before the Academy of Natural Sciences in Philadelphia, "the most promising of these modern hypotheses." He says:

"The facts point to the operation of two causes—first, the possible *retardation* or *acceleration* of development, and secondly, the action of outward circumstances on the organism capable of this retardation or acceleration. We here substitute for the tendency to vary of Owen's theory, the ascertained fact of reproductive retardation or acceleration, and for the struggle for existence, the action of changed physical conditions, and for the question as to the change of one species into another, the change of the same species from one genus into another. * * According to this view, a species once created may have in itself a capacity for passing through several generic forms, constituting a cycle which ever tends to return into itself, or to advance and recede by steps more or less abrupt under the law of retardation and acceleration, combined with the influence of external circumstances. Yet the dimensions of the orbit of each species must be limited, its duration in time must also be limited, and its capacity to pass into a really new species must still be a point subject to doubt, but open to anatomical investigation and inference."

The paper of Prof. Dawson is reviewed by A. Hyatt in the *American Naturalist* for June. We quote briefly: "According to the theory of natural selection only favored races can prolong their existence by perpetually inheriting the advantages of their ancestors, and certainly the degradational characteristics as displayed in all the terminal species of the ammonoids cannot be explained in this way. Here also we have the limitation of the cycle of changes or variations, of which a species or form may be supposed to be capable, at least partially accounted for; and as Professor Dawson and others have pointed out, the theory of natural selection makes no provision for such restrictions. * * The law certainly explains much which has been hitherto inexplicable. It gives us, perhaps, the means of asserting that the plasticity of organs have certain limits; that variations can arise from natural selection, or physical changes, only when these act in given directions and for a given time, after the expiration of which, whether in the individual or the group, if sudden death do not intervene, all changes must be degradational in character. Physical causes, and the struggle for existence, can no longer improve the vitiated organization when it has passed this period. Its death is decreed as certainly as its line of developmental changes must have been before it was born."

Surface Geology of the Basin of the Great Lakes.

Prof. J. S. Newberry has an article on this subject in the *American Naturalist* for June. We have space only for the following conclusions:

1st.—That in a period probably synchronous with the glacial epoch of Europe,—at least corresponding to it in the sequence of events,—the northern half of the continent of North America had a climate comparable with that of Greenland; so cold, that wherever there was a copious precipitation of moisture from oceanic evaporation, that moisture was congealed and formed glaciers which flowed by various routes towards the sea.

2d.—That the courses of these ancient glaciers corresponded in a general way with the present channels of drainage. The direction of the glacial furrows proves that one of these ice rivers flowed from Lake Huron, along a channel now filled with drift, and known to be at least one hundred and fifty feet deep, into Lake Erie, which was then not a lake, but an excavated valley into which the streams of Northern Ohio flowed, one hundred feet or more below the present lake level. Following the line of the major axis of Lake Erie to near its eastern extremity, here turning northeast, this glacier passed through some channel on the Canadian side, now filled up, into Lake Ontario, and thence found its way to the sea either by the St. Lawrence or by the Mohawk and Hudson. Another glacier occupied the bed of Lake Michigan, having an outlet southward through a channel—now concealed by the heavy beds of drift which occupy the surface about the south end of the lake—passing near Bloomington, Illinois, and by some route yet unknown reaching the trough of the Mississippi, which was then much deeper than at present.

3d.—At this period the continent must have been several hundred feet higher than now, as is proved by the deeply excavated channels of the Columbia, Golden Gate, Mississippi, Hudson, etc., which could never have been cut by the streams that now occupy them, unless flowing with greater rapidity and at a lower level than they now do.

Atmospheric Germs of Disease.—*Scientific Opinion* considers that Prof. Tyndall's recently promulgated doctrine in reference to floating organic particles is "incapable of proof";—is a hypothesis, and nothing more;—and that Berkley and other able fungologists are distinctly opposed to it.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Items.—*Miner*, June 4th: Soft ore and an increase of water in the east drift of M. C. Tunnel No. 3 indicate an approach to the east wall....Yesterday six tons of low-grade ore from the Schenectady was hauled to the Monitor C. M. Co's mill.... Since the survey of Mountain No. 1 made it apparent that running in granite don't pay, work has been commenced in the upper works....Mr. Graff will not order the mill for the Schenectady until, by the completion of the lower tunnel, and the average of the low-grade ores, it can be determined whether a five-ton or a fifty-ton mill is required.

AMADOR COUNTY.

Coney.—*Ledger*, 11th: The work of freeing this mine of water progresses rapidly, and so far, the timbers have been found in good condition. The owners are tearing away the old mill with the design to erect a large one as soon as they sink 200 feet deeper.

CALAVERAS COUNTY.

Hoisting Works.—*Chronicle*, 11th: James Gleason, of the Inoline Tunnel mine, is erecting hoisting works. As the ditch is in close proximity to the mine, the machinery will be run by water power. A hurdy-gurdy wheel is being constructed.

EL DORADO COUNTY.

El Dorado.—Cor. of Placerville *Democrat*, 11th: The Pocahantas Co. have 30 men employed underground, and realize $200 per day. The Havilah Co., on the Cosumnes, is paying handsomely.

MARIPOSA COUNTY.

Coulterville.—*Gazette*, 10th: G. Douglass has succeeded in getting the water out of the Melvina mine. Everything now is in first rate working order, sufficient rock being taken out to keep thirty-five stamps of the old French mill constantly pounding....The owners of the Marble Spring mine have a train of thirty-five mules hauling rock to the Eclipse mill on the Merced river. W. C. Priest, superintendent of the Eclipse, is still working on the tunnel commenced eight months ago to strike the vein 100 feet above the old levels.

NEVADA COUNTY.

A Blast.—*Transcript*, 8th: Yesterday a blast of 3,700 pounds of powder was discharged in the claim of Maltman & Marselus, at Manzanita hill. A tunnel has been run into the bank 150 feet, and a cross tunnel of 50 feet, in which the powder was placed. The blast did splendid execution.

North Bloomfield.—This company is getting ready for opening the ditch from the big dam at Cañon creek. About four miles yet to be completed, and men are going from points on the ridge to work.

Omega.—Same of 12th: We learn that the miners are doing well, and anticipate that the present season will be the best they have had for some years. More men are employed than ever before, and more gold has been taken out.

Good Prospects.—The San José Co., east of the ridge above the Young America, have got into the gravel lead, and find favorable prospects. One pan of dirt yielded a dollar and a half.

Manhattan.—The owners of this ledge, on Gold Flat, have purchased the machinery used on the Wagoner, which they are having put up on the Manhattan.

Prospecting.—*Gazette*, 10th: Judge Freeman is prospecting half a mile above Washington with a gang of Chinamen. He is developing a second level of gravel on the bench of the river.

Columbia Hill.—Gentlemen inform us that mining operations are almost entirely suspended for the season on account of a lack of water.

Rich Strike.—Same of 11th: The owners of the Grizzly Hill mine, near Eureka, opening a new ledge 50 yards above their old one, have taken out several tons of the richest looking rock ever found on that ridge. The ledge is two feet in width.

Wisconsin.—Grass Valley *Union*, 7th: This mine is worked on the coöperative plan. During the last four weeks the miners have been sinking on the ledge and doing other work not immediately profitable. Yet the mill has given $5,000.

Eureka.—Same of 8th: This mine had a run of 12 days, and cleaned up the amalgamating apparatus without touching the battery, and not reckoning a cent from sulphurets. The showing is three bricks, weighing 160 pounds, and valued at $31,672.29.

Allison Ranch.—A run of three weeks gives $10,000, with a profit of between $4,000 and $5,000. Sinking on the ledge and other developments have been going on during the time, and the mill was not constantly employed. The company are contemplating the erection of a new mill.

Empire.—This mine is just fairly commencing work under the new management. We saw some fine rock in front of the batteries yesterday; on the day before, exceedingly rich rock had been put through.

The North Star mine is doing well.

The Coe is crushing.

Tribute.—Same of 11th: Some miners are working in the upper drifts and abandoned stopes of the Empire, and pay to the company a percentage of the proceeds. A few days ago very rich rock was taken out and crushed, and the proceeds amounted to $6,000 for 19 tons.

PLACER COUNTY.

St. Patrick.—*Herald*, June 11th: Mr. Eaton has sold the mine to Cronise, Capt. Lee, Melville, Atwood & Co., for $46,000, and the new owners have taken possession. Mr. Townsend has been placed in charge, and machinery is being shipped from below. We learn that the company intend to continue the shaft to a depth of 125 feet, and then run levels to test the mine.

At Work Again.—Mr. Eaton, late owner of the St. Patrick, has commenced work on a small parallel vein. This vein passes through the old Doeig mines, which yielded such quantities of gold years ago.

Forest Hill.—In the old Lamb claims, in piping off the face of the bank they worked into a soft quartz deposit from 50 to 75 feet wide. This mass is distinct from the other formations flanking it, contains free gold, and presents the appearance of containing a heavy percentage of silver.

Further up the divide, half way between Forest Hill and Michigan Bluff, Charles Fett has struck a quartz ledge three feet wide, which, by partial assay, shows $45 to the ton. At Michigan Bluff, Van Emen's claims are paying well. The water is beginning to fail, and the mine will soon have to be laid by for the season. A new discovery has been made, or rather rich gravel has been struck, in the Weske claims, between Michigan Bluff and Deadwood. The deposit was found week before last, and six men in six days took out 237½ ounces. Last Chance is reported lively.

Ophir.—Cor. of same: Our mills are crowded with custom work. The shaft on the Minersks, near North Ravine, is down 50 feet. The May Day claim is having 14 tons of rock tested at the Empire mill. Work on the Green mine goes on with good results. Good Friday has yielded so far $30,000, and you will hear more of it. Empire has a shaft down 62 feet. The first five tons of rock crushed paid 14½ ozs.; the next 85 paid $60 per ton. Clunan & Co., of Grass Valley, are sinking a shaft on a ledge near Green's. They had ten tons crushed which paid $15 per ton. From the Hunter prospect shaft a crushing gave $12. From the Cornucopia 250 tons of rock has worked $16 per ton. Simon & Marian's claim on Humbug Flat has yielded $35. Price & Co's extension had 21 tons crushed last week which paid $30 per ton. Shinghe & Emery are crushing rock that will yield $16 per ton. Mr. Battis had 22 tons crushed from the Shipley ledge which yielded $22.50 per ton. Staples & Co. are having 100 tons from the Hathaway mine crushed at the St. Lawrence mill which pays more than ever before. This ledge is three feet wide.

Michigan Bluff.—Cor. of *Stars and Stripes*, 9th: Mr. Weiske owns a claim, two miles above this town, which he has worked for years with such poor success that he has run in debt over six thousand dollars....Last fall he struck rich pay in the back part of his tunnel, which runs into the divide nearly a mile. He has paid all his debts and four weeks ago started for Germany. Since he left, his claim has shelled out $7,000 in cash, over expenses, and a little over $4,000 last week—114 ounces being taken out in one pan. This is, no doubt, the lead which commences at the Dardanelles, passes through Forest Hill, Bath, and extends to Damascus..... The Franklin, adjoining, struck the same lead.....Mr. Bowen has struck rich pay in his claim....Prospects in Upper Placer are cheering.

SAN BERNARDINO COUNTY.

Rising Sun.—*Guardian*, June 4th: This is the name of the rich ledge discovered some weeks ago by a squaw southeast of town. It is owned by Messrs. Schafer, Kreuter and others, and is three feet wide, and down eighteen.

More Gold.—Los Angeles *News*, 11th: Some fine specimens of gold and silver bearing rock from the lately discovered leads in San Bernardino arrived yesterday. We learn that capitalists have succeeded in purchasing several leads.

SAN DIEGO COUNTY.

More Quartz.—*Union*, 9th: Edward Valliere, of New San Diego, sends us a remarkably rich piece of float rock from a gulch in the Cuyamaca range. He says there are tons of this quality of loose rock. The earth in the gulch prospects from three to ten cents to the pan.

SIERRA COUNTY.

Large Nugget.—*Messenger*, 11th: A China Co. brought to town, on Sunday, a piece of gold found on the south fork, valued at $440.

SISKIYOU COUNTY.

Items.—Yreka *Union*, June 10th: On Salmon, Black Bear and Klamath are paying well. The owners of the Jackass will erect a mill. Other ledges promise well.. On Scott bar the ledge of Ryan & Williams is still rich....Pfenninger & Co. have a valuable claim on Virginia bar.... The claim at the lower end of Humbug promises to pay better than ever. They got out of the boxes, after finishing ground-sluicing, 85 ounces.

A Yreka telegram, dated June 14th, says that J. Mallory has discovered a very rich gold-bearing quartz lode one mile north of that place. He has been at it for seven years with a divining rod as guide. The rock paid in a mortar $17 per pound. Visitors are excluded from the mine.

TRINITY COUNTY.

Junction City.—Cor. of *Journal*, 11th: The bringing in the water of Brown's Creek ditch to the bars and high benches from its mouth to the mouth of North fork, would be a good speculation for San Francisco capitalists. The whole cost of the first 30 miles would not be more than $60,000; and that would cover enough ground, known to be rich, to last ten years.

YUBA COUNTY.

Pennsylvania Mine.—*Appeal*, 10th: An assessment has been levied for working purposes of $1 per share, and E. W. Roberts employed as Superintendent. Work will be done on incline No. 2, and rock taken out for crushing from the lower level.

Arizona.

Items.—Prescott *Miner*, May 28th: Last clean-up at Big Bug was good....The tailings from the Vernon ore which C. Y. Shelton packed on his back to the creek, making therefrom $30 per day in a rocker, were last week worked in an arastra, and yielded $230 to the ton....Work at the Sterling mill and mine has been suspended ....Some placer mining is being done. Among dust recently brought from Lynx creek, was an ounce piece....The Vulture City keeps up its lick.

Colorado.

Items.—Central City *Herald*, 8th: Capt. Dean's claim on the Seaton is yielding richer ore than ever....Mr. Freeman and Dr. McCaskill have gone to work on the Rising Sun. The shaft is 280 feet deep. An engine will be put up to-day....Gen. Wingfell has bought No. six east of the Seaton. The shaft, 62 feet, has been re-timbered. He is to put up a residence, a boarding house, and a new whim and shaft-house....Alex. Cameron has built a 1,800-feet flume on North Clear creek, and will extend it 400 feet farther. Ten men are sluicing, and in ten days there will be 25.

Chicago Creek.—Cor. of *Register*, 8th: Stewart & Airey, in Cascade gulch, will get in a quartz mill as soon as possible. Dickerson & Dora will arastra surface ore, without desulphurization. The Plymouth Rock is showing a strong vein of ruby, brittle silver, and sulphurets. The Cynosure is improving rapidly. The Silver Bluff is producing pay.

Items.—Georgetown *Miner*, June 2d: The pyrites in the Terrible has been found by assay to return 422 ounces silver per ton. Twenty tons of first-class ore will soon be shipped to England....Crevice on the Gen. O'Neil is four feet wide; eight inches of mineral in the bottom of the shaft. Average returns by milling will be $150 per ton....Summit county placers will yield largely this season....Crevice in the Creole is six feet wide, and the 8-inch vein at the bottom of the shaft assays $500 to $1,000.

Bullion.—The Brown Co. shipped on Tuesday 325 pounds troy, currency value, $5,000. The Baker Co. shipped to Philadelphia, yesterday, a silver brick weighing 1.004.5 ounces. The coin value was $841.57.

Idaho.

Snake River Mines.—Cor. of *Statesman*, 4th: The river is on the decline, and in six weeks all will be well again in these diggings. High water prospects are more encouraging than ever. A party of prospectors just returned, report prospects of from five to twenty-five dollars per day, up and down the river.

Items.—*Avalanche:* Golden Chariot shute is full of ore and hundreds of tons heaped outside. Rich ore coming out from fourth level. Large amounts of best sacked....A whim has been erected on the Empire....Ida Elmore has a good start.. Coduroy yields quartz rich both in gold and silver....Poorman has plenty of ore, and will put on more men....Home Resort is down 40 feet, and looks well.... Peck pleased with prospect on Potosi..... Good reports from the placers. Shuster & Co. work 22 men in Blue gulch. Six weeks' water yet. Sullivan Bros. have a monster hydraulic in Jacobs' gulch. Clean-up in Peck & Porter paid an ounce per day per hand. Garlick & Co. on Long gulch find nuggets worth 50 cents to $1.

Montana.

Boulder.—*New North-West*, June 4th: About 250 men in the gulch and tributaries. The ground is paying from $4 to $100 per day to the hand. The richest claims are those of Halford, Hunter Jack, and Olinger, on Basin, and Reed & Co's Black Dirt Diggings, on Cataract Creek. The latter pays from $75 to $100 per day to the hand. Stuart & Co., on Alta Gulch, struck bed-rock last week, and began on $25 per day to the hand.

Silver Bow.—All lovely now; all the ditches running full, the ground saturated, and snow deep on the mountains. Chime & Oakwood cleaned up $1,000 from a four days' run; other companies have done well. Bernard's ditch sold $3,000 worth, and the Pioneer and Rocker ditch $3,200 worth of water last week.

Rocker.—There are 100 men at work. Wages $5 per day, $6 per night, in gold dust, at $16 per ounce. Owens & Co. cleaned up $700 for a four days' run, four hands.

Bilk Gulch.—There are only a dozen claims, all of which are owned by Col. Morse, Gil Simmons, and Capt. Plaisted. They are running three strings of sluices with 12 men. Last summer they had only 40 minutes' water per day, and at that the yield was $30 per day to the man.

Highland.—*Independent*, 4th: The Only Chance and Nevin's Companies are running their arastras constantly. The Highland Co's mill is idle.

Yreka.—Doolsy, Kennedy & Co. are doing well. Dugan & Dooley are working a breast of 60 feet, and taking out large quantities of gold. Stone & McKibbet cleaned up $650 one day last week. Grant, McGorem & Highland are making an ounce a day on an average. McGu & Co., in Day's gulch, are making from $10 to $12 per day to the hand.

Top O'Deep.—Mell McGee & Co., Ferguson & Co., Prince & Co., McPhael & Co., Flanagan & Co., Curley & Co., O'Conner & Masterson, McDermott & Co., Terrill & Davis, are making from $7 to $18 a day to the hand.

Pilgrim Bar.—Blair & Thornton, ground sluicing, made a clean up, after a three and one-half days' run, and took out $1,825. The previous clean ups during thirteen and one-half days, swell the amount to $6,126.60. Holcomb, Beery & Co. cleaned up $2,500. Several other companies did well.

Meadow Creek.—Cor. of *Capital Times*, 3d: Eight or ten companies in Washington and Blue Sag are paying $6 to $8 per day to the hand. Miners generally have ground enough to last for years;—which is as it should be, as they have spent years in prospecting and preparing it.

Items.—Same of 6th: Snap & Peel, at Adobe Town, cleaned up on Saturday $300. Mr. Olson is taking out $75 to the set of timbers. About sixty are at work about Adobe Town, and there is not an idle man. Armitage Brothers, below Nevada, made a clean up Saturday of $350. after four days' run with three men..J. M. Trivett came in from Silver Star, Saturday, with 190 ounces of retort, the result of a seventy-two hours' run with 10 stamps, on the Iron Rod.

Cedar Creek.—R. O. Bailey reports: There are 3,000 to 4,000 men in the camp —at least 1,500 more than ought to be. When Mr. Bailey left there were 15 sluices running, but the recent storm has undoubtedly stopped one-half of these. They were paying from wages to a little more. Wages are $6 per day.

Nevada.

COPE DISTRICT.

Argenta.—Elko *Chronicle*, June 9th: John Dixon reports everything prosperous. Drew & Co's mill had to stop two days for want of quicksilver, but now is pounding away on the contract of 1,600 tons from the Argenta and Excelsior.

Treasure.—The following amounts passed through Wells, Fargo & Co's office at this place from the 4th to the 8th June: From Mountain City, $3,000; Idaho, $22,000; White Pine, $21,000; total, $46,000.

Bruno District—J. Norton, from a tributary of the Owyhee, exhibits gold-bearing quartz from a new discovery. The ledge is four feet wide. Working tests satisfactory. Water power convenient.

HUMBOLDT.

Rebel Creek.—*Register*, June 11th: W. M. Tanner and others have been surface mining on Rebel creek, fifty miles north of this place, for four months. The mines have yielded regularly from four to six dollars per day to the man.

Railroad District.—*Independent*, 8th: Work is progressing on the Wisconsin Chief, Mountain Boy, West Humboldt, Union, Bunker Hill, Constitution, Bullion, Mayflower, Bald Eagle, San Francisco and Crystal Peak.

REESE RIVER.

Mineral Hill.—Elko *Chronicle*, June 12th: The Co. have had ore worked at Austin and Reno, with an average result of $503 per ton from the Live Yankee, Mary Ann, Star of the West, Give Out, Giant, Great Republic, Silver Queen, Vallejo, Grey Eagle and several others. One lot from the Star of the West worked $950.37 per ton; one lot of 20 tons from the Austin worked $630 per ton. Hundreds of tons of float have been gathered on the sides of the hill, which worked from $150 to $300 per ton. Curtis & Huber, old mill and mine men are putting up a mill to cost $60,000, with no other guarantee than the mines themselves offer.

Cive Hill is two miles south of Mineral Hill. Prospects are "first-class."

WASHOE.

Crown Point.—Gold Hill *News*, 11th: Sixty tons low-grade ore daily from the upper levels. The annual report to May 1st says: There were 2,227 tons of ore worked at the Rhode Island mill, yielding $15.52, and 3,615 worked at the Petaluma, yielding $13.14—showing an average yield for the year of $14.12, while the cost of working the ore was $11.12 per ton. Bullion produced, $76,167.

Imperial-Empire.—The winze from the 1,100-foot level was down 86 feet this morning, and shows improvement in the ore.

Hope.—The body of ore at the lowest level continues yielding well. Both mills are steadily running, the daily yield of the mine being from 30 to 35 tons of $20 ore.

Yellow Jacket.—Daily yield, 270 tons, from the 900 and 800-foot levels. The ore body being worked north and upward toward the 800-foot level, is the best ever found in the mine. It is being breasted out over 50 feet in width.

Ophir.—Both southwest drifts at the lower level of the new works are progressing well, with good indications and a decrease of water. The shaft of the pump broke day before yesterday. It will take a week to get the water out in consequence.

Hale & Norcross.—The repairs to the shaft being concluded, and work resumed at the lowest levels, the daily yield is again increased to 200 tons.

Virginia Consolidated.—A heavy increase of water was tapped Tuesday in the drift west from the 500-foot station of the new shaft, which drove the workmen out, and has kept the bailing tanks in full operation ever since.

Occidental.—The old upper portion of the mine is yielding at the same regular rate. No increase of water. Work on the new mill progressing.

Gould & Curry.—Daily yield, 80 tons.

Belcher.—The ore yield shows a falling off, owing to the surface stopes above the 152-foot level and the ore seam above 262-foot level giving signs of exhaustion. Some fair ore near north boundary line.

Sacramento & Meredith.—The new mill is running splendidly, with a plentiful supply of water and plenty of good ore.

Chollar-Potosi.—Daily yield, 175 tons. The Belvidere section still continues its extra yield. Receipts for May, $146,983.79.

Sierra Nevada.—Both mill and mine running steadily.

Caledonia.—*Enterprise*, 12th: About 40 tons per day of fair ore extracted. The Piute and Sapphire mills are supplied with ore from this mine.

Sutro Tunnel.—The tunnel is in 1,225 feet, and is now in regular casing, with a strong indication of soon striking a ledge.

The Comstock "Giving Out."—Bonsfield & Co., assayers, in this city, day before yesterday received 3,300 pounds—nearly a ton and three-quarters—of crude bullion for melting and assay, and yesterday morning by 9 o'clock all was in forty bars, worth between $90,000 and $100,000.

WHITE PINE.

Review.—*News:* The apparent inactivity in mining is due, in part, to pending negotiations. These include a number of heavy sales, and also several important consolidations, and the uniting of mills and mines under one management. The shipment for last week amounted to $31,586.03, of which, $18,143.25 went West, and $13,442.78 East. In addition to this, 547 bars of base bullion was shipped, weighing 45,932 pounds, and 48,833 pounds of base ore.

Items.—Anchor Consolidated has struck a rich and extensive body of ore....South Aurora is taking exceedingly rich ore from the Autumn Pit and the drift. The Stanford mill turns out over $3,000 per day from the ore of this mine, and the supply seems inexhaustible......Domingo still yields largely of good ore....Aurora Consolidated is shipping ore steadily....Treasure Hill Co. extracts 15 to 20 tons of high-grade Summit ore daily....Virginia looks better than ever....Manhattan has been started again....Borealis will start soon. The sale of the Eberhardt and other mines has been consummated....A German prospector in the Pinto Range sent a quartz specimen for assay which went over $1,500 in gold....The Alsop Smelting Works have fired up again....In ten days the Alsop turned out 36 tons of bullion.... Dayton mill has been leased to Chas. Coover.

Outside Districts.—Ely is showing improvement. Pattersou is reviving, and a well known millman contemplates putting up a mill there. Silver Park is shipping bullion steadily. The smelting works at Robinson have not yet started up, but the mines are yielding base ore of high grade. Piermont and Shoshone are expecting mills during the summer, and Cooper will probably have one or two before fall. Fraser & Wormer have been at work for two months on Duck creek, in Galena district. Assay of the ore warranting the move, they sunk a shaft, took out 20 tons, and are preparing to make a test by smelting. Pinto prospects are encouraging. The shaft of the Maryland mine is down 90 feet, through ore that will average $200 to $1,200 to the ton. There is 120 tons of ore sacked, and 65 tons have been shipped, which have averaged $200 per ton in San Francisco. The Champion looks well, and is being worked. The Pinto Co's mines are all being worked.

Edward Stahl is working a promising mine called the Sunburst. He has struck a ledge of ores at a depth of eight feet which shows a vein one foot wide.

Yellow Pine.—Los Angeles *News*, June 10th: Mr. Chas. S. Scott brought to this city a piece of silver ore from his mine in Yellow Pine district, weighing 846 pounds, which surpasses in richness anything we have ever seen.

New Mexico.

Items—*Press and Telegraph*, May 28th: **Spanish Bar.**—Bloomfield & Co. have a very regular pay streak, and average $6 per day to the man, at a cost of $3.50....McBride & Co., in the hed of the Moreno, have a long string of claims, and have done an immense amount of work with as yet light returns. Prospects are improving. ....Currey & Co., Grouse Gulch, have had good dividends, but now are idle for want of water.....Bowers & Co. have been getting $8 to the hand per day.....Tom Pollock has eight men, and averages $6 per day to each, at an expense of $2.50. He sinks a shaft 20 feet to bed-rock, drifts, puts in 100 pounds or so of blasting powder, places a long fuse to it, throws back the loose dirt, and touches a match to the fuse. The hard cement is then ready for ground sluicing, from grass-roots to bed-rock.... Michigan Co., besides cleaning their pit of the wash from the bursted reservoir, cleaned up a pound of gold last week.... Carpenter & Lowthian have made repairs and are ready for work again....Sutton's hill diggings pay $5 per hand per day.

Eagle Mine.—The *New Mexican* gives these figures: From January 21st to April 31st, 1870, 1,000 tons of ore were worked, producing 3,788 ounces of gold bullion, valued in currency at $74,760.

The New Mines.—Letter to the *New Mexican*, dated May 7th, says every claim has so far proved even richer than anticipated. Hundreds of feet of ledges that rise in places 50 feet above the surface, contain ores that assay thousands of dollars to the ton. Mills are on the way. Wood is scarce—must be brought 25 miles. Water abundant at 15 feet depth. Few claims have changed hands; 25 feet in the Valley claim sold for $1,000 to Col. Sam. Jones.

The San Diego *Union* gives part of a letter from D. O. McCarthy, dated Ralston, May 22d: "I have been examining the mines in company with Messrs. Arnold, Hutchinson, Governor Safford and Colonel Dunn, and I tell you that the truth has not been half told. Great fissure leads, *standing up in the air*, one to two hundred feet high, and three to five hundred feet in width, every pound rich with silver ore that will pay fifty to five thousand dollars a ton."

The *Bulletin's* own correspondent writes from Ralston, May 22d, that 1,257 claims had been recorded. The three monster veins, Harpending, Brown, and Arnold, crop out for miles, in places 50 feet above the surface, and varying in width from a few feet to hundreds. There is more good looking ore in sight than has ever been worked in the mills in and about Virginia and Gold Hill. But little work has been done, except to hold the claims. Men with no money had better stay away for the present, as there is no demand for labor.

A Mesilla letter to the Santa Fé *Post* of June 4th says parties are hauling lumber 75 miles for building purposes. Ore from several of the lodes has assayed in San Francisco and Philadelphia from $500 to $8,000 per ton.

Oregon.

A Lump.—Dalles *Mountaineer*, June 7th: A nugget of gold valued at $3,966.64 was taken out of a claim at Gimletville, Baker county, owned by Dr. S. A. Caldwell, on the 30th of May.

Quartz.—Jacksonville *Sentinel*, 11th: We are informed that a rich gold-bearing ledge has been discovered on the divide at the head of Indian creek, Josephine county.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment.	Day Delinquent.	Day of Sale.
American, G. H., June 13, $3	July 18	Aug. 6
Aurora Cons., W. P., May 7, $4	June 14	July 7
Belcher, G. H., June 8, $4	July 11	July 30
Cosala, Mexico, June 2, $1	July 7	July 27
Confidence, G. H., May 14, $10	June 17	July 8
Cayuga Chief, W. P., April 29, 15c	May 31	June 21*
Cordillera, Mexico, June 8, 50c	July 9	Aug. 1*
Empire M. & M., S. co., April 22, $10	May 27	June 18
Evening Star, No. 1, W. P., June 4, 6c	July 2	July 25*
Featherstone, W. P., June 14, 20c	July 20	Aug. 11
Gold Hill Quartz, G. H., May 16, $20	June 20	July 11
Hope Gravel, May 25, $1	June 27	July 18
Hall & Van Dyke Cons., June 7, 60c	July 23	Aug. 20
Imperial, G. H., May 7, $5	June 10	July 2
Julia, Storey co., May 13, 75c	June 15	July 1
Latawana, W. P., June 2, 15c	July 14	Aug. 6*
Mammoth, W. P., May 26, 20c	July 1	July 22
Mineral City, May 12, $1	June 16	July 2
Mountain City, Elko co., April 8, 50c	May 23	July 11*
Noonday, W. P., May 10, 30c	June 16	July 7
Nevada L. & M., Elko co., May 3, 3c	June 7	June 28*
N. Bloomfield Gravel, June 2, $2.50	July 5	July 22
Ophir, Storey co., May 6, $5	June 9	June 30
Placer G. & C., Placer co., June 11, $2	July 26	Aug. 16*
Pinto, W. P., May 2, 10c	June 2	June 20*
Segregated Belcher, G. H., May 30, $3	July 1	July 22
Savage, Storey co., May 3, $7.50	June 6	June 25
Silver Vault, W. P., May 3, 6c	June 9	June 29*
Siempre Viva, Mexico, April 25, 25c	June 2	June 29
Tallulah, Sierra dist., May 10, $2	June 25	July 18
Virginia, W. P., May 14, 50c	June 21	July 0

MEETINGS TO BE HELD.

Alpha	Annual Meeting June 20
Hidden Treasure Cons	Annual Meeting June 20
Imperial	Annual Meeting June 28
Mahogany	Annual Meeting June 28
Overman	Meeting July 7
Silver Sprout	Annual Meeting June 28*
Sophia Consolidated	General Meeting June 20

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable June 10, 1870
Eureka, div., $7.50	Payable May 7, 1870
Golden Rule, div., 50c	Payable March 26, 1870
Hale & Norcross, div., $5	Payable April 9, 1870
Ida Elmore, div., $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
North Star, div.	Payable May 5
San Marcial, div., 50c	Payable June 10, 1870
Union, div., $1	Payable May 10, 1870

—*Advertised in this journal.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

Masonic Hall Association.—June 9. Capital stock, $250,000; 25,000 shares. Trustees: A. G. Abell, E. W. Bourne, L. Cohn, I. C. Davis, E. V. Hathway, A. Hollub, J. Laidley, W. M. Rundell and C. L. Wiggin.

Deep Spring Valley M. Co.—Mono county, June 10. Capital Stock, $100,000; 2,000 shares. Trustees: T. Tennant, J. McCloskey, C. Bogan, O. P. Fitzgerald, P. O'Sullivan and D. Conkling.

Panaca M. Co.—Nevada, June 11. Capital stock, $1,000,000; 10,000 shares. Trustees: G. Kustel, A. B. Judson, S. A. Raymond, W. Gardner and E. Tripp.

General Lee S. M. Co.—White Pine, June 15. Capital stock, $2,000,000; 20,000 shares. Trustees: W. B. Cook, J. L. Haskell, H. C. Patridge, A. Rushmore and Charles F. Schulze.

Meetings, Elections, Etc.

Hearst M. Co.—June 6. Trustees: D. D. Colton, J. O. Earl, M. S. Latham, S. M. Wilson, C. E. Johnson.

Bromide Flat M Co.—June 7. Directors: W. E. Barron, A. E. Head, D. D. Colton, A. Hayward and G. Hearst.

Sacramento & Meredith M. Co.—June 15. Trustees: J. B. Haggin (President), J. M. Livingston (Vice-President), Lloyd Tevis, R. E. Brewster, W. W. Blow. Secretary, W. Doolan; Superintendent, T. F. Smith.

A **gold nugget**, valued at $3,966, is reported as recently taken out of a claim at Gimletville, Baker county, Oregon.

San Francisco Mining Stock Market.

The sales of several prominent stocks mentioned in our last report continued to nearly as large an extent as the previous week, Original Hidden Treasure showing a material recession, while Savage, Yellow Jacket, Chollar-Potosi and several others have been well maintained. The amount of business transacted may be considered quite large for this season of the year, but during the past week did not extend over so large a range of stocks as heretofore. However, it seems to us that the severe depression which has ruled for some time past is about to take a change, and that the recent activity of a number of stocks apparently points to such a conclusion.

The aggregate sales in the San Francisco Stock and Exchange Board, during the month of May, for a series of years, have been as follows:

May, 1865	$5,665,549	May, 1868	$10,162,390
May, 1866	3,052,102	May, 1869	8,961,913
May, 1867	7,651,855	May, 1870	4,558,765

The total sales during the first five months of the past six years have been as follows:

In 1865	$19,793,934	In 1868	$52,435,060
In 1866	18,868,761	In 1869	35 965,647
In 1867	24,249,002	In 1870	24,191,731

Chollar-Potosi—continues to be well maintained, under ordinary sales. During the week closing June 10th, 1,230 tons of ore were extracted, showing an average assay value of $52 33 per ton; previous week, 1,200 tons were extracted. In the Belvidere section, both in raising and sinking the shaft from the surface, which connects with the "raise" from the 18th floor, they passed through good ore. The Blue Wing and New Tunnel sections of the mine are yielding their usual supply of ore, the same being of a somewhat better quality. The drift running west from the top of "raise" in the New Shaft is 47½ feet long, passing through porphyry and clay. The drift running north is 102 feet long, requiring 70 feet to connect with the 6th floor of Potosi shaft.

Gould & Curry—increased in sales, but not in price during the week under review. For the week ending June 12th, the ore yield is reported at 546 tons, showing an average assay value of $51 37 to the ton; previous week, 401 tons were taken out. On the seventh station 16 feet have been added to cross-cut "A" during the week, running in hard blasting quartz, making the total length of drift 116 feet. From the fourteenth floor, 100 feet above the lower adit, an incline has been raised 44 feet, connecting with El Dorado level, showing quartz with small bunches of ore. The El Dorado winze is down 75 feet, and they have commenced drifting from it. The west drift in the United States tunnel has reached the west clay.

Belcher—is dull of sale at the decline. From the 3d to the 11th inst., 419¾ tons of ore were sent to the Rhode Island mill, showing an average assay value of $29 68. In the cross-cut going east on the 730-level, near the south line, a favorable change is said to have taken place. The May receipts of bullion aggregate $27,316.

Kentuck—under small sales has declined in price. For the week ending June 10th, 163½ tons of ore were extracted, yielding an approximate value of $3,377, equal to $20 65 per ton. The bullion yield for the month foots up $18,929.——**Crown Point** sold to a less extent than usual. During the week ending June 10th, 313 tons of ore were taken from the mine, the assay value being $5,594, or $17 87 per ton.——**Segregated Belcher** reports a bullion product of $15,835 for May, and $11,388 for account of the current month.

Overman—was in moderate request at a decline. The bullions returns for May aggregate $52,000.——**Sierra Nevada** sold at uniform rates. During the two weeks ending June 14th, 810 tons of ore were taken from the gravel deposits.——**Imperial** exhibits a decline. On the 13th inst. the bottom of the winze looked well, and they had encountered some fine ore in bunches. The 1,200 drift is in porphyry and clay. The southwest drift on the 1,100 level shows only quartz and phrphyry. Most of the quartz in this drift seems to run to the west, and they intend to carry a drift to the south line, and from thence cross-cut. Annual meeting, June 28th.——**American** levied an assessment of $3 per share on the 13th inst.

Hale and Norcross—sold at fluctuating rates, declining from opening rates of the week. During the week ending June 12th, 1,412 tons of ore were extracted, of which amount the seventh station yielded 794½ tons. The bullion returns for the month of May foot up $164,830. The ore-breasts on the third floor, lower level, have been partially opened, and are reported to look very well. In the cross-cut, 150 feet north of the shaft, the ore is 40 feet wide, and they have not yet reached the west wall.

MINING STOCK QUOTATIONS, JUNE 17, 1870.

WASHOE.

	Bid.	Asked.		Bid.	Asked.
Alpha Con.	$ 8	$ 8¼	Gold Hill Q M Co.	$ —	$—
American	—	—	Hale & Norcross	100	102
Belcher	8	8¼	Imperial	—	33
Bullion	—	—	Justice	—	—
Crown Point	—	10	Julia	—	—
Cole, Va.	—	—	Kentuck	38	38½
Confidence	—	—	Lady Bryan	50c	75c
Chollar-Potosi	26	26½	Occidental	8½	9
Con. Virginia	9	9½	Ophir	12¼	12½
Caney	—	—	Overman	63	64
Empire	—	—	Savage	44	44½
Exchequer	—	—	Sierra Nevada	8	8½
Flowery	—	—	Seg. Belcher	—	3
Gould & Curry	75	76	Yellow Jacket	45½	46

WHITE PINE.

	Bid.	Asked.		Bid.	Asked.
Aurora Con.	$—	$ 5½	Noonday	1¼	1½
Brodt	—	—	Orig. Hidden Tr.	11¼	11½
Chloride Con.	—	—	Pocotillo	—	—
Featherstone	—	—	Pogonip & Oth'o	—	—
Hidden Tr. Con.	—	50c	Silver Wave	4	4¼
Mammoth	1	1⅛	Virginia	—	—

CALIFORNIA.

	Bid.	Asked.		Bid.	Asked.
Amador	$202½	$203	Eureka	$300	$305

IDAHO.

	Bid.	Asked.		Bid.	Asked.
Golden Char't.	$ 10	$ 12½	Silver Cord	$—	$—
Rising Star	—	—			

Patents on the Pacific Coast.—To those of our friends who desire to keep posted upon inventions upon the Pacific coast we say, subscribe for the Scientific Press, published by Dewey & Co., San Francisco, Cal., at $4 per year. The opening of the railway across the continent has given to all patents a much higher value in that portion of our country known as the Pacific slope, and all interested will find the paper above alluded to a valuable reference.—*Mechanic and Inventor Detroit, Michigan.*

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

Churning Butter—Fast and Slow.

Butter-making consists simply in breaking, by agitation, the envelopes of the little globules of butter, which rise to the surface of milk when at rest, and form a large portion of what we call cream. As soon as the envelopes are broken, the globules come in contact and adhere, forming masses of butter.

The excellence of butter is largely influenced by the temperature of the cream or milk during the process of churning. Experience has fixed this temperature, for the best results, at from 50° to 55° F. If the whole milk is churned, the temperature should not be allowed to fall below 55°; when only the cream is operated upon, four or five degrees lower is generally found advantageous.

In the process of churning, the agitation should be slow, until the cream has been "broken," or rendered thin. During this time considerable gas is evolved, the escape of which, from under the cover, will be noticed. When the gas no longer escapes, or when the cream has become thin, the motion should be slightly accelerated until a change in the sound is noticed, from low and smooth to a harshness of tone and an irregularity of resistance.

The butter may now be expected soon, and the motion should be still further accelerated, until the forming butter becomes sufficiently firm to impede the agitators, when the process should gradually be brought to a stop.

The rate of motion is of much importance; for if too slow, time is lost, and the butter acquires an unpalatable flavor; while if too rapid it will be soft and frothy.

It is often stated in the advertisements of patent churns that their use will cause the butter to come *quicker* than the use of any other. It will sometimes be said in as short a time as ten, eight, or even five minutes. If they accomplish their purpose in an unexceptionally short time, they will do it at the expense of the *quality* of the butter. Don't make shortness of *time* an important consideration in the working of a churn. Butter that has been made with thirty minutes churning is better than that which has occupied ten minutes in the process. Good butter is never obtained in less than twenty minutes.

Butter should always be removed from the churn as soon as formed. The sooner it is freed from the buttermilk by after-working the better.

Butter will come quicker from cream that has stood until it has become slightly acid than from that which is churned when perfectly sweet; probably because the acid so acts upon the covering of the butter pellicle as to allow it to be more readily broken.

Cream taken from milk in cold weather does not yield its butter so readily as that which is taken from the same cow in warm weather; probably because the coverings of the butter pellicles, formed in cold weather, are thicker than those formed in warm weather. It is said that this trouble may be obviated, in a great degree, by setting the pan as soon as the milk is strained, on a stove or in a very warm room for a short time.

How to Destroy Weeds.—The great means of destroying most kinds of weeds is to keep the leaves and stems from appearing, by frequent mowings or cuttings. Cutting them before the seeds have ripened is, of course, absolutely essential, but not always sufficient.

The grape crop of New Mexico will be unusually large the present season.

The Marvels of a Seed.

Having considered, in previous numbers, the organs of the flower, and the manner in which the seed is produced, we will now look for a few moments into the marvels of the seed. How many of our readers have ever considered the wonders inclosed in the seed of a plant? There is no machine, there is no device on earth, constructed by man, which contains so much that is wonderful as is found inclosed in a single grain of corn, or in a little apple seed. As we have not space to go into a detailed description of the various kinds of seeds, we will briefly summarize as follows:

The fruit comprises the seed-vessel and the seed itself, and constitutes the base of the pistil. It exhibits a great variety of forms, which constitute the different kinds of fruit. We have the nut fruits, the stone fruits, the pome or apple kinds, the berry or many-seeded fruits, the gourd or melon varieties, etc.

The grains are, properly, fruits, containing the seed and seed-vessels so closely united that they cannot be separately distinguished except after being soaked a day or two in water.

If we cut a kernel of corn lengthwise, we observe extending from the point where it was attached to the cob, the soft "chit," *b*, Fig. 1, which is the embryo, and its appendages, to be presently noticed. The remainder of the kernel, *a*, is called the endosperm, and is intended for the support of the young plant as it develops from the embryo, before it is capable of depending on the soil and atmosphere. It is not an indispensable part of the seed, and may be removed without preventing the growth of a plant.

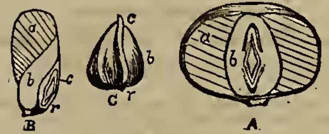


Fig. 1.

The embryo or germ, the most important portion of the seed, is a ready-formed plant in miniature, and contains within itself its root, stem, leaves, and a bud, although these organs are often as undeveloped in form as they are in size.

When a kernel of corn has been allowed to soak for a day or two in water, the embryo may be easily separated from the endosperm, and subjected to a careful inspection, as shown at C in Fig. 1. By careful manipulation it may in that condition be divided into three parts, which are called the *radicle*, the *plumule*, and the *cotyledon*. By the aid of a magnifyer the leaves, which subsequently appear above ground may now be seen wrapped together in the plumule. In Fig. 1 the embryo is seen imbedded in the endosperm, at A and B, while C exhibits the detached embryo. The *radicle*, *r*, is the rootlet of the seed-plant, or rather the point from which downward growth proceeds, from which the first true roots are produced. The *plumule*, *c*, is the ascending axis of the plant, the central bud, out of which the stem with new leaves, flowers, etc., is developed. The *cotyledon*, *b*, is in structure a ready-formed leaf, which clasps the plumule in the embryo, as the proper leaves clasp the stem in the mature maize plant.

The cotyledon of maize, wheat and other grains, the onion, all the grasses and many other plants is single, or in one piece; while that of the leguminous plants, as the bean, pea, clover, turnip, etc., the ordinary fruits, melons, and many forest trees, as the ash, maple, etc., is double or in two pieces or halves, as seen in Fig. 2.

Plants whose seeds have but one cotyledon are called *endogenous*, and are characterized by having their stems increase by *inside* growth; while those which have seeds with two cotyledons—or two halves—are called *exogenous*, and are characterized by an outside growth of the stem. We may best observe the structure of the latter by examining the ordinary bean. After a bean has been soaked in warm water for several hours, the coats may be easily removed, and the two fleshy cotyledons, *c*, *c*, in Fig. 2, will be found divided from each other, save at the point where the radicle, *a*, is seen projecting. On carefully breaking away one of the cotyledons, we get a side view of the radicle, *a*, and plumule, *b*, the former of which was partially and the latter entirely imbedded between the cotyledons. The plumule plainly exhibits two delicate leaves, on which the unaided eye may note the veins. These leaves are folded together along their mid-ribs, and may be opened and spread out with the help of a needle.

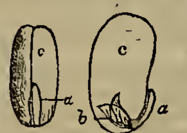


Fig. 2.

When the bean germinates, the cotyledons are carried up into the air, where they become green, and constitute the first pair of leaves of the new plant. The second pair are the tiny leaves of the plumule, just described, between which is the bud, whence all the subsequent aerial organs develop in succession.

In the horse-bean, as in the pea, however, the cotyledons never assume the office of leaves, but remain in the soil, and gradually yield a large share of their contents to the growing plant, shriveling and shrinking greatly in bulk, and finally falling away and passing into decay.

We shall next week endeavor to exhibit the anatomy of a grain of wheat, and follow the same by some remarks on the miracle of growth. We are again indebted to "How Crops Grow" for the accompanying illustrations.

Silk Culture in Santa Clara County. Mr. Jesse Williams, who was the first to introduce silk culture into Santa Clara county, commenced operations a little over two years ago, about seven miles from Watsonville. He has now three acres planted with mulberry trees, from which he is feeding 40,000 silkworms. The cocoons are large and fine looking, and the worms healthy. The success which has thus far attended the efforts of Mr. W. in this direction, is attracting others, in that vicinity, to this interesting and promising branch of industry.

We may remark, in this connection, that the silk crop in Los Angeles, this year, so far as already realized, is very superior. Indeed, the reports of silk-growers, generally, throughout the State, are highly encouraging. The mistakes and accidents of past seasons have been carefully guarded against, and the indications promise a large yield of superior silk.

Save the Horse Hides.—Horse hides are recommended in the Atlantic States in place of Buffalo skins, which are becoming scarce and high. A gentleman of Lee county, Illinois, writes to his local paper that he recently lost a colt and a mule; he had them skinned, and dressed the hides with the hair on, and would not give the mule-skin for any buffalo robe of the same size he had ever seen. The hide of a colt that has run out all winter has a thick, heavy coat of hair on it, and, if well tanned, makes a good robe.

The Stockton century plant has reached a height of thirty feet. Mr. Armington, who has charge of the grounds, says that the flowering stalk grew ten feet in fourteen days, or at the rate of a little over three-eighths of an inch per hour!

John at the Plow.—It is said that a Chinaman at the Oregon State Fair did the best plowing that was done upon the grounds.

The Santa Cruz Farmers' Club.

The Farmers' Club of Santa Cruz, at a meeting held on the 4th inst., discussed matters previously taken under consideration without coming to any positive action.

The report of a committee on the agricultural park and the establishing of an agricultural society with memberships, etc., was received, and, after some discussion, postponed till another meeting.

The present mode of assessing property in Santa Cruz county was also again discussed, and laid over to the next meeting, which will be held in the club room in the Court House, on the 18th of this month. I was not so fortunate as to be present at the meeting, but get my information from Mr. J. W. Morgan, the Secretary. J. S. Matteson is the President, and all the members are farmers; no others can belong to it. This is as it should be, as it will prevent any "ring" from controlling the voice of the club.

A Speculation.

Several of the business men in Santa Cruz have bought up a farm of 160 acres of fine land, within the city limits, and bordering on the bay, for the sum of $8,000. On one-half of it they have laid out a mile race track and the fair and park grounds. The balance they have laid out in five-acre lots, beautifully situated on the streets they have designed. They are now at work improving it, and mean to sell the lots for enough to clear the balance. Mr. Hihn assured me that this they would surely do. They have designed an agricultural society, and will sell life memberships for $50. It is to be presumed that the Farmers' Club are advising in the matter. It is purely their own business. What is for their interests, it is for themselves to determine.

Assessing Unimproved Property.

Whatever action the club takes upon the mode of assessing property, one thing is sure, unequal taxation is having a discouraging and damaging effect upon the industrial interests of this State. This is more especially the case with the land and agricultural interests. It is a well-known fact that large tracts of unimproved land are never assessed at anywhere near the real value, while as soon as a settler gets hold of a farm, up goes the taxes on the land. Every improvement is remorselessly taxed; every acre that is plowed, including the plow itself and the team and every product of industry, is taxed till the sweat of the brow strikes a chill to the very life of honest toil! The lands that miserable greed and corrupt speculation have robbed from the public domains, and hold as forbidden ground against the people, against industry, enterprise and civilization, are almost exempt from taxation, while the bone and sinew, the brain and enterprise, the useful and progressive, are taxed beyond endurance. The labor and the bread of life is made to drive and oil the expensive machinery of State, that monopolies may flourish. Every head of live stock that a farmer raises is heavily taxed, but the herds that overrun thousands of wild acres are lightly assessed. Where is the justice in taxing lands made valuable by the surrounding influences of industrial progress; lands kept out of market, or above the reach of settlers; lands kept unproductive by idle speculation, barren of good to the community, yet grown to a marketable value nearly or quite equal to the surrounding improved lands?

It is time that some decisive action was taken, that some virtuous measures were resorted to, that something was done in this matter. Land monopolies should be made to pay taxes to the full value of their lands. Unimproved land should especially be made to pay full taxes. If the owners cannot stand it, let them sell out to somebody that can; and the sooner they do that the better. And in order to encourage improvement and settlement of lands, at least eighty acres of every new farm should, if broken up with the plow, be exempt from taxation the first year of cultivation.

Although the Farmers' Club of Santa Cruz may not be equal to the task of regenerating and reörganizing the affairs of State, their influence will probably be cast on the side of justice and right. Some doubtful wiseacres think that they would do better to confine their discussions to the matters of what to grow and how to best cultivate it. While industry is the sufferer, it is right to wage war on the pestiferous evils that eat so large a share of prudence, as well as to consider the means of advancement in farming.

S. H. Herring.

Bones—How to Utilize Them—No 2.

In our last we showed how bones were reduced or ground by machinery and also how they might be so softened and rendered brittle, by a slow process of decomposition, as to be quite readily pounded up by hand, easily ground in a common bark mill, or sufficiently broken up by merely handling and turning over with a rake or shovel.

How to use Bones Softened by the Latter Process.

If the bones have been collected and mixed, as described, with stable manure and ashes in the spring or early summer, by the following spring they will be ready for use. When shoveled out of the heap, if the process has been thorough, the bones ought to be nearly as soft as chalk, and will need neither grinding nor pounding. Bones that have been thoroughly boiled, steamed or burned, will not decompose in the heap, so readily as *raw* bones; because most of the animal matter is removed in the process of boiling, and all of it in burning; while it is to the presence of such animal matter that the decomposition and fermentation is largely due.

Before applying the compost to the soil the heap should be shoveled or raked over, once a week, for three or four weeks, during which it would be well to add to the mass all the hen manure which can be conveniently collected. The process of raking or shoveling will often serve to disintegrate and pulverize the bones to an extent sufficient for immediate use.

In applying them to the soil put about a handfull of the compost to the hill, for corn, potatoes, squashes, melons, etc. If spread broad-cast, for grain, grass or other crops, double or treble that quantity may be used, and the beneficial effect therefrom will be seen for several years—more perceptibly the second and third than the first year. Its use will be found to increase and forward the crops wonderfully. There is an abundance of evidence that

Ground Bones Will Pay;

So also will bones treated in the manner above described. There is not an acre of wheat land in the State, the original yield of which is now materially less than when it was first cultivated; nor an acre which has been for a series of years devoted to culture of any kind, that may not be greatly benefited by a dressing of this kind. Thousands of acres of our best wheat lands, which are not now yielding more than half or one-third as much as formerly, may, by such dressing, be brought up to the original yield—and the value of the land thereby *doubled.* Other tracts of poor land, which have never yielded remunerative crops, might be made valuable by its application. Such fertilizing matter is the very life of the soil.

European farmers understand this, and import thousands of tons of bones annually, to be ground up and applied to their farms. Every ship-load that we thus part with works a positive injury to our agriculture, not a fourth part of which is repaid by the price obtained for the bones.

The Difference in Bone Manures.

We have already, in our article last week, made some reference to the difference between fine-ground bones, and those used in a coarser condition. The difference is only one of time. The finer the bones are reduced, the less and more frequent should be the amounts applied. But in the actual amount of fertilizing matter, finally utilized, there is no difference. The contrast is simply the time required for the money invested in the manure to come back. The finest floured bone acts as quickly as guano, and needs renewal as often. If bones are applied whole or coarsely broken, three or four wagon loads should be used to the acre. If ground, ten or twelve bushels will answer; which amount, however, if mixed with half the barn manure, generally, applied will be greatly increased in value, beyond the added cost of the barn manure. If the ground bones are dissolved in sulphuric acid, so as to form a superphosphate of lime (which will be hereafter described), three or four bushels only need be used, mixed with the same quantity of manure.

Ground bones or bone meal should be used in preference to the superphosphate, when the object is less to obtain prompt returns than to permanently increase the richness of the soil. Hence, for vines, trees, lawns, grass, etc., we should use ground bones; while for corn, root-crops, and perhaps for grain, where quick action is desirable, superphosphates may be most advantageously employed.

Bone Charcoal as a Manure.

Bone charcoal is made by heating bones in closed vessels, called retorts. The gases which pass off during the heating contain carbonate of ammonia; these are condensed in water. The liquid is then mingled with fine-ground plaster. This contains sulphate of ammonia and carbonate of lime. The liquid is then drawn off from the chalky carbonate of lime, and the ammonia salt is obtained by evaporation. The bones are now heated again to drive off the volatile substances. They are then broken down and pulverized, when they may be used as a fertilizer.

In our next issue we shall refer to the treatment of bones with sulphuric acid or the manufacture and use of superphosphate of lime.

A Fact for Farmers—Deep Plowing.

The Stockton *Republican* says: On the western side of the San Joaquin river, the wheat crop is a total failure this season. The whole surface of the country now presents a dry, parched up appearance, and the angel of death, in the shape of dry, hot winds, has desolated the grain fields. There is, however, one small oasis—a green spot in the desert—which greets the eye of the traveler, and gladdens the heart of the owner. About two miles from Banta's, and adjoining Peck's ranch, lie one hundred and sixty-three acres which are green and thrifty and promise to yield a fair crop. All around this field are miles of the same soil seeded in wheat, on which not a grain will be raised this season. Seed, soil and everything except the manner of seeding is similar yet his neighbors raise nothing, while A. P. Stocking has one hundred and sixty acres of fair wheat. The ordinary custom of sowing wheat is to plow the ground (a very shallow plow at that,) sow the seed and harrow it beneath the surface. Stocking pursued a different plan. He first deep or subsoil-plowed his ground; in the fall he re-plowed it and harrowed in the seed. In the spring the whole area was heavily rolled. The result is a fair crop, while ground seeded in the ordinary manner produces nothing.

Mount Hope Nurseries.—We have received from Messrs. Ellwanger & Barry, proprietors of the Mount Hope Nurseries, a copy of their catalogue of plants and trees for 1870, comprised in three numbers and profusely illustrated with well-executed engravings. The representation of the *Prunus Trilobata*, engraved on wood and printed in colors, is as fine a specimen of that style of printing as is often met with. This well known nursery is located at Rochester, New York, where it was established over thirty years ago. They have the largest and most complete stock of fruit and ornamental trees, plants, shrubs, etc., in the United States. Messrs. E. & B. were among the earliest to ship trees and plants to this State. Large quantities of trees were sent hither, via the Isthmus, in the early days of California. Llewellyn, Briggs, and many others of our pioneer nurserymen, obtained a large portion of their original stock from this establishment. Their long and intimate acquaintance with California's wants and taste and their knowledge of our climate, soil, etc., renders this house a most desirable one from which to order. See their advertisement in another column.

What I Know of Farming—No. 22.

Insects—Birds.

If I were to estimate the average loss per annum of the farmers of this country from insects at $100,000,000 per annum, I should doubtless be far below the mark. The loss of fruit alone by the devastations of insects, within a radius of fifty miles from this city, must amount in value to millions. In my neighborhood, the peach once flourished, but flourishes no more, and cherries have been all but annihilated. Apples were till lately our most profitable and perhaps our most important product; but the worms take half our average crop and sadly damage what they do not utterly destroy. Plums we have ceased to grow or expect; our pears are generally stung and often blighted, even the currant has at last its fruit-destroying worm. We must fight our paltry adversaries more efficiently, or allow them to drive us from the field. Now, I have no doubt that our best allies in this inglorious warfare are the birds. They would save us, if we did not destroy them. The British plowman turning his sod with a myriad of crows, blackbirds, etc., chasing his steps and all but getting under his feet in their eager quest of grubs, bugs, etc., is a spectacle to be devoutly thankful for. Whenever clouds of birds shall habitually darken our fields in May and (less notably) throughout the summer months, we may reasonably hope to grow fair crops of our favorite fruits from year to year, and realize that we owe them to the constant, and zealous, though not quite disinterested efforts, of our friends, the birds.

But I do not regard the ravages of insects as entirely due to the reckless destruction and consequent scarcity of our birds. I hold that their multiplication and their devastations are largely incited by the degeneracy of our plants caused by the badness of our culture. On this point, consider a statement made to me, some fifteen or twenty years ago, by the late Governor William F. Packer of Pennsylvania: "I know (said Gov. P.) the narrow valley of a stream that runs into the west branch of the Susquehanna, which was cleared of the primitive forests some forty or fifty years since, and has ever since been alternately in tillage and grass. A road ran through the middle of it, dividing it into two narrow fields. A few years ago this road was abandoned, and the whole of this little valley, including the roadway, thrown into a single field, which was thereupon sown to wheat. At harvest-time, this remarkable phenomenon was presented: A good crop of sound grain on the strip four or five rods wide formerly covered by the road; while nearly every berry on either side of it was destroyed by the weevil or midge."

Now I do not infer from this fact that insect ravages are *wholly* due to our abuse and exhaustion of the soil. I presume that wheat and other crops would be devastated by insects if there were no slovenly, niggard and exhausting tillage. But I do firmly hold that at least half our losses by insects would be precluded if our fields were habitualy kept in better heart by deep culture, liberal fertilizing, and a judicious rotation of crops. I heard little of insect ravages in the wheat-fields of Western New York throughout the first thirty years of this century; but when crop after crop of wheat had been taken from the same fields until they had been well nigh exhausted of their wheat forming elements, we began to hear of desolation wrought by insects; and those ravages increased in magnitude until wheat culture had to be abandoned for years. I believe we should have heard little of insects had wheat been grown on those fields but one year in three since their redemption from the primal forest.

But, whatever might once have been, the Philistines are upon us. We are doomed, for at least a generation, to wage a relentless war against insects multiplied beyond reason by the neglect and shortcomings of our predecessors. We are in like condition with the inhabitants of the British Isles a thousand years ago, whose forefathers had so long endured and so unskillfully resisted invasion and spoliation by the Northmen that they had come to be the regarded as the sea-kings' natural prey. For generations, it has been customary hereabouts to slaughter without remorse the birds, and let caterpillars, worms, grasshoppers, etc., multiply and ravage unresisted. We must pay for past errors by present loss and years of extra effort. And, precisely because the task is so arduous, we ought to lose no time in addressing ourselves to its execution.

The first step to be taken is very simple. Let every farmer who realizes the importance and benificence of birds teach his own children and hirelings that, except the hawk, they are to be spared, protected, kindly treated, and (when necessary) fed. They are to be valued and cherished as the voluntary police of our fields and gardens, constantly employed in fighting our battles against our ruthless foes. The boy who robs a bird's nest is robbing the farmer of part of his crops. He who traverses a farm shooting and mangling its feathered sentinels diminishes its future product of grain and nearly destroys that of fruit. The farmer might as well consent that any strolling ruffian should shoot his horses or cattle as his birds. Begin at home to make this truth felt and respected, and it will be the easier to impress it also on your neighbors.

Next, there should be neighborhood or township associations for the protection of insect-eating birds. We must not merely agree to let them live—we must cherish and protect them. I believe that very simple cups or bowls of cast iron, having each a hole in its center of suitable size, that need not cost sixpence each, and could be fastened to the side of a tree with one nail lightly driven, would in time be adopted by many birds as nesting strongholds, whence they might laugh to scorn their predations enemies. If every harmless bird could build its nest among us in a place where its eggs would be safe from hawks, crows, cats, boys, and other robbers, the number of such birds would quickly be doubled and quadrupled.

And we must summon the law to our aid Though law can do little or nothing against stealthy, skulking nest-plunderers, it can help us materially in our warfare with the cowardly vagabonds who traverse our fields with muskets or rifle, blazing away at every unsuspecting robin or thrush that they can discover. Make it trespass, punishable with fine and imprisonment, to shoot on another's land without his express permission, and the cowardly massacre of the farmer's humble allies would be checked at once, and, when public sentiment had been properly enlightened, might, in civilized regions, be arrested altogether.—*Horace Greeley.*

Value of Salt Marsh Land.—The *Call* of recent date says: "We have seen some beautiful specimens of timothy grass, wheat, oats, and alfalfa, grown upon salt marsh lands only six months redeemed from the waters of the Bay. These were grown on the marsh lands of Captain H. Powers, Lakeville. The wheat and oats are about three to three and a half feet in length, and the grasses and clover are healthy, stout, and vigorous in appearance. All of these products compare favorably with upland crops, and yet they are produced from soil so lately under the influence of the waters of the Bay that one can taste the salt in the juices of the wheat by biting the stalks. This result is certainly very encouraging to parties engaged in reclaiming the marsh lands around our Bay."

Rust.—The Russian River *Flag* says that the rust is making its appearance in the wheat of that section.

San Francisco Market Rates.

Wholesale Prices.

Thursday Evening, June 16, 1870.

Flour, Extra, ℘ bbl	$5 50	@	$6 00
Do. Superfine	—	@	5 00
Corn Meal, ℘ 100 ℔s	2 25	@	2 50
Wheat, ℘ 100 ℔s	1 60	@	1 80
Oats, ℘ 100 ℔s	1 60	@	1 90
Barley, ℘ 100 ℔s	1 20	@	1 30
Beans, ℘ 100 ℔s	2 50	@	3 50
Potatoes, ℘ 100 ℔s	75	@	1 75
Hay, ℘ ton	12 00	@	18 00
Live Oak Wood, ℘ cord	9 00	@	14 00
Beef, extra, dressed, ℘ ℔	7	@	12½
Sheep, on foot	2 50	@	3
Hogs, on foot, ℘ ℔	5	@	9
Hogs, dressed, ℘ ℔	8	@	8½
GROCERIES, ETC.			
Sugar, crushed, ℘ ℔	14	@	14½
Do. Hawaiian	8	@	11½
Coffee, Costa Rica, ℘ ℔	—	@	19
Do. Rio	—	@	19
Tea, Japan, ℘ ℔	75	@	1 00
Do. Green	60	@	1 25
Hawaiian Rice, ℘ ℔	8	@	—
China Rice, ℘ ℔	6¼	@	6¾
Coal Oil, ℘ gallon	40	@	52½
Candles, ℘ ℔	16	@	18
Overland Butter	20	@	30
Ranch Butter, ℘ ℔	20	@	30
Isthmus Butter, ℘ ℔	20	@	25
Cheese, California, ℘ ℔	10	@	15
Eggs, ℘ dozen	22½	@	35
Lard, ℘ ℔	15	@	16
Ham and Bacon, ℘ ℔	15	@	16
Shoulders, ℘ ℔	9	@	10

Retail Prices.

Butter, California, fresh, ℘ ℔	35	@	50
do. pickled, ℘ ℔	—	@	—
do. Oregon, ℘ ℔	—	@	—
Cheese, ℘ ℔	20	@	25
Honey, ℘ ℔	25	@	30
Eggs, ℘ dozen	40	@	50
Lard, ℘ ℔	18	@	20
Hams and Bacon, ℘ ℔	22	@	25
Cranberries, ℘ gallon	1 00	@	1 25
Potatoes, ℘ ℔	2	@	3
Potatoes, Sweet, ℘ ℔	—	@	2
Tomatoes, ℘ ℔	—	@	—
Onions, ℘ ℔	3	@	5
Apples, No. 1, ℘ ℔	4	@	5
Pears, Table, ℘ ℔	5	@	
Plums, dried, ℘ ℔	10	@	12
Peaches, dried, ℘ ℔	10	@	15
Oranges, ℘ dozen	50	@	75
Lemons, ℘ dozen	—	@	1 00
Chickens, apiece	75	@	1 00
Turkeys, ℘ ℔	—	@	25
Soap, Pale and C. O	10	@	12
Soap, Castile, ℘ ℔	15	@	18

Scientific Press.

W. B. EWER........................SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sansome.

Terms of Subscription:

One copy, per annum, in advance................$4 00
One copy, six months, in advance................2 50
Delivered by city carriers, per month..............50

Rates of Advertising.

One square (ten lines agate), one week..........$ 1 00
One square, one month..........................3 00
One column, one month..........................40 00
One column, one year..........................400 00
Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, June 18, 1870.

Table of Contents.

Crandall's Patent Spring Bed—Ill..............409
Tram Railways—Ill....409
Mines on the Western Slope of White Pine Mountains..........410
Smelting in Cerro Gordo..........410
Quartz Mining in Victoria..........410
Farming in Santa Clara.410
Bracket Pattern Dead-Stroke Hammer—Ill..409
Mexican Mines.........409
To Correspondents.....416
An Important Invention.417
Full List of Patents....417
Notes of Recent Patents.417
S. F. Stock Market......413
S. F. Shareholders' Directory..................418
N. Y. Metal Market.....423
S. F. Metal Market..... 422
The San Francisco Mint.421
New Incorporations.....418
The Grasshopper Pest..416
Mining Education......417
MECHANICAL PROGRESS — Arrangements for Burning Petroleum; The Martin Process; Loss in Transmitted Compressed Air Power; New Rolling Mill, etc..............411
SCIENTIFIC PROGRESS — An Island Electrified; Dawson vs. Darwin; Surface Geology of the Basin of the Great Lakes, etc. 411
FARMING AND GARDENING.—The Marvels of a Seed—Ill.; The Santa Cruz Farmers' Club; Bones—How to Utilize Them; A Fact for Farmers; What I Know of Farming; S. F. Market Rates, etc....414
MINING SUMMARY.—Items from various counties and districts in California, Arizona, Colorado, Nevada, Montana, New Mexico, Idaho and Oregon....412

Notices to Correspondents.

J. D., Oroville.—The substance used for enclosing small packages of tobacco, and called tin foil, is generally a compound of about equal parts of tin and lead. There is no silver in it. It is not an "amalgam," but an alloy of the two metals. The experiment you tried of melting a small quantity and running it into bars, and bending the same, is conclusive with regard to its being largely alloyed; as commercially pure tin, when beaten or bent, produces a crackling sound peculiar to that metal. We know of no way in which tin, so alloyed, can be profitably separated. The use of tin foil, adulterated with lead, as a wrapper for tobacco, spices, etc., is very pernicious.

W. H. B., Washington, D. C.—Machinists' wages in San Francisco range from $2.50 to $4 per day (gold). Business in that line is dull here at present, and there is little chance for new-comers to get employment, except through some particular friend, who may be either an employer or one having influence with employers. We do not know of any person in this city by the name of Peter Brooks—no such name appears in the Directory.

THE GRAPE VINE INSECT.—With regard to this insect, received from a Santa Cruz correspondent, we failed to identify it by any authority within our reach, and handed it over to a competent entomologist, from whom we had expected a report in season for to-day's issue; but failing in that, we are compelled to defer an answer until next week.

F. G. McD., Chinese Camp.—We do not know what furnace is referred to unless it is the Mosheimer, lately illustrated in our paper, which we send you. There is an indefinite number of furnaces which are claimed as wonderful inventions. Can you not find out the name of the furnace in question?

COPE DISTRICT.—Several interesting letters on the mines of this and other districts, from W. H. M., will appear in the following issues.

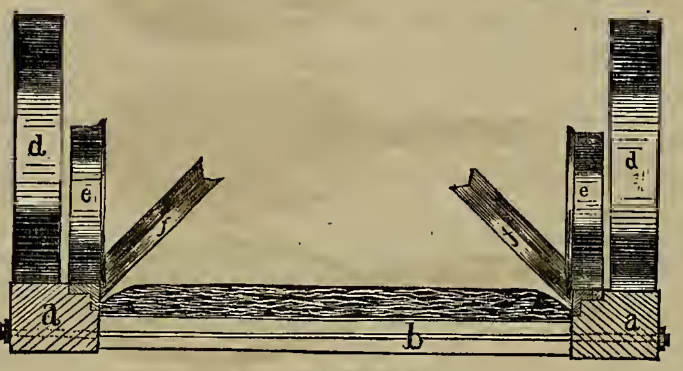
METALLIC SOAPS.—An article on this subject, by E. P., will be published as soon as possible.

LEATHER.—Last week Mr. C. F. Crist shipped, from Marysville, six tons of leather, which has been tanned in Butte county, for the Boston market. We hope that we may be able, at no distant day, to manufacture and work up the article on our coast. We see no real reason why we should not

Tram Railways.

The necessity of some means of cheap transportation, by which out-lying towns and districts can be brought into direct communication with other places and with existing railway systems, has long attracted the attention of engineers. That an efficient method of the kind would be of incalculable benefit to the mining and agricultural regions of California and her sister States and Territories, has been deeply felt. Could the toilsome and expensive hauling by heavy teams be replaced by transportation on a simple railway which requires no costly bridges, cuttings, tunnels or embankments, the mining interests would receive immense advantages; and could the distant farmer in the same way be enabled to bring his produce quickly and cheaply to the large markets, both producer and consumer would immediately be greatly benefited. Cheap avenues would bring into demand many fair regions now too far removed from any available center, and immigration would be attracted in large numbers.

We have spoken repeatedly at different times on this all-important topic, and have illustrated a few of the plans proposed by various parties, some more and some less promising. We give to-day a drawing of the system of the Tram Railway Company of Great Britain. This company intends introducing their system into our State, and have already appointed as their agent here, Mr. P. B. Lewis, of Alleghany, Sierra county, Cal.



TRAMWAY FOR BRANCH ROADS.

The manner in which the road is built and run, can be illustrated by a simple cut In the drawing, *a* represents the trams of iron, stone or timber, laid lengthwise along the road, and prevented from spreading apart by bolt-rods, *b*. On these timbers run the driving-wheels, *d*, of the locomotive, which are made from six to eight inches broad, and slightly serrated, so that in this way, and from the roughness of the tram, sufficient adhesion or "bite" is obtained to enable the locomotive to ascend steep gradients with heavy loads. On the inner edge of the tram is fixed a rail, *c*, two inches wide and an inch thick, on which the carriages run with flanged wheels, *e*, as in ordinary railroads.

There are no flanges on the locomotive driving-wheels, *d*, but the engine is furnished with vertical or diagonal guide-wheels, *f*, bearing against the inner edge of the tram, and keeping the locomotive on its proper line. The locomotive will resemble an ordinary road wagon, and will be free from the disadvantage of the noise of steam escaping from the blast-pipe, whistling, etc. The steam will be expanded in the cylinders, being cut off at one-eighth of the stroke on a level, and only worked at full pressure when going up a steep incline.

The cost of such a road in England is stated to be from one-eighteenth to one-twentieth of the cost of existing railways there, including purchase of land, etc. Of course the ratio is more in favor of the tramway in hilly and less in level country (leaving the value of land out of the question), on account of cuts, tunnels, etc., necessary in the ordinary system.

Experiments have been tried in England on a model railway, about one-sixth of the full size, before a number of prominent engineers and army officers. At one of these, as we are informed, the ascent of a gradient of one in ten was successfully performed. At another, with a locomotive worked by a spring, the grade was one in four; again it was one in three; and finally it is said that the extraordinary result was obtained of the ascent of a gradient of one in two and a half. The latter experiments were made simply to show what could be accomplished by the fact of adhesion between the driving wheels of the engine and the surface of the tram. Of course no such inclines are known in railway practice, nor do we believe that any real load could be successfully carried up such as the last, except on models; but the experiments still denote extraordinary powers of great importance.

According to these, the road can have severe gradients, and hence a common road can be used. The company propose to lay their tracks on such roads whenever there is sufficient inducement that the traffic will pay. Their track will present no danger nor inconvenience to ordinary vehicles, and will make no obnoxious noises, as whistling, etc. They will either run the roads themselves or lease them to other companies, and will also grant licenses for the construction and use of lines under their patents. The system, or the principal part, was invented, we believe, by Thomas Page, of London, engineer of Westminster Bridge, etc. We should be glad to hear of its being in successful use in our State. Some such system is certainly greatly needed by the whole coast. We understand that the agent, Mr. Lewis (address as above), is preparing to take active measures for its introduction, and thinks that he is sure of success if he gets a fair trial.

ROASTING OF GOLD AND SILVER ORES, and the extraction of their respective metals without quicksilver. Under this title we shall soon publish an excellent work by Mr. Guido Küstel. The reputation of the author renders unnecessary any further recommendation of the work, which will be a clear and complete treatise on these subjects, which are of so much interest at the present time. Miners and others will find it of great value. The various methods and furnaces employed in roasting, and the processes of chlorination and lixiviation with the different manipulations and apparatus, will be fully described, and amply illustrated, together with remarks on the various advantages and disadvantages of each process, and their special application on this coast.

FINE BARLEY.—Mr. Beighley, of Sutter county, recently exhibited at the office of the Marysville *Appeal* thirteen stalks of barley—the Florida White. Three of the heads measured, each, five and one-half inches; while the aggregate length of the thirteen was four and one-quarter feet. The heads were all well filled.

THE GRASSHOPPER PEST.—Farmers and orchardists in several portions of the State are being quite seriously troubled with grasshoppers, which are doing much damage to growing crops, trees, etc. Several extensive neighborhoods in Placer, Tuolumne, Merced, Mariposa and Los Angeles counties have been visited by these pests. In the latter county, on several ranches, mustard, live fences, and indeed every green thing which they could conveniently reach, was destroyed by them. At Currie's ranch, in Placer county, they came in such dense numbers that the proprietor had to close up his house and chink it with rags to keep the insects from taking possession thereof. They do not attack ripened grain, etc., having a taste for something greener and more juicy. They appear to travel in large swarms, and when in sufficient numbers, destroy anything green that comes in their way. At one locality they encountered a well, into which they drifted in such numbers as soon to render the water unfit for use. Rivers, and wide and swiftly-running mining or irrigation ditches, generally stop or turn them. As a general thing, we believe, they are comparatively wingless, or, at best, with wings but imperfectly developed.

CINCINNATI INDUSTRIAL EXHIBITION.—An exhibition of Manufactures, Products and Arts will be opened in Cincinnati on the 21st of September. The managers cordially invite manufacturers, mechanics, artists, agents, inventors and others to contribute specimens of their skill, ingenuity and taste.

A very large building is to be erected, steam power will be provided for machinery, ample arrangements will be made with the various railways, steamboats and other lines for transporting visitors and articles for exhibition, and handsome and numerous premiums and awards are promised. The exposition is held under the auspices of the Chamber of Commerce, the Board of Trade and the Ohio Mechanics' Institute. Parties intending to contribute to it are requested to give early notice of the articles, amount and kind of space required, to the "Secretary of the Cincinnati Industrial Exposition."

THE BEET SUGAR enterprise, in charge of Messrs. Otto, Klind and Bonesteel, will go into active operations about the first of August, or as soon as the beet crop comes in. The mill is already in course of erection, near Alvarado, and machinery capable of working fifty tons of beets per day is now in progress of construction at the Union Foundry. The cost of the mill and machinery will be about $75,000. The company go into operations with a capital of $250,000, and will employ from 100 to 150 men. The manufacture of sugar from beets ought to form one of our most available and profitable branches of industry. The waste products or pulp, after the saccharine matter has been extracted, affords excellent food for cattle and hogs, and will be found especially serviceable for use by the dairy establishments, from which this city is supplied with milk.

LESSONS IN ASSAYING.—We observe that Mr. H. G. Hanks, of the Pacific Chemical Works, has decided to devote a part of his time to teaching mineralogy and blow-piping. We are well acquainted with Mr. H., and can certify that he knows that which he teaches. Hence, we are cordially willing to recommend him to those desirous of gaining a knowledge of the determination of minerals and the use of the blow-pipe.

AN INJUNCTION on the Mercantile Library Gift Enterprise was applied for last week by Daniel O'Connell. The case came up before Judge Morrison, who denied the injunction.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending June 7th.

Pneumatic Gas Machine.—David Boyle, San Francisco.

Steam Ram.—Thomas Hill, Vallejo, Cal.

Baling Press.—Enoch J. Marsters, Shaws Flat, Cal.

Printing Press.—Amos H. Bangle, Brooklyn, Cal.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

◆

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Steam Ram.—T. Hill, Vallejo.—The late war gave to the invention of offensive and defensive means of warfare an impetus which is still felt. The invention here spoken of belongs to this category, and relates to an improved ram for piercing a hole in the side of iron-clad and other vessels below the water-line, and the iron casing or shield. The vessel in which this is placed is protected with armor-plate, and ordinarily stands with its deck clear above the water; but when prepared for action, it is sunk by admitting water into proper compartments, until but a small portion of the deck is visible. At the bows is placed the offensive apparatus. This consists of a ram which is worked by a proper engine. This ram consists of a steel tube, 24 feet long, 16 inches in diameter, and having an 8 inch bore, the outer end being tapered to an edge, and the bore decreasing for about eight inches from the outer end, so as to be easily cleared of obstructions by the shell. This tube extends out through the front edge of the vessel below the water-line, and below the line of plating of vessels, being kept water-tight by a stuffing-box. It is so constructed that a shell may be placed in it and exploded at the instant the ram pierces the opposing vessel. An indicator gives warning when the ram is near an opposing ship, lights the fuse and lets on steam, driving the ram forward with enormous force. The driving piston can make upwards of 40 strokes per minute, and, if desired, the side of the vessel attacked may be pierced with many holes before separating.

Pneumatic Gas Machine.—David Boyle, S. F.—If the present and future generations are not amply supplied with good, cheap and sufficient light, it will not be the want of attention on the part of inventors. Victor Hugo, in his works, is continually crying for "more light." According to appearances, he will soon be able to find enough if he visits our coast. The device of Mr. Boyle relates to an improved gas-machine of that class in which air is carbureted or charged with the vapor of gasoline, naphtha, or other similar hydro-carbons. It consists in combining, in one vessel, a meter drum, or air-supplier, an air-reservoir, and a carbureting apparatus, in such a manner that air is supplied in a regular current and deprived of its moisture before it enters or comes in contact with the gasoline, so that the latter is not weakened or diluted with water. After being thus dried, the air passes through the different chambers over the surface of the gasoline, and is thus saturated with the vapors and rendered fit for the purposes of illumination.

Improved Printing Press.—A. H. Bangle, Brooklyn, Alameda Co.—It is certainly a matter of pleasure to record any invention which aids in the dissemination of knowledge. Nor should one pass by unnoticed any effort in this direction, however slight it may appear to be. Any simplification or complementary device is a step towards the better education of the masses, and as such should be cordially received. The invention in question is an improvement in the automatically inking printing press, and may be operated by hand or other power; or it can be used as a simple, cheap press to ink by hand, without the combination of rollers. It can be used for any kind of printing, but is more especially intended as a job-press for small work, and, being cheap in construction and complete in all its parts, is particularly suitable for tradesmen and professional persons, who require large numbers of labels, cards, circulars and other similar printing matter.

◆

Important Invention.

A caveat has recently been filed through the Scientific Press Patent office for a variable cut-off for side lever or puppot-valve engines, such as are in general use on high pressure steamers. This is the invention of Mr. W. B. Cross, Chief Engineer of the California Steam Navigation Company. It has been tried practically on the steamer Chin-du-Wan and has proved a complete success, according to the Sacramento *Union*, which comments on it as follows:

It is in a line of invention to which belongs nearly all the modern and practical improvements in the steam engine, namely, economy of fuel. It is a desideratum long sought by all builders and workers with this class of engines, and having been put to a practical test for several trips on the Chin du-Wan, may be pronounced a complete success. The invention consists simply of an arrangement for opening and closing the receiving valves at any desired part of the stroke of the piston, in order to use only the natural expansion of the steam for the remainder, which, in engineering parlance, is termed "cutting off." So completely does this arrangement accomplish this object that the steam may be cut off at every three inches of the entire stroke.

Like most practical inventions, this one is extremely simple, and only needs to be seen by practical engineers to be appreciated. The side lever or puppet valve engine, with an adjustable cut-off, becomes at once if not the most, certainly one of the most, manageable and convenient for river steamers in use. Usually it is built to cut off a given point for general use, and then, when necessary to work it full stroke, the valves are raised by hand or by placing a block of wood between the lever and the cam which raises it. This invention places the matter of using much or little steam, as required, entirely in the hands of the engineer.

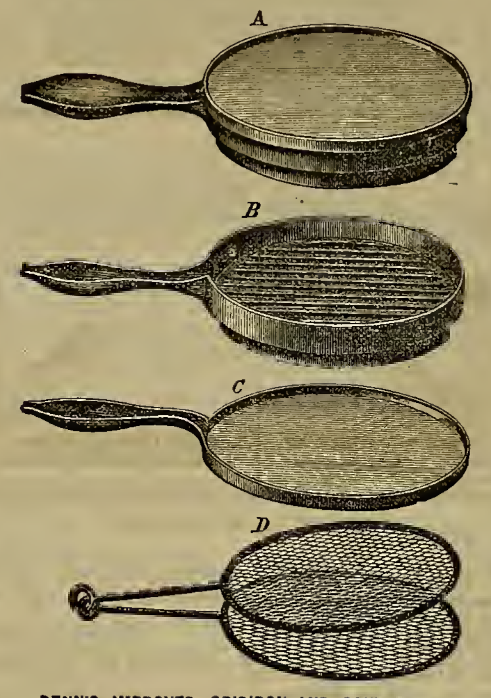
◆

Tea.—Mr. Henry Schnell, of the El Dorado Japanese colony, was in Sacramento last week with samples of tea grown and cured at his plantation three weeks ago, it is said. The article was pronounced of excellent quality, although, as it seems to us, it must have been rather young for use. He afterwards came to this city, and we had the pleasure of seeing him at our office and of talking over agricultural and other matters with him.

Denn's Improved Gridiron and Cake Baker.

It is very possible that it is not so much ignorance of the deleterious effects of fried meats as the want of proper appliances for broiling, which induces housekeepers to adopt the former method to such an extent. Physicians have long spoken authoritatively against frying in grease, and travelers in the United States have written against it, but still this is still astonishingly common.

Broiling is a most wholesome and preferable mode of cooking. To enable this to be done well and to obviate such inconveniences as the smoking of walls, the dripping of grease, etc., is the object of the present invention. This consists of three principal parts. The gridiron, B, its cover, C, and the wire gridiron, D, which may be used inside of the other when it is desired to broil food which would fall through the bars of the other, such as oysters; or it may be used as a corn popper or bread toaster.



DENN'S IMPROVED GRIDIRON AND CAKE BAKER.

The cover may be used as a cake baker by placing it on the top of the stove with the hollow side of the handle up. It will be seen by an inspection of the engraving that the gridiron has a rim or projection on its underside to rest on the ledge in the hole of the stove or range, the rim being narrower at the part toward the handle, for the purpose of giving the bars an inclination in that direction, to cause the gravy to flow out into the hollow handle and be saved for use. It will also be seen that the device when in use makes an air-tight cover to the hole, preventing the escape of smoke into the house and keeping up the draft in the stove.

The sizes range from No. 6 to No. 10, inclusive, and are made to fit the corresponding numbers of stoves and ranges. They may also be made oblong so as to occupy both the openings over the fire-space, being more convenient for large families or restaurants in that form.

This device was patented June 23d, 1868, by Clayton Denn, of Frankford, Pennsylvania, who will sell the right for all the States and Territories west of the Rocky Mountains, including Montana, Colorado and New Mexico. For further particulars apply to Wiester & Co., 314 Bush street, San Francisco.

◆

California Blankets at the East.—W. H. Aspinwall, the well known merchant and ship-owner of New York, one of our Eastern visitors, has given large orders for blankets to be filled by the Pioneer Woolen Mills of this city, and the Willamette Woolen Mills of Oregon. California and Oregon blankets are in high estimation at the East.

The Johnson Distilling Process.—Efforts are being made, says the Marysville *Appeal*, to organize a company at Oroville, to distill brandy from grapes by the Johnson process, a California invention. Capt. James Ganley, of this city, who is interested in this patent, is in the enterprise, and proposes, in case 1,000 tons of grapes can be purchased annually in that vicinity, to organize with a capital of $75,000. The Johnson process has been very fully discussed and thoroughly tested. It is no longer an experiment. Its chief feature is the production of good brandy at a single distillation, without carrying over either fusel oil or other foreign substances to an injurious extent. By this process it costs no more to make a brandy that will readily command three or four dollars per gallon than it does to produce the poor stuff usually manufactured in this State, and which sells with difficulty for less than half that sum. The plan of organizing companies of this kind to secure a market for our rapidly increasing grape crops is what is needed in California. A similar company has already been organized in Nevada, and measures are being taken to organize one in Placer. It is proposed to pay one cent per pound for the grapes, delivered, we presume, at the distillery. At such prices grapes will net two or three times as much per acre as land devoted to wheat or barley; while the market for such products is unlimited.

◆

Mining Education.—It is often brought forward as an argument against mining education, that every mine of value in this and neighboring States or Territories has been discovered by "practical" or "ignorant" men. This is no argument at all, for it does not by any means disprove that these very men would have discovered the mines had they been educated. Nor is the statement altogether true. For instance, we find in an article in an interior paper, the tendency of which is to disprove of mining education, the announcement that the silver ore of the Comstock ledge was discovered by "very ignorant men who had never seen silver ore before." Now it happens that these "ignorant men" who were looking for *gold*, had been *throwing away* the valuable silver ore, which was recognized by an educated man and a mining engineer of considerable note, namely, Mr. Melville Atwood, at that time at Grass Valley.

◆

Southern Pacific Railroad Subsidy.—The official recount by the Board of Supervisors shows a majority of 62 votes in favor of the subsidy, instead of 124 against it, as given by the first count. But it appears, moreover, that a number of votes *against* were altered to read *for*, and this change seems to have been fraudulently done. But positive proof of fraud has not yet been obtained, and judgment should be suspended until the case is thoroughly investigated, although it looks dark at present.

◆

The Beethooven Festival at New York commenced on the afternoon of the 14th inst. The chorus is reported as 1,500 strong and the orchestra numbers 100 instruments. The festival is held in the Institute Building or Empire Rink. Madame Parepa-Rosa took the solo parts. The building was filled to overflowing. An ovation was given to Gilmore and Parepa-Rosa. The latter sang "The Star Spangled Banner" with a chorus of 300 voices.

◆

That Wheel.—Mr. John Pattison, of Nevada, has sent to the Mercantile Library Association the model of a wheel, which he thinks is bound to take the $500 premium offered by that Association. "Pat" generally wins when he goes after anything.

◆

Rider's Automatic Cut-Off Vertical Engine will be illustrated in the next number of the Press.

Professional Cards.

JOHN GORMAN,
NOTARY PUBLIC.
COMMISSIONER FOR
Nevada, New York, Etc.
No. 612 MERCHANT STREET. 6v20-3m

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street
SAN FRANCISCO.

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

GILES H. GRAY. JAMES M. HAVEN.
GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California an Leidesdorff streets,
27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,
Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

Dr. J. H. PAINE, Dentist,
Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

DR. J. P. GILLESPIE, D. D. S.,
DENTIST.
OFFICE, 313 BUSH STREET, NEAR MONTGOMERY.

Is a regular graduate, with twenty years experience in practice. 14v20-3m

Business Cards.

A. H. JORDAN,
Architect, Designer and Draughtsman,
No. 430 Montgomery Street,
SAN FRANCISCO. 16v19-qy

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.
N. GRAY & CO.,
UNDERTAKERS,
641 Sacramento St., cor. Webb, San Francisco.
☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.
25v14tf

J. HOOVER,
PUBLISHER,
And Wholesale Dealer in
Fine Chromos and Lithographs.
The Largest Assortment in Philadelphia.
WHOLESALE DEPOT:
No. 804 Market Street, Philadelphia, Penn.
9v20-6m

C. B. FETY,
SEAL ENGRAVER
AND LETTER CUTTER.

Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 CLAY STREET, bet. Kearny and Montgomery, San Francisco. 23v20-3m

PIERRE A. FORTIER,
Practical Optician
105½ Montgomery Street, up stairs.
The only manufacturer in the United States who can make Glasses adapted to any imperfection of sight. Prices very moderate. 24v20-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street. (southwest cor. Sansome),
16v12-3m SAN FRANCISCO.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.
Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.

California File Manuf'g Co.
437 BRANNAN STREET, bet. Third and Fourth.
W. WUSTHOFF, L. KRAMER, M. HARRIS, J BURKE.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

SAN FRANCISCO MILL.
HOBBS, GILMORE & CO.,
Manufacturers of Boxes,
Market Street, bet. Beale and Main.
For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry,
S. E. Corner of Mission and Fremont sts.,
6v14tf SAN FRANCISCO

L. SCHUMANN,
PIONEER
Meerschaum Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

D. BOYLE. JOHN BENN. M. BURKE.
AMERICAN MILLS,
Nos. 30 and 32 California Street.
Job work of all kinds in the Drug and Spice Line promptly attended to.
SECOND DEPARTMENT.—Feed Ground. Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v206m

SAN FRANCISCO
CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

F. SCHOENER,
METAL SPINNER.

All kinds of Metal spun to order. Give me a call at No. 10 STEVENSON STREET, fourth story Pioneer Mills.
14v20-3m

NOTICE.
HYDRAULIC HOSE MANUFACTORY.

Hose made to stand any pressure—from 100 to 300 foot fall. Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

A. J. HAIGHT,
Gold Pen Manufacturer,
315 Montgomery Street.
Room No. 16, up stairs, San Francisco.
GOLD PENS REPAIRED. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

SAN FRANCISCO
PIONEER SCREEN WORKS,
JOHN W. QUICK,
No. 203 Fremont Street, near Howard.
Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

THE GIANT
POWDER COMPANY.
BANDMANN, NIELSEN & CO.,
General Agents,
No. 210 Front Street, San Francisco. 25v19

M. M. COOK. H. N. COOK.
M. M. COOK & SON,
MANUFACTURERS OF
LEATHER HOSE,
Belting, and Horse Collars,
801 Battery street, Corner Broadway,
SAN FRANCISCO.
☞ Belt Leather for sale. 26v19-3m

THEODORE KALLENBERG,
Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 26v19-3m

OSCAR LEWIS. J. H. CULVER.
LEWIS & CULVER,
Pattern and Model Makers
20 Fremont street, over Phœnix Iron Works.
Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

"ENTERPRISE"
SAWING AND PLANING MILL.

D. A MACDONALD, J. H. MACDONALD,
JOSEPH MCGILL, H. CHAPMAN.

D. A. MACDONALD & CO.,
Manufacturers of DOORS, SASHES, BLINDS AND MOULDINGS, 217 to 226 Spear street, and 218 to 226 Steuart street, between Howard and Folsom, San Francisco. ☞Finishing Work for buildings constantly on hand and got up to order. 20v20-3m

FROM The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED
$65
WEED
Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt.
TO **$500**

EXTRACT from a letter dated St. Louis, Mo., March 1, 1870: "MESSRS. DEWEY & C.:—The Scientific Press has been received. Though I am a constant reader of the Scientific American and great admirer of it, I confess my surprise on discovering the Pacific slope in possession of its equal in every respect. A. J. K." (inventor).

Metallurgy and Ores.

MINING SCHOOL.

Mosheimer's Practical Mining School

Will be reopened by the FIRST OF JUNE, and practical instruction given in all branches of Assaying, Crushing, Amalgamating Concentrating, Smelting and Refining Ores; also Erecting Furnaces and Reduction Works of every kind. To give all miners a chance to learn Assaying of Ores (what everyone ought to) I have reduced my former charge for

Assaying Ores	$ 50.00
To work Gold and Silver Ores	100.00
Smelting and Refining, including Assaying	150.00

Many gentlemen who have been taught in my establishment will bear testimony that in a few days they learned more than they expected to learn in a month. Before going into mining, every man ought to know how to test ores, and then he will go to work with prudence and never fail to be successful. Apply to
J. MOSHEIMER,
Office, 328 Montgomery street; Works, 2,005 Powell street, San Francisco. 22v23-3m

A. T. GREEN,
COMMISSION MERCHANT,
No. 3 Front Street. San Francisco.
Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.
Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 23v20-3m

MORRIS & WHITE,
Practical Assayers and Metallurgists,
No. 30 and 36 Fremont Street,
SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.
☞Gold and Silver Ores and Sulphurets bought.
12v20-qy

CALIFORNIA ASSAY OFFICE,
(Successors to Geo. E. Rogers)
No. 512 CALIFORNIA STREET,
One door west of Montgomery.

H. H. LAWRENCE	Manager.
J. A. MARS	Assayer.

Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.
G. W. STRONG & CO.,
Metallurgical Works,
No. 10 Stevenson Street, near First.
Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,
ADVANCES MADE
On all kinds of Ores, and particular attention
PAID TO
CONSIGNMENTS OF GOODS.
4v16-3m

W. T. ATWOOD,
PURCHASER OF
COPPER ORES, BARS, MATT, Etc., Etc.,
505 Montgomery street, San Francisco.
The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

CRUCIBLES! CRUCIBLES!
EUGENE DE SABLA,
COMMISSION MERCHANT,
AND SOLE AGENT FOR
J. H. GAUTIER & CO'S CELEBRATED
American Blacklead Crucibles,
No. 310 DAVIS STREET,
SAN FRANCISCO. 20v20-3m

HAYWARD & COLEMAN
IMPORTERS AND REFINERS
—OF—
Illuminating, Lubricating,
—AND—
PAINT OILS,
CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.
—ALSO—
Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!
An elegant and complete assortment.
SOLE IMPORTERS OF
Devoe's Illuminating Oil,
PATENT CANS.
5v17-tf **414 Front street, San Francisco**

Railroads and Steamers.

SHORT ROUTE.

The following time will take effect
Sunday................April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
7:00 A. M. 4:00 P. M.	11:45 A. M. 7:15 P. M.	11:20 A. M. 8:20 P. M.	1:00 P. M. 9:30 P. M.
ON SUNDAYS.			
8:30 A. M.	12:20 P M.	12:45 P M.	5:00 P M

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M. 1:15 P. M.	6:45 A. M. 2:45 P. M.	6:15 A. M. 3:15 P. M.	10:30 A. M. 7:30 P. M.
ON SUNDAYS.			
10:15 A M.	3:00 P. M.	2:30 P M.	6:45 P M.

TICKETS for sale at 313 Montgomery street, or on board steamer New World R. S. MATTISON, Superintendent.
L. C. FOWLER, General Freight and Passenger Agent.
N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf.
Vallejo, April 24, 1870 13v20-1y

Pacific Mail Steamship Company.—For NEW YORK, VIA PANAMA. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

June 17..............................MONTANA,
Connecting with Henry Chauncey.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanilla.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

July 1—Steamer GREAT REPUBLIC, Capt. Warsaw.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.
13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation
COMPANY,

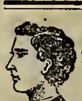
Steamer	CAPITAL	CAPT. E. A. POOLE
"	CHRYSOPOLIS	CAPT. A. FOSTER.
"	YOSEMITE	—— ——
"	CORNELIA	CAPT. W. BROMLEY
"	JULIA	CAPT. E. CONCKLIN.

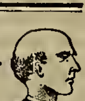
Two of the above steamers leave BROADWAY WHARF at 4 o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.
Office of the Company, northeast corner of Front and Jackson streets.
B. M. HARTSHORNE,
13v12 **President.**

REDUCTION IN FARE
FROM
San Francisco to New York
— AND —
BOSTON,
— VIA —
THE CHICAGO, BURLINGTON AND MISSOURI RIVER RAILROAD.

NEW YORK	**$138 00**
BOSTON	**139 25**

Ticket Office, No. 208 Montgomery Street.
24v20 SAM. A. LEWIS, Agent.





WONDERFUL
Scientific Discovery.
THE GREATEST EVER MADE,
Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM,

NO EXAGGERATION, but a stern reality, verified by the undersigned:

Dear Doctor: I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, JOHN STAPLETON,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 19v20-2m

Pacific Bank.

PETER H. BURNETT	President.
FORD H. ROGERS	Cashier.

REMOVED
To its new Banking House, northwest corner of Sansome and Pine streets.
O. P. SUTTON, Secretary.
San Francisco, March 30, 1870. 15v20-3m

THE FIREMAN'S

FUND

INSURANCE COMPANY.

OFFICE,

S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL........................$500,000 00
SURPLUS........................$67,115 63
TOTAL ASSETS..................$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
CHAS. R. BOND, Secretary.
13v20-3m

MERCANTILE LIBRARY

GIFT CONCERT.

$500,000 GIFTS.

Attention of mechanics is called to the

$500 PREMIUM OFFERED

—FOR THE—

BEST MODEL OF TWO WHEELS

—OF—

GLASS AND IRON,

Two motions, if possible, to carry NINE HUNDRED POUNDS WEIGHT, and to be as TRANSPARENT as possible. 24v20-3w

R. A. SWAIN & CO.,

IMPORTERS AND DEALERS IN

Earthenw re, French Porcelain,

GLASSWARE,

Lamps, Lanterns,

CUTLERY,

—AND—

FANCY GOODS,

N. E. Corner Sansome and Pine Streets.
24v20-3m

OCCIDENTAL

Insurance Company

OF SAN FRANCISCO.

Cash Capital, - - - - - - - $300,000

GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

United States Mutual Benefit Co.

OF NEW YORK.

Capital, - - - - - $125,000.00.

Benefit for $5,000 secured for $10.
Benefit for $2,500 secured for $6.

HOWARD & HOWE,

General Agents for the Pacific Coast.

No. 338 Montgomery street, corner California, Room 7

☞Agents Wanted.☜ 14v20-3m

ICE. ICE.

On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.

AMERICAN RUSSIAN COMMERCIAL CO.
D. E. Martin, Superintendent,
714 and 716 Battery street.
16v20-qy

PACIFIC BUSINESS COLLEGE,

Mechanics' Institute, 27 Post Street,

Bet. Montgomery and Kearny, San Francisco.

PACIFIC BUSINESS COLLEGE
JOHN F. SNOW'S MECHANICS INST. SCHRIFTEN

THE PIONEER AND ONLY BUSINESS COLLEGE

On the Pacific Coast where BOOK-KEEPING is taught as practiced in the Counting-room.

PENMANSHIP.

In this useful and very important branch we challenge competition.

PROF. SEREGNI

Has obtained First Premiums at all the Fairs on this coast where his Penmanship was exhibited, and was awarded the MEDAL at the Seventh Industrial Exhibition of the Mechanics' Institute in 1869 over all competitors. His success as a Teacher is unequalled.

TELEGRAPHING.

The only place in the city where Telegraphing is taught by an experienced Operator.

We cordially invite the public to call and examine the merits of the College. Our Institute is patronized by the youth of fifteen and the man of fifty, where they receive instruction in Single and Double Entry Book-Keeping, Commercial Arithmetic, Commission Jobbing, Business and Ornamental Penmanship, Commercial Correspondence, Actual Business, Merchandising, Banking, Importing Railroading, Steamboating, Mining, Real Estate, Brokerage and Exchange, Mechanical and Architectural Drawing, Telegraphy, Orthography, French, Spanish, Italian, German and English Grammar. No Class System. Each student receives individual instruction. No Vacations.

Sessions Day and Evening.

12v20-12t VINSONHALER, JULIAN & CO.

MEDICAL DEPARTMENT

—OF THE—

University of the Pacific.

The EIGHTH COURSE OF LECTURES will commence on TUESDAY, JULY 5TH, and continue five months, with an intermediate vacation of two weeks.

Medical Faculty.

A. J. Bowie, M. D., Emeritus Professor of Surgery, and President of the Faculty.
J. F. Morse, M. D., Emeritus Professor of the Principles and Practice of Medicine.
J. P. Whitney, M. D., Emeritus Professor of Physiology.
Henry Gibbons, M. D., Professor of the Principles and Practice of Medicine and Clinical Medicine.
L. C. Lane, M. D., Professor of Surgery and Surgical Anatomy and Clinical Surgery.
Edward Bentley, M. D., Professor of Descriptive and Microscopic Anatomy and Pathology.
R. Beverly Cole, M. D., Professor of Obstetrics and Diseases of Women and Children.
Isaac Rowell, M. D., Professor of Diseases of the Genito Urinary Organs and Orthopedic Surgery.
Wm. F. McNutt, M. D., Professor of Physiology.
Wm. F. Smith, M. D., Professor of Ophthalmology and Otology.
Thomas Price, M D., Professor of Chemistry and Toxicology.
Henry Gibbons, Jr., M. D., Professor of Materia Medica and Therapeutics.

Fees for the Full Course..........$130 00
Matriculation Fee (paid but once)..........5 00
Graduation Fee..........40 00
Demonstrator's Ticket..........10 00

The Lectures will be given in the Chapel of the City College, Stockton street, south of Geary.

HENRY GIBBONS, Jr., M. D.,
24v20-1m Dean of the Faculty.

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞Can compete in prices with any other dealer. 24v20-3m

LAND! LAND! LAND!

YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

40,000 Acres in Fresno County;
7,000 Acres in Sonoma County;
3,680 Acres in Tulare County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above.

YOUNG & PAXSON,
424 Montgomery street.
16v20-3m

Restore your Sight!

SPECTACLES RENDERED USELESS.

Failing Sight from age and other causes restored and preserved by

DR. STEVENS & CO'S

EYE-SIGHT RESTORER.

This simple and wonderful mechanical invention is applied by suction directly to the eye, bringing the sight to a natural focus and restoring the Cornea to its original convexity.

References.—Mrs. Rev. James Wood, Mrs. Sutherland, T. C. Boyd, of San Francisco; Mrs. J. B. Hoyt, Suisun City.

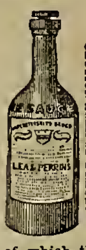
M. A. SUYDAM, Sole Agent,
No. 20 Geary street, San Francisco, at Dr. Benton's rooms.

☞ Also Cornea Flatteners for cure of Near-Sightedness. 15v20

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.



Caution against Fraud.

Declared by Connoisseurs to be the only good Sauce. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ask for Lea & Perrins' Sauce, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire Sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper.

Wholesale and for export by the Proprietors, Worcester; Crosse and Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v20-1yeow

FARM MILLS.

A superior article for farm use. Operated either by hand or power. Price very low. Send for circular. Manufactured by
22v20-1m LANE BROTHERS, Washington, N. Y.

The Celebrated Studebaker Wagon,

Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

First.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover.

Second.—They are made by experienced mechanics.

Third.—The lightest running and most durable Wagon in the market.

Fourth.—Their Thimble Skeins never break, while all others do.

Fifth.—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not

Sixth.—The only Wagon in which the Slope Shoulder Spoke is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying.

Seventh.—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction.

Eighth.—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road.

Ninth.—Last, but not least, Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others. Sold by

COPELAND & DEFREES,
K street, bet. Seventh and Eighth,
SACRAMENTO, CAL.

☞ Pioneer Agents for the Pacific Coast. 15v20-3m

AMES & WOOLVERTON,

General Agents for the Pacific Coast

FOR THE CELEBRATED

STUDEBAKER

Farm and Team Wagons,

Manufactured at South Bend, Indiana.

OFFICE AND GENERAL DEPOT

—WITH—

THE KIMBALL MANUFACTURING CO.,

SAN FRANCISCO, CAL.

☞Orders and correspondence solicited. 15v20-3m

"Bis Vincet, qui se vincit in victoria."
"Labor omnia vincit."
"Magna est veritas, et prævalebit."
"Memorabilia."

CALIFORNIA-MADE

FARM WAGONS

FOR SALE.

We still continue to have manufactured in this city and vicinity a large number of these Wagons, made generally for two horses, Light, Medium size, and Heavy, with either Iron Axles or Thimble Skeins—thus ENCOURAGING HOME INDUSTRY, and demonstrating to the satisfaction of every intelligent observer the superiority of California-made Wagons, both as to style, materials and workmanship, over any Wagons sent here for sale, whether made at the State Prison, Jackson (Mich.), or at South Bend (Ind.), or any other Western place, while our prices are very much lower.

Of every description of vehicles now running in California, probably ninety-nine out of every hundred have been made in this State, and their superiority in standing well in this dry climate has been so well established throughout the past twenty years that it would, in the mind of any FAIR DEALER, seem to be an improper reflection upon our many skillful mechanics in this branch of business, to say otherwise.

We are prepared to furnish any reasonable number of these Wagons on short notice.

Catalogues and price lists sent on application.

Persons wishing to purchase, visitors to the city, and all who may feel any interest in the matter, are respectfully invited to CALL, EXAMINE and COMPARE.

MEEKER, JAMES & CO.,

—IMPORTERS OF—

CARRIAGE AND WAGON MATERIALS,

NEW BRICK WAREHOUSE,

CORNER CALIFORNIA AND DAVIS STS.

25v20-1am3m

E. A. ARCHIBALD,

MANUFACTURER OF

Cast Iron Hubbed Wheels,

BY HIS PATENT PRESS PROCESS.

—ALSO—

Axles and Team Wagons of every Description.

METHUEN, MASS.

Particular attention given to Wheels for Portable and Fire Engines.

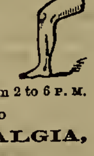
All my Wheels have my name cast on the hub, and are made by my Patent Press Process. By this new method the wheel is so compressed in every part that shrinkage or yielding of the part with all its attendant evils is wholly obviated, even in the driest climate. Any one understanding my process will be convinced of this. ☞Send for illustrated circular.

20v20 E. A. ARCHIBALD.

DR. F. SCHULTZ,

NO. 114 KEARNY STREET,

SAN FRANCISCO.



Office Hours—From 8 to 11 A. M. and from 2 to 6 P. M.

PARTICULAR ATTENTION GIVEN TO

SORE EYES, NEURALGIA,

RUNNING SORES AND RHEUMATISM.

16v20-3m

The San Francisco Mint.—Coining.

In our previous article we saw how the crude bullion was purified and refined and the gold and silver obtained in a pure condition in bars or ingots. In melting the metal for these bars for coining one-tenth part copper is added, as the coins have a fineness of 900-1000.

Rolling and Drawing.

The first operation which the bars undergo is that of rolling. The rolling machines are massively constructed, for the pressure is very great. There is a dial, marked like the face of a clock, on each roller, and provided with an index. By turning a small crank, the rollers are brought nearer together or further apart, and the distance is indicated by this index. The bars are passed a number of times through this machine, being thereby rolled out into long strips about as thick as the coin is. The pressure is so great that they become too hot to be held in the hand with comfort, and must be annealed at least once, or they will break. The annealing is done by putting a number of strips of gold in a long cylindrical copper box, which is closed tightly with clay, to prevent oxidation of the precious metal. These boxes are put in a furnace, and heated until they are red hot, when they are taken out and cooled in water.

It is impossible to roll exactly true. Here and there the gold is a little harder and not quite so much compressed as in other parts; and coins cut from such places would be heavier than those from others. Hence it is necessary to "draw" the strips, after they have been again annealed and waxed or greased.

The drawing bench is a long table with an endless chain running its length. At one end is a box or framework, on which are fastened two polished steel cylinders, firmly secured, so that they cannot revolve nor bend. By means of a wedge arrangement the distance between them can be altered or regulated with the utmost precision and nicety. One end of a strip, which has been pinched thinner than the rest, is inserted between the cylinders and then between the jaws of a vice fastened to a carriage which runs on the table. Then, by pressing a lever, these jaws are made to grip the strip tightly, while at the same time the carriage is connected with the moving chain, and thereby the strip is drawn through the cylinders and reduced to the proper thickness throughout. When the strip is through, and the strain has ceased, an automatic arrangement causes it to drop, the carriage to be disengaged from the chain and to be returned to the head of the table.

Punching.

From these strips, after they have been cleaned, the planchets, or round pieces, are cut out by means of steel punches, which work in a round hole or matrix, cut in a solid steel plate. A strip is taken and two planchets are cut out and weighed. If these are of the proper weight, or a little heavy, they are allowed to pass, and a half of the strip is punched; then two more planchets tested by weighing, and then the rest punched, if these last are correct. If the test pieces are too light, the strip must be remelted.

To save this remelting, however, to a very great extent, an employé in the S. F. Mint has invented a very simple but effective device. Inside of the punch is fastened a screw, on which is a movable nut. If now the test pieces are too light, the nut is moved downward on the screw until it projects a little below the cutting edges of the punch. Hence, in punching, this nut first strikes the strip and bends it into a concave shape—that is, it depresses the middle of the part to be cut out, and hence more metal remains in the planchet, which has the shape of a segment of a sphere. By properly adjusting the nut, the quantity of metal in the planchet can be materially altered; and hence, if the tests are too light, the next pieces can be made considerably heavier. This simple device effects in the course of a year a very material saving.

Adjusting.

The perforated strips are remelted, but the planchets go to the adjusting room. Here are a number of female operatives, seated at tables, each with a leather apron fastened under her arms, one end of which is tacked to the table, to catch any gold which may fall. Before each one is a scale. The operator takes a double-eagle planchet and weighs it; if too heavy, she files it a little around the edge and re-weighs, and so continues, with wonderful rapidity, until it is just right, when she puts it in a box and takes another. The proper weight of a double eagle is 516 grains, and the smaller gold coins are in proportion. Absolute perfection, however, being impossible, the law allows a variation of half a grain in the double eagle, two of which, therefore, may vary a grain. This is so slight, not two cents in value, that it is deemed sufficiently correct. The weight of a silver dollar used to be 412½ grains, and lesser silver coins in proportion. But an important change was made by Congress in 1853. Previously the ratio of silver to gold was undervalued in the United States, as compared with Europe, and our silver coins were being continually exported. To stop this, the weight of the half dollar was reduced from 206¼ to 192 grains, and the smaller coins proportionately; moreover, silver was made a legal tender only to the amount of $5. The effect was to stop the exportation and to make silver money subsidiary to gold. The weight of the dollar remains unchanged, but this piece is not coined except under special orders, when a premium is charged. One silver dollar (weighing 412½ grains) is thus worth about 7½ per cent. more, intrinsically, than two half dollars (together weighing 384 grains), but as a premium of about 3 per cent. is paid by the mint for silver, the Government gains only some 4 per cent., and this only, if the charges for coinage are large enough to cover the cost.

Only the gold pieces are adjusted in the manner spoken of above. The silver has merely the adjustment of the test planchets, and a greater allowance in weight is made, as it is less valuable.

Milling.

On each coin there is a rim around the edge raised a little higher than the device. This is made to protect the device, etc., and is produced by a most beautiful piece of mechanism called the milling machine, an invention of Mr. Peale, formerly chief coiner at the Philadelphia Mint, and a gentleman to whom are due many other important improvements. The machine can not well be described fully without an illustration. Suffice it to say that there are three vertical tubes, for different sized coins, into which the pieces are dropped. The lowest is caught by a feeder and placed between a revolving steel wheel on one side, and a fixed segment on the other, one end of the latter being nearer the wheel than the other where the coin enters. The planchet is caught in a narrow groove in the wheel and segment, and the space being somewhat less than its diameter, the edge is crowded up a little. The piece makes four revolutions and then reaches the end of the segment, when it falls out. About 120 double eagles can thus be milled in a minute.

The planchet, now called a blank, is then annealed, cleaned with dilute sulphuric acid and hot water, and then dried in a heated revolving drum with sawdust. A number, revolving on a sieve, polish one another.

The Dies—Coining.

The blanks are now ready for coining. A very important piece in this process is the die, and the making of dies is a beautiful process requiring a most skillful workman. No dies are made here, but all are brought from the East. The process is substantially as follows:

A design is first made in wax, and is about six times as large as the coin. From this a brass cast is taken and then reduced on soft steel to the size of the coin by a transfer or reducing lathe, which is itself a most ingenious machine. This die is now hardened by heating and suddenly cooling in water. The relief is raised as on the coin, and this "hub" or "male die" is used merely for making other dies. A cylindrical piece of very soft steel of the proper size is now put in a powerful press and the hub pressed a little into it. The steel is then softened and the hub pressed in further, until the whole impression is clear and distinct. Any defect is rectified with the engraver's tool, the date is put in by hand, and then the steel is hardened and we have a die for coining. About 1,300 dies are said to be made yearly for the different mints. Their cost is about $16 a pair.

The coining presses are massive machines which exert a tremendous pressure. The blanks are put into a vertical tube, whence they are taken, one by one, by a feeder and deposited over the lower die and inside of a steel collar or plate, in which is a hole just large enough to receive the blank, and with fluted sides. The upper die is now forced down on the blank with such power that the device is formed on each side of the coin, whose edge is pressed into the sides of the collar and thereby fluted, this last preventing any filing of the coin by designing persons without detection. As the upper die is withdrawn the lower die also rises to a level with the top of the collar, lifting the coin clear of this. The next blank brought forward by the feeder pushes the formed piece of money away and takes its place. The finished coin drops into a box below. The pressure on a double eagle is about seventy-five tons, yet so rapid are the movements of the complex machine that eighty can be coined in a minute, and smaller pieces, as dimes and half dimes, can be struck off at the rate of 140 per minute.

The coins are weighed and delivered to the Treasurer. In putting them up in boxes care is taken to mix the lighter and the heavier pieces in due proportions—the reader will remember that a small deviation from the standard weight is allowed in each coin—so that each thousand double eagles shall not differ more than three pennyweights from the legal weight. The silver, and sometimes the smaller gold pieces, are counted on an ingenious "counting-board," but the weighing is not omitted.

Amounts Coined, Wastage, Etc.

Space forbids our giving further details with regard to the care taken to collect all the particles of the precious metal, etc., etc. Suffice it to say that the wastage in reality is but a mere fraction of that allowed by law, so nicely is everything arranged. The allowable loss is, we believe, 0.2 per cent. on the whole amount of bullion manipulated; the real loss is often not more than one-twentieth of this.

The following table of the amounts coined at the San Francisco Branch Mint for the quarter ending March 31, 1870, will give an idea of the value of the work done:

January, Double Eagles	$1,620,000
January, Half Dollars	40,000
February, Double Eagles	960,000
February, Half Dollars	25,000
March, Double Eagles	2,100,000
March, Half Dollars	55,000
Total	$4,800,000

The present officers of the Mint here are: General O. H. La Grange, Superintendent; Dr. O. D. Munson, Assayer; C. N. Felton, Treasurer; J. P. Cochran, Melter and Refiner; J. B. Harmstead, Coiner. The efficient management of General La Grange is visible in every department.

A visit to the Mint shows how entirely inadequate to the business is the present building. The new Mint, on the corner of Sixth and Mission streets, is now rapidly arising on its foundations, the corner stone having been laid on the 25th ult. with appropriate ceremonies.

Coinage Reforms.

Congress has been discussing the subject of making several changes with regard to the U. S. Mints, some of which are evidently much needed. We have not the space to particularize these. Reducing the allowed wastage and having the refining done by private parties have been extensively treated of, and on the latter subject and on the mint charges the reader may find a well-written pamphlet by Mr. L. A. Garnett of this city. Mr. J. J. Knox, Deputor Comptroller of the Currency has, at the suggestion of the Secretary of the Treasury, prepared a bill embodying a number of reforms, and we conclude our article with the principal new features of his bill, which are as follows:

The establishment of a mint bureau at the Treasury Department, which shall also have charge of the collection of statistics relative to the precious metals; the consolidation of the office of Superintendent with that of the Treasurer, thus abolishing the latter office and disconnecting the mint entirely from the office of Assistant Treasurer; the repeal of the coinage charge, and authorizing the exchange of unparted for refined bars; a reduction in the amount of wastage and the tolerance (deviation in weight and fineness) in the manufacture of coin; requiring the token coinage to be of one material of uniform value, and to be redeemed under proper regulations, when issued in excess, and the expense of its manufacture to be paid from specific appropriations, and not from the gain arising in its manufacture, as heretofore; an entire change in the manner of issuing the silver (subsidiary) coinage; discontinuing the coinage of the silver dollar; limiting the amount of silver to be used as alloy, so as to make the gold coinage of uniform color; the destruction of the dies not in use, annually; requiring vouchers to pass between the different officers of the mint, in all transfers of bullion and coin; requiring increased bonds from officers of the mint, and authorizing each officer to nominate his subordinate before appointment; and also making it an offense to increase or diminish the weights used in the mint.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Travelling Agents.

Wm. H. Murray, California and Nevada.
S. H. Herring—California.
Thomas Poyzer—California.
F. B. Alderson—Nevada.

Resident Agents.

Centerville, Alameda Co., Cal.—L. G. Yates.
Oakland—W. H. Hardy.
Sacramento—A. S. Hopkins, No. 70 J street.
Jackson, Amador Co., Cal.—G. S. Andrews.
Treasure City, Nev.—Thos. Starr.
Carson City, Nev.—John G. Fox.
Treasure City, Nev.—J. L. Robertson.
Shermantown, Nev.—P. C. Renfrew.
Silver City, Idaho—J. Caples.
Helena, Montana—E. W. Carpenter.
Black Hawk, C. T.—Harper M. Orahood.
Central City, C. T.—Richards & Crane.
Georgetown, C. T.—John A. Lafferty, Postmaster.
Denver City, C. T.—Woolworth & Moffat.
Cheyenne, D. T.—Robert Beers.
Omaha, N. T.—Barkalow & Brothers.
Philadelphia, Pa.—Fitler, Quigg & Co.
London—George Street, 30 Cornhill, E. C.
Hudson & Menet, 41 Park Row, New York.
A. C. Knox, City Soliciting and Collecting Agent.

☞ Maravilla Cocoa.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills—Brick Lane, London. 5v20-1y

To Miners, Millmen and Metallurgists. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

It is a great thing for elderly persons to have their fading eyesight restored to its youthful perfection. This can be done by Muller, who is recognized as the optician of the Pacific coast. His Brazilian spectacles, properly fitted and adjusted, are superseding all others in use. *

Attention to Mining Companies of Copper and Galena Ores.—A mining engineer and assayer thoroughly acquainted with practical smelting of lead and copper ores, and competent to put up all kinds of furnaces, wishes employment. References given. Please address C. T. MOHRIG, care of Schultz, Fischer & Mohrig, No. 10 Stevenson street, near First, San Francisco. 23v20-1m

Dr. Hartmann, Physician, Oculist and Medical Electrician, cures all diseases of the eye, such as Granulated Eye Lids, Inflammation of the Eye. Opacities of the cornea cured permanently. Also, Paralysis, Rheumatism and all Nervous and Chronic Diseases, and all Female Complaints. 314 Bush street. 25-520.

We call attention to the new portable gas burner—the only one that can be regulated to any size, flame, and burn without smoke or smell. Equal to any gas at one-fourth the cost. P. J. Philips & Co., 650 Market street, have county rights for sale for this valuable invention; also lamps for sale. No one should be without them who wants a good, cheap and safe light. 21v20-4w

Treatment of Rebellious Silver Ores, by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

Business Fortunes are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

Brooklyn, Cal., May 31st, 1870.
Messrs. Dewey & Co.—Dear Sirs—Accept my thanks and congratulations for your prompt and efficient measures in securing the approval of my claims. Yours, very truly, A. H. Bangle.

Beware of Tooth Poisons vended under the name of Dentrifices. Adopt and adhere to the only preparation that really preserves the teeth and hardens the gums, fragrant Sozonont. Its effects on decaying teeth are marvellous. *

"Spauding's Glue" mends crockery, wooden wars, etc.

To Farmers.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no recounting. 20v20-3m

Photography.—For Cabinet Photographs, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m B. F. Howland.

Mason's Bread of Life, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis and Sore Throat. Price, 25 cents per box. These lozenges are free from all dangerous properties. Compounded and put up by Dr. J. H. Mason, 750 Howard st. 16v20-3m

Thomas O'Neil Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

Microscopes for Scientific Investigation and Educational Purposes. Price list sent free. T. H. McAllister, Optician, 49 Nassau street, New York. 15v20-3m

Drs. Martinache & Smith, Oculists and Aurists, 313 Bush street, between Montgomery and Kearny. Hours for consultation, 12 to 3. 16v20-3m

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

New Mining Notices.

Land Purchasers' Association.—At a meeting of the Board of Trustees of the Land Purchasers' Association, held June 7th, 1870, the following resolution was adopted by unanimous vote:

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers thereto; being for the monthly installment falling due and payable June 1st, 1870. Said assessment is payable on or before the thirtieth day of June, A. D. 1870, to James F. Crosett, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of June, A. D. 1870, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before will be sold on the thirtieth day of July, A. D. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.

Office, 304 Montgomery street, San Francisco. jul8

Office of the Placer Gold Mining and Canal Company.—Location of Works: Township No. Six (6), County of Placer, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the eleventh day of June, 1870, an assessment (No. 2) of two dollars ($2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 204 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the twenty-sixth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the sixteenth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. S. HALEY, Secretary.

Office of Company, No. 204 Montgomery street, San Francisco, California. jul8

Mining Notices--Continued.

Cayuga Chief Mining Company.—Location of Works: White Pine County, Nevada.

Notice.—There are delinquent on the following described stock, on account of assessment levied on the twenty-ninth day of April, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A Bolton	56, 57 59—ea 100	300	$45 00
A Bolton	58	100	hsl 5 00
A Bolton	50	50	7 50
A Bolton, Trustee	147, 175—ea 50	100	15 00
A Bolton, Trustee,	159, 204—ea 100	200	30 00
A Boltou, Trustee	173	30	4 50
A Boltou, Trustee	191	40	6 00
A Bolton, Trustec,	187, 188 189, 190—ea 50	200	hal 10 00
G W Beaver	157, 158—ea 250	500	bsl 25 00
R G Brown	73	100	hal 5 00
J H Coleman	54	50	hal 2 50
W K Deitrich	40	500	hal 25 00
H I Davls	102, 103—ea 100	200	bal 10 00
T Deussing	128	25	hal 1 25
J A Eaton, Trustes	52	100	hal 5 00
J A Eaton, Trustes,	115, 127—ea 50	100	hal 10 00
J A Eaton, Trustee	150	10	hal 50
Bernhard Frauz	208	20	hal 1 00
Bernhard Franz	209	5	hsl 25
James R Garniss	176	100	hsl 5 00
James R Garniss	177	50	hal 2 50
James R Garniss	178, 179—ea 25	50	hal 2 50
James R Garniss	180, 181 182—ea 10	30	hal 1 50
James R Garniss	183, 184 185, 186-ea 5	20	hal 1 00
E. Heathfield	113	250	hal 12 50
A. E. Hill, Trustee,	119, 122 123—ea 50	150	bal 7 50
F. A. Jennings	114	25	3 75
E. D. Jackson	174	20	3 00
Chas. Kaeding	18	500	hal 25 00
Chas. Kaeding	131	25	hal 1 25
W. D. Litchfield	37	250	hal 12 50
Alhert E. Lockhart	62	20	3 00
Geo. A. Lockhart	63	20	3 00
John Landers	170	90	13 50
H. K. Moors	64	33	hal 1 55
W. W. Merrehew	110, 111—ea 50	100	hal 5 00
A. Nordman	31	250	hal 12 50
S. K. Nichols	81, 82, 83, 84—ea 100	400	60 00
Geo. H. Powers	65	17	hal 85
W P Raymond	171	400	60 00
Mrs. W. P. Raymond	172	50	hal 7 50
E. L. Smith, Trustes	205 206—ea 100	200	bal 10 00
John Stark	53	50	hal 2 50
R R Swain	115	75	hal 3 75
H S Salinger	130	25	hal 1 25
W J Taylor	46, 47, 48, 49—ea 25	100	15 00
J H Wallaco	107	50	hal 2 50

And in accordance with law and an order of the Board of Trustees, made on the twenty-ninth day of April, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the office of the company, room No. 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the twenty-first day of June, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.

Office, Room 5, 302 Montgomery street, S. F. je 4

Cordillera Gold and Silver Mining Company, Chihuahua, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of June, 1870, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 321 Washington street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the ninth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the first day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale By order of the Board of Trustees.

HENRY R. REED, Secretary.

Office, 321 Washington street, San Francisco. jul1

Office of Silver Sprout Mining Company, 408 California street, San Francisco, June 2d, 1870.

Notice.—The annual meeting of the stockholders of the Silver Sprout Mining Company, will be held at the office of the company, No. 408 California street, San Francisco, on Tuesday, the twenty-eighth day of June, 1870, at 12 o'clock M., for the election of Trustees to serve for the ensuing year, and for the transaction of such other business as may properly come before the meeting. [ju4-1m] T. B. WINGARD, Secretary.

Block Tin and Solder Wire, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

---

Evening Star No. 1 Silver Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the first day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the second day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-fifth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. ju4

Latawana Mining Company—Near Hamilton City, White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of June, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the fourteenth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the sixth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 25, San Francisco, California. jul1

Land Purchasers' Association—Office, No. 304 Montgomery street, San Francisco.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the third day of May, 1870, for the monthly installment due May first, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Thomas R Hayes	1, 2, 3, 4, 5	5	$150 00
John Bays	28	1	30 00
L. C. King	37	1	40 00
Philo Doud	87	1	20 00
H. H. Mayhew	91	1	20 00
M. L. Haas	97, 98	2	50 00
E. Ehrenforte	99	1	20 00
F. Backo	105	1	20 00
Mrs. Nellie McCarty	113	1	30 00
S. S. Sprague	114, 119	2	40 00
H. Keller	127, 128, 129, 130 131, 132, 133, 134 135, 135	10	200 00
H. G. Robinson	150	1	10 00
Otis Jackson	173, 174	2	40 00

And in accordance with law and an order of the Board of Trustees, made on the third day of May, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of the Secretary, No. 304 Montgomery street, San Francisco, on Tuesday, the twenty-eighth day of June, 1870, at 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.

Office, 304 Montgomery street, San Francisco. je 4

Marcelina Mining Company.—Location of Works: Eureka Mining District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of May, 1870, an assessment of forty (40) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at 325 Sansome street, San Francisco.

Any stock upon which said assessment shall remain unpaid on Thursday, the twenty-third day of June, 1870, will be advertised on that day as delinquent, and unless payment shall be made before, will be sold on Tuesday, the nineteenth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. C. PALMER, Secretary.

Office, 325 Sansome street, San Francisco. m28

Mountain City Mining Company.—Location of Mine: Cops District, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the eighth day of April, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Brown, Geo W	unissued	250	$125 00
Enright, John T	unissued	650	325 00
Greok, H J	unissued	500	250 06
Meder, Moses A	unissued	5410	2705 00
Rogers, F A	11	500	250 00
Rogers, F A	12	200	100 00
Rogers, F A	13	100	50 00
Rogers, F A	14	100	50 00
Rogers, F A	15	50	25 00
Rogers, F A	15	50	25 00
Rogers, F A	17	50	25 00
Rogers, F A	18	10	5 00
Rogers, F A	19	10	5 00
Rogers, F A	20	10	5 00
Sweaney, A P	unissued	250	125 00
Tregaskis, Mrs E J	unissued	50	25 00

And in accordance with law and an order of the Board of Trustees, made on the eighth day of April, 1870, so many shares of each parcel of said stock as may be necessary will be sold as public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Monday, the eleventh day of July, 1870, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office, 408 California street, San Francisco. Advertising charges, $2 per certificate, jul1-2w

---

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the third day of May, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
H C Kibbe	unissued	2000	$60 00
R P Johnson	unissued	2000	50 00

And in accordance with law, and an order of the Board of Trustees, made on the third day of May, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, room 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the twenty-eighth day of June, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California, ull

---

Pinto Mining Company.—Location of Works: "Silversdo," Pinto Mining District, White Pine County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of May, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No Shares.	Amount.
A. H. Ward	111	805	$80 50
Elliott J Moore	178	1610	161 00
Robert C Johnson	175	500	50 00
Robert C Johnson	176	500	50 00
Robert C Johnson	183	5316⅔	531 67
J. Naphtaly	unissued	803⅓	80 33
P C Whiting	184	35	3 50
P C Whiting	185	25	2 50
P C Whiting	186	25	2 50
P C Whiting	187	25	2 50
P C Whiting	188	25	2 50
P C Whiting	189	25	2 50
P C Whiting	190	25	2 50
P C Whiting	191	25	2 50
P C Whiting	192	25	2 50
P C Whiting	193	25	2 50
P C Whiting	194	50	5 00
P C Whiting	195	50	5 00
P C Whiting	196	50	5 00
P O Whiting	197	50	5 00
P C Whiting	198	50	5 00
P C Whiting	199	100	10 00
John A. McQuaid	200	610	51 00

And in accordance with law and an order of the Board of Trustees, made on the second day of May, 1870, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Doro & Co., No. 327 Montgomery street, San Francisco, on the twentieth day of June, 1870, at the hour of twelve o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. B. ARROWSMITH, Secretary,

Office, No. 426 Montgomery street, San Francisco, je4

Silver Vault Tunnel and Mining Company. Location of Works: White Pine Mining District, White Pine County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the third day of May, A. D. 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bartlett, Pliny	11	100	$5 00
Benedict, Newton,	47	5	25
Bivins, B F	247	5	25
Bivins, B F	249	5	25
Bivins, B F	250	5	25
Bivins, B F	251	5	25
Cherry, J W	306	100	5 00
Dore, Benjamin	85	5	25
Dore, Benjamin	86	5	25
Dore, Benjamin	87	5	25
Dore, Benjamin	88	5	25
Dors, Benjamin	91	5	25
Dore, Benjamin	95	10	50
Dore, Benjamin	96	10	50
Dore, Benjamin	97	10	50
Dore, Benjamin	98	10	50
Dors, Benjamin	103	10	50
Dore, Benjamin	104	10	50
Dore, Benjamin	171	50	2 50
Dore, Benjamin	172	50	2 50
Dore, Benjamin	173	50	2 50
Dore, Benjamin	211	100	5 00
Doro, Benjamin	213	100	5 00
Dore, Benjamin	259	100	5 00
Dorc, Benjamin	292	80	4 00
Dore, Benjamin	315	500	25 00
Dors, Benjamin	317	1000	50 00
Dore, Benjamin	325	1000	50 00
Dore, Benjamin	327	500	25 00
Dore, Benjamin	328	100	5 08
Dore, Benjamin	330	200	10 00
Dore, Benjamin	831	320	16 0
Davis, H J	150	50	2 50
Davis, H J	151	50	2 50
Davis, H J	152	50	2 50
Davis, H J	153	50	2 50
Ecker, George	206	1000	50 00
Fox, H	201	10	50
Hsskell, J M	186	20	1 00
Hsskell, J M	190	50	2 50
Herrin, E W	221	50	2 50
Herrin, E W	222	50	2 50
Herrin, E W	301	100	5 00
Hunter, James	123	200	10 00
Hunter, James	124	200	10 00
Hunter, James	125	200	10 00
Hyde, George	154	50	2 50
Hyds, Georgs	155	50	2 5
Hyde, George	156	50	2 5
Hyde, George	157	50	2 5
Haskell, J M, Trustee	340	400	20 00
Jordsu, George	121	50	2 50
Jordan, Georga	122	50	2 50
Kimhall, G H	243	5	2
Leavitt, C	147	50	2 50
Leavitt, C	148	50	2 50
Ladd, C J	204	100	5 00
Mesick, Mrs M A	81	100	5 00
Mesick, Mrs M A	82	100	5 00
Mesick, Mrs M A	83	100	5 00
Mesick, Mrs M A	84	100	5 00
Pesiuger, John H	200	100	5 00
Root, N T	318	25	1 25
Root, N T	319	25	1 5
Shaeffer, J W	332	900	45 00
Turner, F D	338	100	5 00
Taylor, J F	320	1000	50 00

And in accordance with law and an order of the Board of Trustees, made on the third day of May, A. D. 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the Company, room No. 23, Hayward's Building, No. 419 California street, San Francisco, California, on Wednesday, the twenty-ninth (29th) day of June, A. D. 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOSEPH L. KING, Secretary.

Office, Room No. 23, Hayward's Building, No. 419 California street, San Francisco, California. jul1

SEVERANCE, HOLT & CO.,
MANUFACTURERS OF
Diamond-Pointed Drills
AND DRILLING MACHINERY.

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 California Street, San Francisco. 25v20-3m

A Valuable Book for Inventors and Artisans.—Dewey & Co., publishers of the Scientific Press and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the Scientific Press office, postpaid, for $1.—*New Age.*

New Advertisements.

Thursday Evening.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

The Merchants' Exchange Bank
OF SAN FRANCISCO.

Capital, One Million Dollars.

A. N. COLEMAN……………………President.
G. H. WHEELER……………………Cashier.

BANKING HOUSE,
No. 418 CALIFORNIA STREET.
25v20-qy

O. J. KING, T. B. KIMBALL, P. D. CODE.
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES.
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [15p

TREES,
FRUIT AND ORNAMENTAL.
1870.
THE LARGEST AND MOST COMPLETE STOCK
—IN THE—
UNITED STATES.

Orders for large or small quantities promptly filled. Packing performed in the most skillful and thorough manner. SMALL PARCELS forwarded by Mail when desired. Nurserymen and Dealers supplied on liberal terms. Descriptive and Illustrated priced Catalogues sent prepaid on receipt of stamps, as follows:

No. 1—Fruits……………………10 cents.
No 2—Ornamental Trees……………………10 cents.
No. 3—Greenhouse……………………5 cents.
No. 4—Wholesale……………………Free.

Address ELLWANGER & BARRY,
25v20-6m Rochester, N. Y.

TARRANT'S SELTZER APERIENT.

Tone and Soothe the Stomach.—Digestion is the primary function of the living machine. If that process is imperfect, every organ falters and fails in its appointed work. The stomach of the dyspeptic is weak and irritable. It requires to be strengthened, refreshed and soothed. Tarrant's Effervescent Seltzer Aperient tones the gastic membrane, and calms the uneasiness which superinduces nausea. The liver of the dyspeptic is inert. The Seltzer Aperient rouses and regulates it. The bowels are constipated or fretful in their action. This excellent saline laxative relieves and controls. In short, it is a true and all-sufficient Elixir for indigestion in all its varied phases, and for all the derangements which proceed from a disordered stomach.

SOLD BY ALL DRUGGISTS.

Hold Your Horses.

The subscriber has the pleasure of announcing to the public a new, novel, cheap, and useful invention, which every person owning a horse needs for every-day use. It is called a "HORSE-HITCHER." You need no longer have your shade trees and fences ruined by hitching to them, nor the street of the city blockaded by posts. With this arrangement any horse may be left in the street or field with perfect safety. Try, and you will hold fast, because you will find him good. Agents wanted everywhere. This invention is one which pays industrious Agents large profits. It is a new thing, never having been offered to the public before. No charge is made for boxing, and no order for less than one dozen is sent, at $10, prepaid or C. O. D., unless a sample, which will be sent on receipt of the retail price, $1.25. One agent sold in three weeks over 500. State, County and Town Rights for sale. Apply to ANTHONY JACKSON, La Crosse, Wis. P. O. Box 409. 25v20-1m

Wood Cutting & Splitting Machine.

This Machine is made of cast iron, constructed without saw, *only with* "STEEL KNIVES," and by removing half a dozen bolts, is easily taken apart or put together in a few minutes; will cut and split more than 40 cords of fire-wood per day, hard or soft wood, as using for stoves and railroad, and requiring but two men to tend it. Can be driven by steam or horse power. The patentee offers the largest inducements to foundrymen and dealers in patents, for the purchase of State and County Rights, and for the manufacture and sale of these Machines in all parts of the country. Secure the right soon. Apply to ANTHONY JACKSON, La Crosse, Wis. P. O. Box 409. 25v20-1m

LESSONS IN ASSAYING,

Determination of Minerals and the use of the Blow-Pipe, to those wishing to gain a knowledge of these branches. Any person may learn to make the ordinary assays in a few lessons. Address me at the Pacific Chemical Works, 215 First street, or Box 1180, Post Office. (25-v20) HENRY G. HANKS.

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, June 16, 1870.

Iron.—Duty: Pig, $9 per ton; Railroad, 60c ℘ 100 ℔s.; Bar, 1@1½c ℘ ℔; Sheet, polished, 3c ℘ ℔; common, 1½@1¾c ℘ ℔; Plate, 1½c ℘ ℔; Pipe, 1½c ℘ ℔; Galvanized, 2½c ℘ ℔.		
Scotch and Eng. Pig Iron, ℘ ton	$31 00	@$32 00
White Pig, ℘ ton	28 00	@ 30 00
Refined Bar, bad assortment, ℘ ℔	— 03	@ — —
Refined Bar, good assortment, ℘ ℔	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
Copper.—Duty: Sheathing, 3½c ℘ ℔; Pig and Bar, 2½c ℘ ℔.		
Sheathing, ℘ ℔	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
Tin Plates.—Duty: 25 ℘ cent. ad valorem.		
Plates, Charcoal, IX, ℘ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ℘ ℔	— —	@ — 42
Steel.—English Cast Steel, ℘ ℔	— —	@ — 15
Quicksilver.—℘ ℔	— —	@ — 65
Lead.—Pig, ℘ ℔	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
Zinc.—Sheets, ℘ ℔	— 10½	@ — 11
Borax	— 35	@ — 38

Machinists and Foundries.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 8-qy

---

THE RISDON
Iron and Locomotive Works.

INCORPORATED..........APRIL 30, 1868.
CAPITAL..........$1,000,000.

Corner of Beale and Howard Streets,
SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth,	Lloyd Tevis,	Wm. Alvord,
Wm. Norris,	Joseph Moore,	Chas. E. McLane,
	John N. Risdon.	

JOHN N. RISDON..........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..........Secretary.
24v17-qy

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
14vl SACRAMENTO CITY

PACIFIC FILE WORKS,

No. 53 Beale Street, bet. Market and Mission,
SAN FRANCISCO.

J. C. THWING & CO.,
Successors to T. O. Durning & Co.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867. 2v17

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. CONNER.

MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,
Between Howard and Folsom, San Francisco.

— ALL KINDS OF —
High and Low Pressure Boilers Built.
Sheet Iron Work, Etc., Etc.

☞ Repairing promptly attended to.
17v20-6m WM. W. CANTY, Manager.

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,
SAN FRANCISCO,

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers**, with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description,

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their Inventions. 1v16tf

---

MACHINERY
— AT —
GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,
SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS
AT EASTERN PRICES.

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

---

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and **15** Fremont street, near Market, San Francisco. 10v14qr

---

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
SAN FRANCISCO.

All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL

CITY IRON WORKS COMPANY,
CLERC & CO.,
IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery.

16v16q No. 28 Fremont street. San Francisco.

SAN FRANCISCO
STARCH WORKS.

LAVERY'S SNOW-FLAKE

YEAST POWDER.

Corner Eighth and Brannan Streets.

Office, 302 California street, up stairs.

22v20-3m **W. J. LAVERY & CO.**

ECONOMY AND CLEANLINESS

Are to be found in the use of the

PATENT SPRING BED.

They are the cheapest and best in the market. Manufactory on Twelfth street, bet. C and D, Sacramento. Caveat filed Aug. 9, 1869. [15v20] G. B. DEAN.

HIBBERD, SANBORN & CO.,

STAIR BUILDERS,

South Point Mills, Berry Street,
Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Greatest Discovery Ever Made.

MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has been the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would be to those afflicted with this painful disease, he with great difficulty and expense obtained the secret of preparing the Plaster; and during the many years MR. MAC has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will be convinced by referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street: Michael Gorman, No. 6 Front street; Mrs. W. S Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Sbenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository merican Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 A. M., 2 to 4 P. M. and 7 to 9 P. M.

18v20-3m

The Latest, Cheapest, and Most Durable.

CRANDALL'S
PATENT SPRING BED.

This invaluable Spiral Spring Bed combines all the good without any of the bad features of the common spring mattrass. It consists of a framework of springs resting on a bed of stronger springs, thus giving it nearly double the elasticity of any other bed. The springs are self-supporting, each pair being independent of the others, and consequently the tendency to sag or incline toward the middle is avoided. Unlike other spring beds, they require no upholstering, and, of course, afford no harbor for fleas or dust. The medical faculty have pronounced it the best Bed in use. It commends itself to those who have examined and used it. They invariably pronounce Crandall's Patent the best Spring Bed ever offered to the public.

These Beds are on exhibition and for sale at the Cabinet Warerooms of

JOHNSON & BEST,

No. 413 PINE STREET, RUSS BLOCK,

Between Montgomery and Kearny. Also at

639 Market Street, near New Montgomery.

Beds guaranteed to give satisfaction

Or the money will be refunded.

Refer, by permission, to the following, among the many using our Beds, who are willing to testify to their superiority:

San Francisco and Vicinity—J. B. Pierce, Esq., residence Sixteenth and Capp streets, office 315 California street; J. H. Rogers, Esq., residence Oakland Point, office 16, 17 and 18 California Market; W. Zelheer, Esq., residence 613 Geary street; James Dexter, Esq., office 430 Sansome street; John A. Roth, Esq., residence 106 Silver street. James Connor, Esq., Alameda.

N. B.—Responsible persons can have one on trial.

S. B. SNEDAKER & CO.,
21v20-6w Agents for San Francisco.

DR. D. E. DUDLEY, OCULIST.

Dr. Dudley, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: No. 12 Montgomery street, opp Lick House. Hours from 10 to 3. ☞ Se habla Español. On parle Français.

H. S. CROCKER & CO.,
Importing Stationers,

DEALERS IN

BLANK BOOKS

Envelopes, Writing Paper,

NEWS, BOOK, AND FLAT PAPERS.

CHEAPEST AND LARGEST ESTABLISHMENT IN THE STATE.

STEAM

PRINTING ESTABLISHMENT.

Everything in the Printing line at

SHORT NOTICE AND LOW RATES.

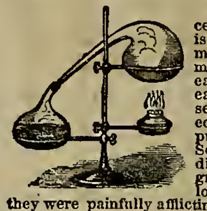
Nos. 42 and 44 J Street,

SACRAMENTO.

☞ ORDERS PROMPTLY FILLED. 24v19xtf

Ayer's Sarsaparilla,

FOR PURIFYING THE BLOOD.



The reputation this excellent medicine enjoys, is derived from its cures, many of which are truly marvellous. Inveterate cases of Scrofulous disease, where the system seemed saturated with corruption, have been purified and cured by it. Scrofulous affections and disorders, which were aggravated by the scrofulous contamination until they were painfully afflicting, have been radically cured in such great numbers in almost every section of the country, that the public scarcely need to be informed of its virtues or uses.

Scrofulous poison is one of the most destructive enemies of our race. Often, this unseen and unfelt tenant of the organism undermines the constitution, and invites the attack of enfeebling or fatal diseases, without exciting a suspicion of its presence. Again, it seems to breed infection throughout the body, and then, on some favorable occasion, rapidly develop into one or other of its hideous forms, either on the surface or among the vitals. In the latter, tubercles may be suddenly deposited in the lungs or heart, or tumors formed in the liver, or it shows its presence by eruptions on the skin, or foul ulcerations on some part of the body. Hence the occasional use of a bottle of this *Sarsaparilla* is advisable, even when no active symptoms of disease appear. Persons afflicted with the following complaints generally find immediate relief, and, at length, cure, by the use of this ***SARSAPARILLA: St. Anthony's Fire, Rose or Erysipelas, Tetter, Salt Rheum, Scald Head, Ringworm, Sore Eyes, Sore Ears,*** and other eruptions or visible forms of ***Scrofulous*** disease. Also in the more concealed forms, as ***Dyspepsia, Dropsy, Heart Disease, Fits, Epilepsy, Neuralgia,*** and the various ***Ulcerous*** affections of the muscular and nervous systems.

Syphilis or ***Venereal*** and ***Mercurial Diseases*** are cured by it, though a long time is required for subduing these obstinate maladies by any medicine. But long continued use of this medicine will cure the complaint. ***Leucorrhœa*** or ***Whites, Uterine Ulcerations,*** and ***Female Diseases,*** are commonly soon relieved and ultimately cured by its purifying and invigorating effect. Minute Directions for each case are found in our Almanac, supplied gratis. ***Rheumatism*** and ***Gout,*** when caused by accumulations of extraneous matters in the blood, yield quickly to it, as also ***Liver Complaints, Torpidity, Congestion*** or ***Inflammation*** of the ***Liver,*** and ***Jaundice,*** when arising, as they often do, from the rankling poisons in the blood. This ***SARSAPARILLA*** is a great restorer for the strength and vigor of the system. Those who are ***Languid*** and ***Listless, Despondent, Sleepless,*** and troubled with ***Nervous Apprehensions*** or ***Fears,*** or any of the affections symptomatic of ***Weakness,*** will find immediate relief and convincing evidence of its restorative power upon trial.

PREPARED BY

Dr. J. C. AYER & CO., Lowell, Mass.,

Practical and Analytical Chemists.

SOLD BY ALL DRUGGISTS EVERYWHERE.

Sold by all druggists and dealers in medicine everywhere. Crane & Brigham, San Francisco; R. H. McDonald & Co., Sacramento, General Agents 7v20eow-4m

---

Agents! Read This!

We will pay Agents a salary of $30 per week and expenses, or allow a commission, to sell our new and wonderful inventions. Address M. WAGNER & CO., Marshall, Mich, 21v20-2m

New York Metal Market.

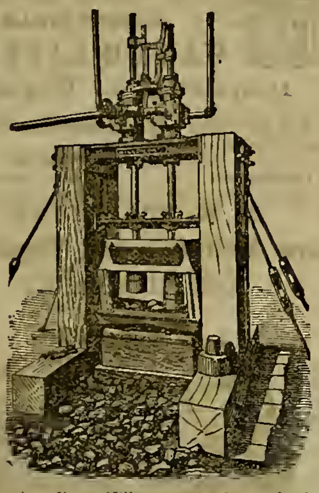
[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, June 4, 1870.

IRON.			
Pig, Scotch, No 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No 2	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common..............................	87 50	@	92 50
Refined.............................	95 00	@	— —
Rods................................	100 00	@	155 00
Horse-shoe..........................	115 00	@	— —
Hoop	125 00	@	180 00
Scroll..............................	110 00	@	145 00
Nail-rods, per lb...................	— 8¼	@	— 9¼
Spring	— 9¼	@	— —
Tire................................	— 9¾	@	— —
STEEL.			
Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast....................	— 23	@	— —
Sheet, second quality...............	— 20	@	— —
Sheet, third quality................	— 18	@	— —
Saw-plates, circular................	— 27	@	— —
Double-shear, warranted.............	— 23	@	— —
Single-shear........................	— 19	@	— —
Montague & Co. (cast bars)..........	— 18	@	— —
Machinery, round....................	— 16	@	— —
German, best........................	— 16	@	— —
German, goat........................	— 13½	@	— —
German, eagle.......................	— 12	@	— —
Blister, warranted..................	— 18	@	— —
Blister, common.....................	— 15	@	— —
Jessop & Sons', common..............	— 17	@	— —
Double-refined......................	— 26½	@	— —
Stone-ax shapes.....................	— 26½	@	— —

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining au envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Nevada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 828 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont street,
1v1 San Francisco.

TO MILLMEN.

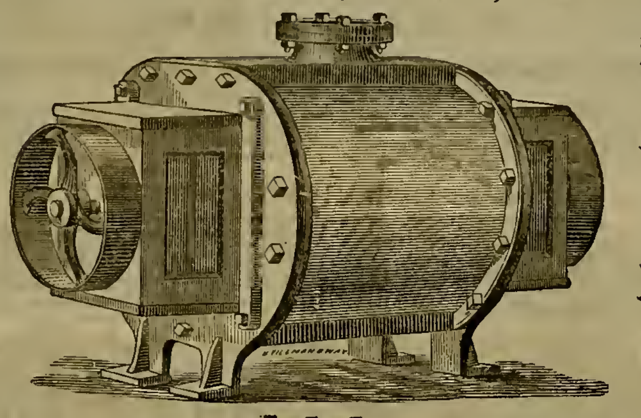
FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30 inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

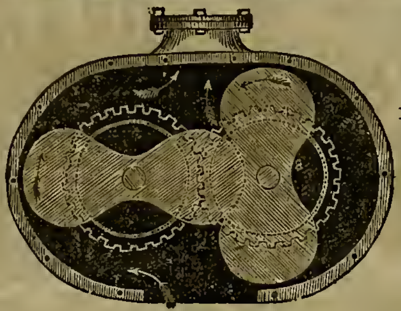
At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24 1866; and Oct. 9, 1866.

ADAPTED FOR **Smelting, Foundry, Mining and Steamships.**



REQUIRES **Fifty Per Cent.** LESS POWER Than any Blower Now in use.

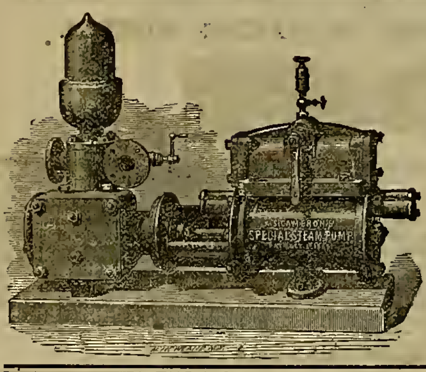
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m Globe Iron Works, Stockton, Cal.



CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

GIFFARD'S
INJECTORS.

BARTOL'S
STEAM TRAP.

SURFACE
CONDENSERS.

DAVID STODDART,
114 BEALE STREET.

SILVER-PLATED AMALGAMATED PLATES

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. OLD GOODS of all kinds re-plated for hotels, restaurants, etc.

☞ The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

Quartz Mill for Sale,

Within four miles of a station on the Central Pacific Railroad. A QUARTZ MILL, NEARLY NEW, consisting of

A superior 40-horse power Engine (Adams' make), with Boiler,
Heavy 5-stamp Battery,
Chill Mill,
Two 5-feet Wheeler & Randall Pans,
Two Settlers,
And one Hendy Concentrator,

Together with a large amount of Shafting, Pulleys, Pumps, etc., will be sold at HALF THE ACTUAL VALUE, if applied for soon. Inquire at this office.
24v20-1m

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Nevada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

MARTIN'S
Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

CRANDALL'S PATENT SPRING BED.

COOLEY & GREEN, Proprietors.

Manufactory, corner Front and M streets, SACRAMENTO These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. Orders received at our manufactory, or at our agencies, as follows.

S. B. SNEDAKER, 413 Pine street, S. F.
W. H. SARLES, San Jose,
MR. NICHOLS, Stockton.
IRWIN & GARNETT, Oakland.
MR. MURPHY, Vallejo.
22v20 E. A. TOMPKINS, Grass Valley.

E. T. STEEN.
Machinery Broker.

Engines and Boilers for Sale.

— AGENT —

Haskell's Water-lined Smelting Cupolas,

Chemical Ore Reduction Company,

"ROCKET" QUARTZ CRUSHER,

And Anti-Incrustation Powder, for Steam Boilers.

No. 433 CALIFORNIA STREET,

(14 MERCHANTS' EXCHANGE). 23v20

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

BULL'S HEAD STOCK MARKET,

JUNCTION OF

Hayes, Ninth and Market Streets,

SAN FRANCISCO.

H. B. PURDY & CO.,

— DEALERS IN —

CATTLE AND HORSES.

Work Oxen always on hand.

WAGONS AND HARNESS BOUGHT AND SOLD ON COMMISSION.

☞ Good Barns, Sheds, Corrals, and all other necessary accommodations. 21v60-3m

CHOICE POULTRY.

Light Brahma and White Leghorns.

We are now booking orders for a few trios of the above named fowls, bred from choice imported stock. Will commence delivering in July. All orders filled in rotation, as received.

☞ A few clutches of eggs for setting from the above named breeds.

NICHOLS & WILLARD,
Importers and Breeders of Choice Poultry, Fruit Vale Avenue, Brooklyn, Alameda county, California.
20v20-3m

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up IN TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List, to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

DEWEY & CO.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
ILLUSTRATED CIRCULARS FREE.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.

THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

Engraver Wanted.

A good WOOD ENGRAVER can obtain steady employment and first-class wages at this office.

BARTON & RUTTER,

Importers and Dealers in

Guns, Pistols, Fishing Tackle

Pocket Cutlery, Etc.

SPORTING APPARATUS OF EVERY DERCRIPTION.

609 Clay Street, near Montgomery.

— SOLE AGENTS FOR —

Alexander's Celebrated Pocket Cutlery

For the State of California.

JNO. C. BARTON. D. A. RUTTER.
16v20-3m16p

A Good Agent

Is wanted, on liberal terms, to travel for the SCIENTIFIC PRESS.

I. O. O. F.

THE NEW AGE,

A WEEKLY JOURNAL OF SIXTEEN PAGES.

The "Official Organ" of the I. O. O. F. on the Pacific Coast.

Is devoted to Odd Fellowship, the ARTS AND SCIENCES and GENERAL LITERATURE; and as a family paper is not surpassed by any journal in the United States. Subscription price per year by mail, $5. Delivered in the city, per month, 50 cents. Office, Odd Fellows' Hall, 327 Montgomery street, San Francisco. 19v19

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY, and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. v16-1y16p

---

ENGRAVING ON WOOD DESIGNING AND ENGRAVING on wood and for electrotype cuts of every description, done by superior artists at the office of the SCIENTIFIC PRESS. Fine Cuts made for Book and Newspaper Illustrations, and for Fancy Labels for printing in various colors; Monograms, Seals, tc., etc. Promp execution and reasonable prices.

DEWEY & CO.,
No. 414 Clay street, S. F.

WIESTER & CO.,

PATENT BROKERS,

No. 314 Bush Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

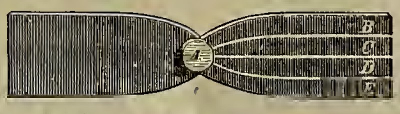
For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

P. DAVIS' WIRE AND PICKET FENCE.

Patented June 29th, 1869.

Although about two hundred different styles of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, stands at the head of the list. This is a Virginia invention, and the actual cost of the Fence complete in that State is less than fifty cents per rod. Three men can put up six hundred yards per day. You men who are idle, why hang about the city talking hard times when you can make from five to eight dollars per day building this Fence? We will make a present of ONE FARM RIGHT in each county on the Pacific coast to farmers who will erect one hundred rods of the fence in good style within thirty days after the privilege is granted. We wish to employ several working men to travel in this State and Oregon. Price of territory, and circular with full description of fence, sent on application.

RYAN'S NEW METHOD OF MAKING WHEELS.



To make indestructible iron wheels with little labor and at small cost, is the object of this invention. The hub and spokes are all made out of a single piece of iron. It is first forged down at the ends to the thickness required for the spokes, leaving a hub in the center. The ends are then split into four or more strips each, as shown in the cut above. A represents the hub; B, C, D, E, when spread to their proper position, form the spokes to one-half the wheel. When the other half is split and spread in a similar manner, the spokes are then rounded and shoulders formed on them ready to receive the tire or rim. It is claimed that the great amount of labor and expense heretofore required in making wrought-iron wheels is obviated by this novel mode of construction. There probably never has been a wheel made that is so durable as the Ryan Wheel, and yet the method of construction is so simple that it can be made by any ordinary mechanic in a common blacksmith shop. All territory west of the Rocky Mountains for sale in States or counties. Thomas Ryan, of Scott's Bar, California, is the inventor. Sample wheels, and the iron from which they are made, can be seen at our office, 314 Bush street, San Francisco.

MORTON'S CORK EXTRACTOR.

A GOOD THING. For sale on liberal terms. Illustrated in the SCIENTIFIC PRESS April 2, 1870. Further particulars next week.

WIESTER & CO.,
314 Bush Street, San Francisco.

PACIFIC Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

— AND —

Every Variety of Shafting,

Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

— ALSO —

HAMMERED IRON

Of every description and ze.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.
☞ The highest price paid for Scrap Iron 9v143m9p

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number.

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes.
H. M. RAYNOR,
57 Bond street, New York.
Platinum Scrap and Ore purchased. 15v20-1y16p

Important to Assayers.

Crucibles.

The Patent Plumbago Crucible Co.

Manufacturers of all kinds of

Melting Pots, Portable Furnaces,

CRUCIBLES, and other fire-standing Goods.

Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT, Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S. Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co.:—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass. GALLAGHER, WEED & CO., California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
18v18-9p **519 Front street, San Francisco**

W. T. GARRATT & CO.

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells,
TAVERN AND HAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

— IMPORTERS OF —

HARDWARE;

BAR AND SHEET IRON,

Steel, Coal, Smiths' and Miners' Tools,

Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and

RAILWAY SUPPLIES.

— ALSO AGENTS FOR —
ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY.

54 K Street, Sacramento.
7v20-ng

WILCOX'S

PATENT STEAM

WATER LIFTER.

Requiring no Engine.

Send for circular containing full explanations, price list, testimonials and references.

M. & A. WILCOX,
15v20-3m-nhxh 74 K street, Sacramento.

N W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market.

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws:

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect,

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE.
At the lowest Market Prices.

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLED RAWHIDE, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ **Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** ns

---

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,

SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	596,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,995 21
Cash in Banks	132,240 57
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidsdorff streets	145,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,695,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞ Insurance effected on the most reasonable terms. ☜

Office, 422 California Street.

SCIENTIFIC PRESS.
AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,
Mining, Farming and Mechanic Arts.

BY DEWEY & CO.,
Patent Solicitors.

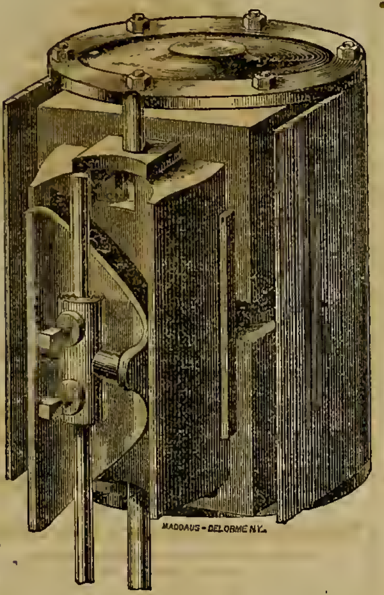
San Francisco, Saturday, June 25, 1870.

VOLUME XX.
Number 26.

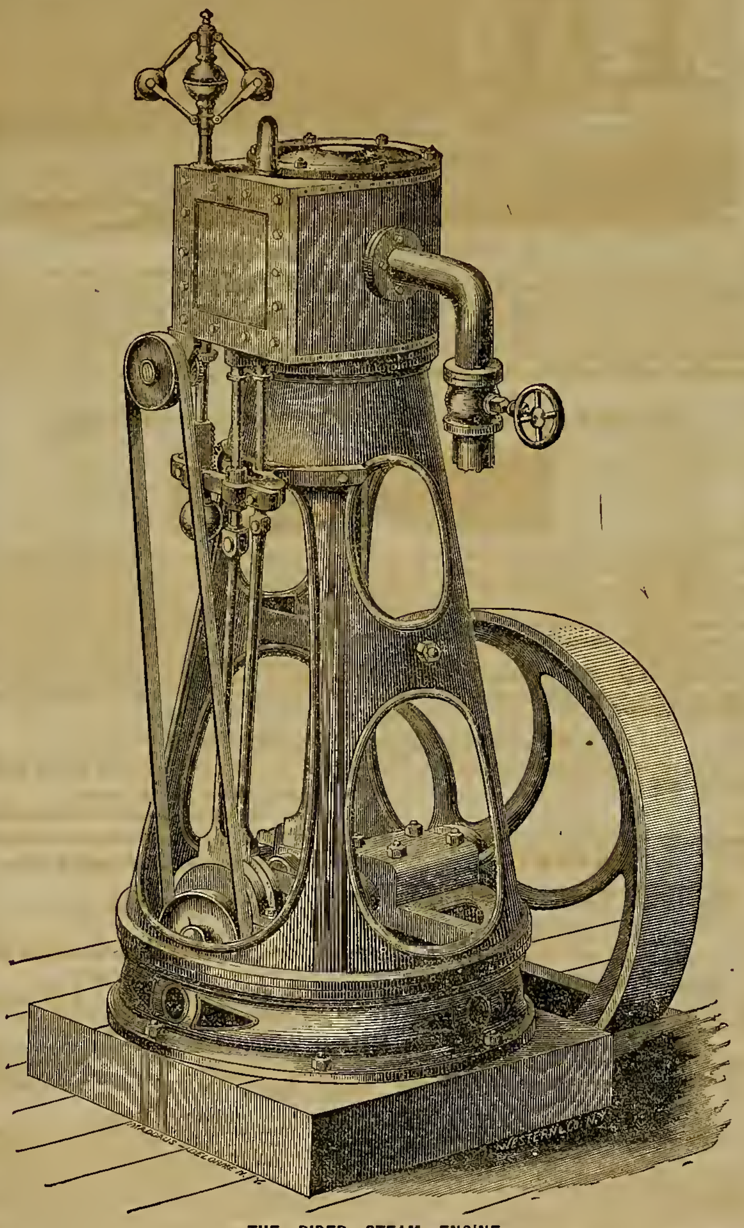
The Rider Steam Engine.

To keep pace with the improvements made on the steam engine alone, requires a large share of attention on the part of those interested in the mechanic arts. Every day we hear of new devices which claim to be worthy of the attention of the public. To speak of such which are praiseworthy, is the part of a paper devoted to the interests of the people, and as such, we have from time to time devoted as large a portion as possible of the PRESS to the remarks on various inventions.

We illustrate to-day an engine which has met with much favor, and which has received many testimonials to its excellence. The Rider engine is one which is well known and extensively used. It has several modifications, but we propose at present to speak merely of the vertical form.



Here one great object has been, to unite with other advantages the economy of room. On a strong and compact conical column is placed the cylinder, and below is the crank-shaft. The amount of floor-room thus occupied is very small, as is evident from an inspection of the first figure. The general effect is certainly very pretty. Besides this point, the attention of the reader may be called to the construction of the variable cut-off, so important a part in economical respects. This is represented in the second figure on an enlarged scale, the valve-chest being removed. There is a single main valve and a single cut-off valve. The former has the outer orifices of its steam-ports made obliquely to its length, as shown in the figure, and its back is hollowed out so that the cut-off valve can play longitudinally in the seat thus formed. The ends of the cut-off valve (which is of the form of part of a cylinder) are shaped so as to correspond with the ports. The two valves are worked by separate eccentrics so that the ports are opened to their full width at the commencement of the stroke. The closing of them is regulated by the governor, which by its rise and fall turns the cut-off valve in its seat. For this purpose the lower part of the governor rod is provided with a toothed rack, which acts on a toothed sector geared with the stem of the cut-off valve.



THE RIDER STEAM ENGINE.

The main valve has three ports. The engraving rather gives the idea that the cut-off valve is of rectangular shape with curved corners. It is, in fact, of the form of a segment of a cylinder. It is obvious, from the cut, that, as it is turned to the right or left in its seat, it will close the ports earlier or later in its longitudinal movement.

This engine is manufactured by Messrs. Handren & Ripley, of the Albany St. Iron Works, corner of Albany and Washington streets, New York, under the patent of Mr. A. K. Rider. The material and workmanship are of the best, and we are willing, from what we hear and know of it, to believe that it is, as claimed, a most effective, durable and economical device. There is a large and growing demand for engines on our coast, and we advise an examination of the one in question.

THE TUOLUMNE RE-UNION at Humbold Park, Oakland, occurred on last Friday. We were unable to be present, although desirous of participating in the festivities, and the pleasant accounts we hear of the very enjoyable occasion makes us all the more regretful that we did not "let everything slide" and go. We return thanks for the ticket sent us.

◆

RAILROAD EXTENSION.—The Western Pacific Railroad Company are to extend the Alameda road from Hayward's to Decotah, and as soon as this is completed, trains to and from San José will pass over it.

Mining and Agriculture.

The Elko *Independent* describes a valley situated about 40 miles northeast from that place, and known as Independence Valley. It is easy of access by two good wagon roads, one from Elko and one from Carlin. The valley proper is nearly thirty miles in length from north to south, and about ten miles wide from east to west, containing first-class farming, meadow and grazing lands, which are watered by hundreds of beautiful mountain streams, filled with jumping speckled trout, and large fat salmon from the far-off Pacific. The valley is bounded on the east by that heavily timbered range of mountains called the East Range, supposed to be non-metalliferous, but containing a world of wealth in the shape of sawing and building timber. Upon the west it is bounded by a range of mountains, the lower portions of which are intersected by numerous gold-bearing quartz veins, which afford excellent placers, where good wages are earned by mining in the most primitive manner. This placer is about ten miles long by two in width, and is well provided with water. A mining district has been established there for some time. A 4-stamp quartz mill has just been erected there by the brothers Bierd, the pioneer locators there, but at last accounts had not been started.

Aside from the gold placers on its western border, and its exceptional size, this valley is but a type of hundreds of others equally valuable, and situated in almost every quarter of the great State of Nevada.

Our mountain lands have hitherto been greatly undervalued as to their agricultural worth. But we are now entering upon a new era. Miners everywhere are beginning to look with favor upon agricultural settlers in their midst, and are willing to accord them all reasonable protection, to the end that they, the miners, may thereby obtain breadstuffs, vegetables and fruit at more reasonable rates than when compelled to transport them long distances over rough and heavy roads. The contemplation of hundreds and thousands of acres of valuable agricultural lands ruined by mining, from which only scanty wages have been obtained and that for a single year, is impressing upon the minds of miners that the single crop of gold so dearly earned, affords no adequate return for the loss of farming lands that, under a different policy, might have endured forever, giving annual wealth to the community, building up permanent homes, and rendering valuable, by cheapening the cost of living, numerous mines that otherwise could never have been worked to a profit. It is for the advantage of the miners, as a body, to protect the interests of agriculture against any unwarrantable waste of mining desolation.

◆

NEW TELEGRAPH COMPANY.—The office of the Atlantic and Pacific Telegraph company was formally opened on Wednesday.

◆

THE fare on the railroad between New York and San Francisco has been reduced to $130.

Communications.

Elko and its Springs.

[Written for the Scientific Press.]

Editors Press:—Elko, Nevada, is on the line of the Central Pacific Railroad, about 606 miles from San Francisco and 275 miles from Ogden, and is situated at an elevation of 5,030 feet above the sea. It was located early in 1869, during the White Pine excitement, and has since been steadily flourishing, until now it has a population of a little more than 1,000 persons. It is the county seat of Elko county, and a court house, costing nearly $2,800, has just been completed; there are good schools now in operation, the railroad has three large depots, a good hotel has been built, at which many westward-bound passengers lay over, and, finally, there are two newspapers printed in the place. One of these, the *Independent*, is very successful under the able management of Messrs. Perkins & Street. I see that the Hon. T. J. Butler, formerly of the Owyhee *Tidal Wave*, is about to publish the Elko *Chronicle*.

About a mile and a half from the city, to the southeast, are some fine warm sulphur springs which are said to possess medicinal properties, and which I visited when in this vicinity. Mr. S. P. Dorsey runs a stage thither from Elko three times a day, and takes one out in buggy time.

The Humboldt Hot Springs.

These are the first which were taken up, this having been done in December, 1868, by Gov. Bigler and Col. T. Henley, of California. In a low basin, some 500 feet in diameter, are two very large springs, one cold and one very hot. The cold spring is about 60 by 35 feet, and 28 feet deep, so that one can enjoy a pleasant swim. Alongside of this, separated by a natural partition not three feet wide, is the hot spring, 100 by 60 feet, and which has been sounded, I am told, to the depth of 200 feet! By letting the hot and cold waters mix in proper proportions, one can have a bath of any desired temperature. The temperature of the hot spring is from 125 to 150 degrees.

Two rooms are fitted up for persons who desire a steam bath. There are boxes or compartments, 3 by 6 feet in dimensions, into which rise the vapors from the hot water, which will steam a man to his satisfaction in a few minutes. It is proposed to build a good hotel containing eight or ten large rooms for the accommodation of visitors, and the old house is to be remodeled and furnished for patients. A doctor will reside here to take charge of the sick.

The Humboldt Sulphur Springs.

About 600 yards off are springs owned by Messrs. Laumeister & Goepper. Here are six fine bathing rooms, furnished expressly for ladies, and others intended for gentlemen. The grounds are being fitted up nicely with summer houses, etc. The springs are smaller than the others, and situated considerably higher. The hot and the cold waters are conveyed through troughs into tanks at the bathing houses. The temperature of the hot spring is 145 degrees.

The composition of the waters here is not known, as no analyses have been made, but it is supposed that they contain soda, lime, iron, saltpetre, and other ingredients. The water is so strongly charged that it is constantly forming a hard coating or incrustation, which in a short time clogs up the boxes.

Springs of Chicken Broth.

There is a small pond, 30 feet long and 20 feet wide, in which eggs can be boiled in a short time, and near by are four small cold springs bubbling up out of the ground. A glass of the hot water was taken and a little salt and pepper added. The mixture tasted like *chicken broth*, so much so that I could not tell the difference, and it makes a delicious drink. The hot water retains its temperature nearly the same throughout the year, but the cold springs often freeze over. It is proposed to erect a hotel to accommodate a hundred guests.

The question as to the causes of the heat is certainly a very interesting one, and one which has not been answered as far as I am aware. The analysis of the water, too, would be of great value, and it is to be hoped that the matter may be investigated soon. The formation here is limestone, and some think that in some way the slacking of the lime by water below the surface of the ground may cause these phenomena.

Artificial Incubation.

At this place I had the pleasure of making the acquaintance of Mr. C. R. Van Allstyn. This gentleman, last April, commenced experimenting on raising chickens and hatching the eggs by means of heat obtained from the spring. He erected some small buildings into which he conducted the hot water. This runs into a tank about twelve feet long, three feet wide and two feet deep, and in this reservoir are placed tin cans holding the eggs packed in straw and cotton. The temperature on the first trial was 120 degrees and he did not succeed. He then reduced this to 90 and 95 degrees, and hatched successfully seven out of the fifteen eggs in each of his eight or ten cans. He is bound to keep on experimenting, and I think he will do well. Miners, you know, all like ham and eggs. It is quite curious to see two or three hundred chickens running about and no large one to be found. [Doesn't this chicken business furnish some hints to the speculative mind on the subject of the broth spring just spoken of?—Eds.] Mr. Van Allstyn intends to put up hot houses and raise flowers, vegetables, etc., if he succeeds with his chickens. He will write you at an early day concerning his operations. [We should be most happy to hear from him. Some remarks on the farming resources will be found in the agricultural department.—Eds.]

Stage Lines.

Elko is the depot for the shipment of freight and passengers for White Pine, Railroad District and other mining camps; also for Cope District and all parts of Idaho Territory. Moreover, those who wish to travel through Oregon can here take Hill Beachey's well-known Railroad Stage Line. The stages leave Elko daily upon the arrival of the western train at 5 P. M.

Hill Beachey is one of the best known, most enterprising and persevering of stage line proprietors. The first to establish stage connections between Idaho and California and Nevada, he has been the only one who has stuck to it, notwithstanding the Indian depredations and the natural obstacles and difficulties. His lines are well patronized and are deservedly popular.

The road from Elko to Silver City is under the able management of Mr. O. R. Johnson, General Superintendent, who has been connected with the company for some years past and who has conducted the business in a very satisfactory manner. The stages have been running from Winnemucca to Silver City, but now the route has been changed to this point, so as to pass through Cope district. At Silver, connection is made with Early's line to Boise city. W. H. M.

Elko, Nevada.

Metallic Soaps.

[Written for the Scientific Press.]

Editors Press:—Some time ago I wrote in your valuable paper concerning Alumina Soap;—that it can be dissolved in oil, and that, possessing a considerable degree of flexibility, it imparts this quality to other substances dissolved in oil, which otherwise would be brittle, and consequently useless for a good many purposes.

Our friend, Mr. C. H. A., a gentleman whom I very highly esteem, wishes me to say a little more about metallic soaps. Mr. A. says that the iron soap is of a rich brown color, and the copper soap of a splendid green tint; but, as he justly remarks, the defect of these, as pigments, is a lack of the property of "covering." This cannot be otherwise expected, since the oily solutions of the metallic soap, leave, after drying, a beautiful *transparent* film of the colors above mentioned. To make them *cover*, they must be mixed with some *insoluble* powder of the same color, and, by so doing, two objects will be gained in using an oil which is already colored by holding in solution a colored metallic soap, instead of the commonly used oil which has no color, namely: it will assist the insoluble pigment in covering, so that a smaller quantity of the same will produce the same effect; and then the work so obtained will be more brilliant, as the glossy coat, after drying, possesses a color in itself. If I were in the manufacturing line, I would try to introduce into public use linseed oil, holding in solution different metallic soaps, to be used in connection with the same kind of oxides in powder form, and I would mix a small quantity of the solution of alumina soap with the above, to prevent its brittleness after drying. One of the many uses of which the metallic soaps are capable, is to render plaster casts impervious to water, and to improve their appearance. The treatment is the following: A soap is prepared by boiling linseed oil with caustic soda solution. The solution of this soap is introduced gradually into a boiling solution of 8 parts of blue vitriol and 2 parts of green vitriol, until completely decomposed. Then a small excess of the vitriol solution is added. The resulting copper and iron soap is well washed and dried. Then prepare a varnish from 4 parts linseed oil and 1 part litharge, and dissolve in 300 parts of this varnish 160 parts of the above metallic soap and 100 parts white bees-wax by applying heat, and melt the mixture for some time, to evaporate the water. This is applied to the plaster casts, previously heated to 80° or 90° C. Dry the same in an oven, and continue the application as long as the plaster still absorbs. Zinc, tin and bismuth soaps produce a white color, and iron soap a reddish brown shade. E. Pique.

Tunneling Bergen Hill, N. J.—It is proposed to drive another tunnel through Bergen Hill, about 30 feet above the level of the present one. This will be about 4,000 feet long. The estimated cost, exclusive of railroad improvements and approaches, is $1,000,000, and the time necessary, three years, if the work is carried on only from the two sides of the hill. By sinking shafts, so as to have several points at which to work, the time requisite for its completion can be shortened, but the cost will be greatly increased. The plan has not been definitely decided upon, but the New York *Herald* says that apparently work will be commenced very soon.

The Peace River Mines seem to have turned out a humbug, and the letters from that region do not speak favorably of mining matters.

Cope District, Nevada.

[Written for the Scientific Press.]

Editors Press:—Leaving Elko for Mountain City at 5:30 P. M., by the Hill Beachey Railroad Stage Line, we ride along due north and arrive at noon of the next day at this well-known mining camp, which is situated near the boundary of Idaho Territory. The road is generally very good, but in places where it is new it is a little rough, owing to the heavy rains and the snow. It will soon be put in good order, however. I was surprised at finding so very fine grazing country all along the route. The hillsides and valleys are covered with as good grass as any ranchman could desire, and water gushes forth from the mountains in abundant quantities everywhere. I saw but few ranches, the small number of which is owing to this being a new road, but I have not the slightest doubt that many will in a short time settle here and raise stock, which can be made a profitable business in this section. The only drawback would be the scarcity of timber; yet I am informed that some seven miles off there is a plenty of this for all necessary purposes.

Mountain City.

Mountain City is situated about 90 miles due north of Elko, on the road to Idaho, on the South Fork of the Owybee river, a small stream which flows in a northerly direction and empties into Snake River. This mountain stream is abundantly stocked with fine fish (trout). The town is about a mile long and has a population of 1,200 inhabitants. There is a post office here; also an express office of Wells, Fargo & Co., a quartz mill of ten stamps and one of two stamps, while many new buildings in the course of erection show that the place is prospering. The city is laid out north and south, and is beautifully situated, although the hills in and around the vicinity are barren in appearance and remind one of Virginia City. The climate is changeable and nearly the same as at the last-mentioned place, but just at present exceedingly fine. The elevation is 5,800 feet.

This district was discovered in May, 1869, by Mr. Cope, of Silver City, Mr. Riley and a few others. These gentlemen were on the way to White Pine, but finding some rich "float" near this place, located a few ledges. They then went to Elko for provisions and there became acquainted with Col. C. S. Drew, who with a few others came hither to prospect. The colonel, who is one of the most energetic and persevering of prospectors, concluded that this was a good place to settle down in, and has erected the 10-stamp mill here. And here let me return thanks to this gentleman and others for the uniform kindness and courtesy shown me during my visit. Miners generally are the most obliging and generous class of mankind;—those of Cope District are the princes of miners in these respects.

The district is about five miles wide and ten long. The first location, made by the Cope party, was on the Pioneer ledge, about half a mile east of Mountain City. The formation is principally slate and granite on the west side of the river, and on the east side granite, resembling that at Austin in many respects, and apparently considerably decomposed in various places.

Cope Mill and Mining Co.

The mill of this company is situated in the city, near the river, and is owned by Col. C. S. Drew, B. Reinhardt and Col. Wingard, of San Francisco. It is built substantially and after the latest pattern, and has ten stamps, four amalgamating pans, two large settlers and an excellent 35-horse power engine (cylinder 12x24 in.), built by Booth & Co., of your city. This mill can crush some twenty tons daily, running during the twenty-four hours. The last month's run was 500 tons. They burn daily about five cords of cottonwood, which is found some seven or eight miles back, and which costs $8 per cord. This is the pioneer mill here and was erected last fall. The two-stamp mill, referred to above, is owned by Messrs. Canty and Allen, but is not running now, having proved too small to be profitable. The owners hope to increase its size, to have five stamps, and then think they can work it. The power is sufficient for eight stamps. They have been in pecuniary difficulties, but their prospects are better now.

There is a great need of more mills here. Nearly all of the miners have ore on the dumps which they cannot get worked, and thus there is an apparent dullness here without any real reason therefor except this scarcity of milling apparatus. A number of companies are shipping their high-grade ores to San Francisco for reduction. The Argenta M. Co. has made special arrangements with the Cope mill for crushing some 1,500 tons of their ore. Some of the miners requested the Argenta Co. to release the mill from this contract for a short time until *they* could get a small quantity crushed, but were informed that no release could be granted for several months, but that the company would loan them money if needed.

Argenta S. M. Co.

The mine of this company is about a quarter of a mile due north of the city and about 200 feet above it. The ledge runs northeast and southwest, with an easterly dip, and crops out boldly from the granite formation. It has been stripped at the surface for a length of some 700 feet. The ledge is from two to twelve feet wide, with well-defined walls, and the rock yields in the mill from $450 to $1,245 per ton for first-class, and about $100, on an average, for second class ore. The superintendent and owner, Mr. T. J. Kiely, very kindly took me through the mine. We went down the incline which extends 140 feet to the tunnel. Some 70 feet from the surface is the first level, running southerly on the ledge about 80 feet, exposing some very good ore, and 70 feet northerly (northeast), where the miners are extracting rich rock. The tunnel below taps the ledge at a distance of 200 feet from its mouth. There are thirty men employed, and the number will be increased as soon as there are proper facilities for reducing the ore. This ore is very coarse-grained quartz, holding native silver, hornsilver, fine sulphurets and "chlorides." I have seen pieces burned in a forge which were completely covered with the pure silver.

Excelsior Mine.

This was located by the Argenta company, May 27, 1869, and is situated but a short distance from the Argenta mine and to the northwest of the city. We entered through the tunnel which strikes the ledge some 60 feet from its mouth. This ledge runs north and south with a dip of 48 degrees to the east. It is from 2 to 6 feet wide and has on each wall a "parting" (as they call it here) of fine soft clay. The ore is rich and easily worked, a sample of 100 pounds in the mill yielding at the rate of $290 per ton. The company has stoped to a height of 15 feet up from the tunnel, where I find the ledge 5½ feet wide. There are upwards of 80 tons of rock on the dump.

Leaving the tunnel, we went up the hill to where the ledge was first struck and where it crops out boldly. The rock contains fine black sulphurets and chlorides and is very rich. The bullion is from .975 to .985 fine and contains 5 per cent. (?) of gold. I understand that Norton & Co. are about to put up a 12-stamp mill near the mine, and not far from the river, and have contracted for 1,000 tons of ore, with the privilege of having 5,000 tons from this (Argenta) company.

Mines on Buckeye Hill.

Buckeye Hill is situated west of the city, across the river, and on it are some fine lodes. The oldest locations were made last May on a ledge called the Buckeye, by the Argenta company and by a party represented by Col. Drew. But little work has yet been done on this ledge, except along the surface.

The Monitor lode, owned by Geo. Curtis and others, is about 5 feet wide, and on it a shaft has been sunk 20 feet. The owners have taken out about 25 tons which will assay $567, and they think will average about $60 per ton by the mill process. [There must be some mistake in these figures.—Eds.] The vein is well-defined and contains black sulphurets.

The Belle of the West, owned by C. H. Massie & Co., is situated some 250 feet above the city and in a northwesterly direction. It has an average width of 40 inches and a dip of 35 degrees. The shaft is 50 feet deep, and there are indications below of a dip of 45 degrees. The company are working with vigor and are taking out very fine rock, which is somewhat decomposed, works well and contains considerable gold.

The Great Eastern, northwest of the Monitor, owned by T. F. Fuller, James Patterson and others, is 2 feet wide, with a dip into the hill of 45 degrees. There are on the dump some 50 tons of ore carrying black sulphurets, chlorides and fine gold.

The Mammoth lode is situated some 400 feet below the last vein, and runs parallel with it. It is 3 to 4 feet wide, and there are some 3 to 6 feet of earth on it which the company is washing off with water from the Placer miners' ditch. Four tons, worked by Capt. Dalls, at Washoe, yielded $456 per ton, and it is thought that the 200 tons on the dump will give over $100 per ton.

Crescent Hill.

A quarter of a mile due west from Buckeye Hill is Crescent Hill, on which is the well-known Crescent ledge. The ledge runs north and south, is 1 to 3 feet wide, with an easterly dip of about 40 degrees. The gouge is of soft clay and decomposed granite and quartz. The rock is easily worked, it not being necessary to blast. Some eight tons sent to Stewart & Co., of San Francisco, yielded $300 to $356 per ton. The mine is well timbered, but only a few men are at work at present stoping. Mr. J. Johnson is the foreman. There is a very large amount of ore, some 200 tons, on the dump, ready for milling, and worth, it is thought, about $90 per ton.

Mountain City Hill.

The famous Mountain City mine, owned by Page, Davis & Co., is situated on this hill about one mile from the city, on the south side of the river. The ledge runs north and south, has well defined walls, and is nearly perpendicular. The country rock here is slate. The work is being done in a systematic manner with a view to the future erection of large hoisting works, etc. The shaft on the vein is about 6x12 feet and 80 feet deep, and is well timbered. We entered through a tunnel—the first level—which strikes the main shaft at a distance of 80 feet and at a depth of 40 feet. On the lode we could see native silver and black sulphurets. Only twelve men are working at present, but 150 to 200 could be employed. There are now 500 to 600 tons of ore on the dump which will average $150 to $200, but there are no milling facilities. The company intends putting up a mill of their own at an early day. The ore is exceedingly rich and has worked as high as $300 and $500 in the mill. Five tons, already sacked, are to be sent to San Francisco. It will yield about $1,000, it is thought.

This and the Argenta are the best mines here, and are being worked on a larger scale than any others. They are certainly wonderfully rich and give appearances of holding out well. Each has its supporters as being the better. They are both very valuable properties. W. H. M.

Montana City, June 10, 1870.

[to be continued.]

Mechanical Progress.

Adcock's Artificial Obsidian.

The *Engineer* for May 6th and 13th describes in full the experiments made some years since by the late Henry Adcock, upon a new product intended for ornamental architecture and other purposes, for which a patent was taken out, although it has never come into general use. He discovered that basalt, when melted, would, if cooled quickly, take the form of obsidian, or volcanic glass; while if the conditions which are necessary to the formation of perfect crystals from aqueous solutions were observed, that is, if time and space and quietude were allowed, the stony structure would be reproduced. The glass aforesaid could be moulded into any form that might be desired for decorative purposes, or, at a certain point in its cooling, could be rolled into sheets which might be used for roofing, for water pipes, for dairy utensils and a hundred other things. It is quite possible that some Yankee who reads the Press will yet hunt up a place where basalt and fuel and fire-clay are plenty and make a good thing of it. The patent has expired. We quote a paragraph or two of Mr. Adcock's own story:

"Into a furnace arranged in a peculiar manner, I put two crucibles, each holding about 14 pounds of basalt, or Rowley-rag. I increased the intensity of the fire, and, after thirty-five minutes had the basalt well melted. I poured the contents of one on the brick floor: it was a brilliant black glass. I allowed the contents of the other to cool slowly, and under the conditions necessary to insure a crystalline structure—that is, I gave it *time*, and *space*, and *quietude*. On opening the crucible the next day I found that that which had been a fused material was reconverted to the stony structure. Indeed, it so closely resembled specimens of the stone from which it had been melted, in color, in hardness, and in texture, that it was somewhat difficult to distinguish between the raw material and the reconverted product. Letters patent were obtained, and works on a sufficiently large scale were erected to test the value of the invention. These were enlarged from time to time until, eventually, large works were erected, orders were procured and executed, and an architect residing at Handsworth built for himself two houses—in one of which he himself lives—in which the window-heads, window-sills, and string-courses, mantlepieces and other decorations were all cast under the patent from the Rowley-rag material. Other decorative pieces were also cast and sold of a similar character:—Seven sets for a terrace of that number of houses at Ashton Park near Birmingham; six sets for a terrace of houses at Wolverhampton; and similar decorations, comprising window-heads, window-sills, and the like, are to be seen as the ornamentations for numerous houses for miles around the former locality of the works. Finally the whole of the columns, window-pieces, doorways, ornamental steps of the Edgbaston Vestry Hall, in the most fashionable district of Birmingham, in the Anglo-Norman style of architecture, are constructed from castings made of this material, and, from its perfect imperishability, must endure for ages. The works, for reasons which it is not necessary to particularize, have been stopped and taken down, and it seems at present probable that they will not be resumed."

Another Boiler-Feeder.—An apparatus recently exhibited at the Polytechnic Association of the American Institute consists of a hollow metallic steam-tight chamber, suspended from one end of a bar upon knife-edge bearings, counterpoised by a weight, and placed at such a height that the plane of the desired water-level in the boiler shall pass nearly through the middle of the chamber. The steam and water spaces of the boiler are respectively connected by pipes with the top and bottom of the chamber. As the water falls in the boiler it also falls in the chamber, and the diminution of weight in the latter causes it to rise, through being over-balanced by the counterpoise. If the water rises above the desired level, a contrary movement takes place. The balance bar is connected with the supply valve by means of an intervening pinion shaft, which engages with an upper or lower sector rack as the level of the water varies.

Larmanjat's Single Rail Tramway.—We have before alluded to this; and now give some particulars from *Annales Industrielles:*

"The locomotive has four wheels; two—the driving wheels—resting on the ordinary surface of the road, whilst the other two—which have grooved peripheries, and which are situated on the center line of the machine—bear upon the central rail. The carriages have also four wheels arranged in a similar manner; but the adjustment of the springs is such that the chief weight rests upon the wheels running on the central rail, the other wheels merely serving to steady the vehicle. The locomotives are of two classes—those of the one weigh 10 tons in working order, and are capable of drawing a load of 50 tons up an incline of 1 in 50 at a speed of six miles per hour; those of the second class weigh 5 tons, and are capable of drawing a load of 35 tons up an incline of 1 in 50 at a speed of ten or eleven miles per hour; or—by changing the speed—hauling the same load up a gradient of 1 in 20. The cylinders are placed close together under the boiler. The boiler has a steam chamber extending along the top of it from end to end. The crank shaft carries a pinion, with spiral teeth, which gears into a corresponding spur wheel fixed on the driving axles. The driving wheels are not fixed rigidly to their axle, but are connected with it by spiral springs, this arrangement being found to facilitate starting, and to give greater ease in working. The leading and trailing wheels are fixed on the center line of the engine, and are each capable of pivoting on a center. Besides this, the pivot of the leading wheel is fitted with an arrangement by which the weight bearing upon it can be modified at will, and this is an important feature in the construction of the engine."

Steam Water Elevator.—The *Railroad Gazette* describes a new arrangement for supplying locomotives with water, which may also be used for raising water to a height for other purposes. Steam from the locomotive boiler is admitted through a hose and pipe into a tank placed in a well alongside the track. This tank is steam-tight, and is filled with water from the well through an induction pipe by atmospheric pressure. The steam forces the water from the tank through a discharge pipe into the tender, while at the same time the water flows through a small pipe from the bottom into an air-chamber at the top of the tank. This pipe is also connected with the steam pipe, with a check-valve opening towards the latter. There is also a check-valve opening towards the air chamber. When steam is shut off at the boiler, the compressed air drives water back from the air-chamber through the steam-pipe into the tank, condensing the steam remaining therein, and producing a vacuum, which causes the tank to re-fill itself at once with water.

Utilizing Tide Power.—Signor Tommasi's plan consists in providing a strong pipe below low tide, extending horizontally inward to the shore, to a point above mean water-mark. At this point is a large reservoir, with which the pipe connects. From the reservoir a communication is formed to an engine, by which the machinery is driven. The rising tide causes the water to flow through the pipe into the reservoir, and, the latter being closed, the rising of the water within it compresses the air. The escape of the air when the tide falls is prevented by valves, so that each inflow forces a quantity of air under pressure into the reservoir, from which it is conducted to the engine cylinder as fast as needed.—*Artisan.*

Oil for Machinery Purposes.—The *Chemical News* says that oils for lubricating purposes may be purified by agitating them with from 4 to 8 per cent. of their weight of a caustic soda lye, sp. gr. 1·2. After twenty-four hours repose, the supernatant oil is decanted from the soapy sediment, thoroughly washed with pure cold water, left to repose, and again decanted and filtered, best through animal charcoal, and through woolen tissue.

Welding Iron to Copper.—The Pennsylvania Railroad Co., after experimenting for two months, upon a new process discovered by Mr. Beazel, which welds copper and all grades of steel and iron together at one heat so that they cannot be separated, even when upset and beaten down under a steam hammer, have purchased the right to use it.

Scientific Progress.

Nutrition and Respiration of the Abyssal Fauna.

We have more than once alluded to the lecture of Dr. Carpenter on "Deep Sea Dredging." We here give briefly his explanation of the manner in which provision is made for the feeding and the breathing of animal life upon the ocean bed.

First, as to nutrition. The higher types feed upon the lower; but the very lowest, the *Protozoa*, how are they nourished? Not by the *Diatoms* from the surface, for their siliceous envelopes are not found at the bottom in sufficient quantity to warrant that supposition. Yet they must have, from some source, organic matter which has been produced from carbonic acid, water, and ammonia through the agency of plants. And this is undoubtedly absorbed by their jelly-like bodies from the assimilable protoplasm, which is universally diffused, in a state of extreme dilution, throughout the ocean waters; and the sources of which are the rivers flowing through miles of vegetation, the fringe of marine weeds upon every shore, the marine meadow in the midst of the Atlantic, covering three millions of square miles, the Gulf Stream, which sweeps around a coast full of organic matter, and the constantly dying and decaying marine animals which are more or less abundant in every part.

As to the respiration. The numerous analyses of *bottom*-water, made by the dredging party, showed that the greater the percentage of carbonic acid therein, the greater the abundance of animal life; and therefore that the stratum of water immediately above the bottom would soon—in the absence of vegetation—become unfit for respiration, unless there was a constant upward diffusion of carbonic acid *to*, and downward diffusion of oxygen *from*, the surface. For this interchange, provision is made in the agitation of the surface by wind; and this is therefore as absolutely necessary for the maintenance of animal life in the ocean depths, as the heaving and falling of our own chests for the aëration of our own blood.

Nature of Blood-Corpuscles.—A paper in *Comptes Rendus*, translated for the *Bowdoin Scientific Review*, details experiments instituted to show that blood-corpuscles are molecular granules of agglutinated microzymas, or microscopic ferments. We give the final paragraph;

"From the facts we conclude: First—The blood-corpuscles are aggregates of microzymas. Second—These can develop into strings of beads, bacteria, etc., like all those which we have previously studied. Third—The microzymas of the blood-corpuscles give birth to cells similar to leucocytes (the white corpuscles), and to other smaller cells more nearly resembling globules. These are then capable of producing cells in various ways. Everything leads us to believe that the blood-corpuscle is as an organism the result of the work of these same microzymas. We are not able to insist to-day upon the consequences which flow out of these researches relative to respiration, which is only a mode of nutrition. The activity of the blood-globules is explained by that of the microzymas which constitute them. In that sense respiration is only a particular case of that class of phenomena which are called *fermentations*."

Sulphuric Acid Saliva.—*Les Mondes*, of March 10th, gives in full the analyses made by Profs. Panceri and de Luca, of the saliva secreted by the *Dolium* and some other gasteropods. Free sulphuric acid was found. This was first noticed by Prof. Troschel in 1853. While he was examining a specimen of this mollusk, it threw out its proboscis, which the Professor seized. There was immediately projected from it a drop of liquid, which, falling upon the marble floor, produced an active effervescence. He collected a portion of it, and satisfied himself that it proceeded from the salivary gland. It was afterwards analyzed by Dr. Bœdeker, of Bonn, who found in it free sulphuric acid.

The Micro-Spectroscope and its Use.

This is a compound microscope with a spectroscopic eye-piece instead of the ordinary one. The construction of this eye-piece is thus described in the *Bowdoin Scientific Review:* "There are two plano-convex lenses, as in the common negative eye-piece, and a dispersing prism. These lenses are, however, placed at a distance asunder, somewhat greater than they would be in an eye-piece of the ordinary construction. The eye lens must be achromatic. In its focus is placed a diaphragm which transversely divides the tube, in whose extremities the lenses are mounted, into two chambers. In the center of the diaphragm is a very small rectangular opening having two of its limiting edges so arranged as to be easily adjusted, by means of screws passing through the walls of the tube and bearing milled heads. The observer is thus enabled to regulate the dimensions of the transverse section of the beam of light admitted to the dispersing prism. The prism may be a simple one of dense glass, in which case the eye of the observer must be placed outside of the axis of the microscope, or it may preferably be compound, consisting of two prisms of dense flint glass and three of crown glass, properly ground and cemented together with Canada balsam. Such a prism gives direct vision and a proper amount of dispersion. Whichever prism is chosen, it is placed in a convenient mounting, just above the achromatic eye lens of the combination."

With this instrument, certain coloring matters used for manufactured wines can be readily distinguished from that of the grape, and the fraud detected. Not only this, but the *age* of the wine can to some extent be determined thereby. Mr. Sorby has experimented extensively upon the subject. We quote a paragraph of his own: "This color of very old wines belong to my group C, and is not changed by adding sulphite of soda to an acid solution; whereas, the characteristic color of very new wine belongs to my group B, and if it could be obtained in a pure state, would probably become very nearly colorless on the addition of the sulphite. This difference between the color of old and new wine has enabled me to contrive a method by means of which I can ascertain the approximate age of a port wine kept in the cask."

The *Review* notes among the uses of this instrument the following: "In determinative mineralogy much aid is obtained by dissolving the substance under examination in a suitable flux, by means of the blow-pipe, and placing the clear bead so obtained (flattened by gentle pressure while still hot), on the stage of the microscope for examination in the usual way. The absorption-bands which then appear, enable us to detect the presence of exceedingly small amounts of the various metallic bases which enter into the composition of the mineral under trial."

Theory of Sleep.—M. Sommer gives the following in Cosmos: "The blood and the tissues store up oxygen to be used as required for the various organic functions. When this provision is no longer sufficient to maintain the vital activity of the organs (the brain, nervous system, muscles, etc.), the body falls into that peculiar state which we call sleep. But respiration, continuing, introduces fresh supplies of oxygen. Of this a small portion, utilized for the production of heat, is given off as carbonic acid, while the remainder accumulates in the blood until sufficient remains to allow the renewal of all the functional activities of the body, and thus awakening results."

Combination of Hydrogen with Sulphur.—Merz and Weith have communicated to the German Chemical Society the observation that the prevalent belief in the incapacity of hydrogen to unite directly with sulphur, is erroneous. When hydrogen is passed over boiling sulphur, sulphuretted hydrogen is produced in abundance. Sulphur also acts on boiling *aniline*, also on *glycerine*, *napthaline*, etc., with formation of HS.—*Chem. Repertory.*

Frog Nerve-Centers.—The movements of the frog from which the brain has been removed, differ from those of the unmutilated animal in this respect, that they are performed mechanically, and with the regularity of a machine. It would also appear, from the experiments of Prof. Goltz, that the nerve-centers for the voice and for the power of maintaining equilibrium reside, not in the brain, but in the spinal cord."
Academy.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Tarshish.—*Chronicle*, June 11th: The lower tunnel is going ahead as fast as three shifts can push it. It is now in about 600 feet.

The Leviathan.—The smelting furnaces have been placed in position. The mine in the upper tunnel looks fine, and a large amount of very rich ore—from 30 to 45 per cent. copper—has been sacked for shipment. The lower tunnel is in 450 feet.

Exchequer.—*Miner*, 11th: Several tons of the low-grade ore will be put through the M. C. mill next week.

M. C. M. Co.—Letters from the Eastern agent of his Co. give assurance that the management here will soon be in funds to push the explorations and to finish up the mill.

The lower tunnel of the Schenectady is in 600 feet, and it is thought will reach the deposit in 200 more.

CALAVERAS COUNTY.

Incline—*Chronicle*, 18th: The machinery for the tunnel is completed and will be set in motion soon.

Burr.—The Burr mill, at Railroad Flat, is now in active operation. Miners are now hauling their rock to be crushed from every direction.

Railroad Flat.—Cor. of same: Mining prospects continue flattering. A. F. Burr has his mill running. The ore now being worked is principally from the Chapman mine. It will probably not yield as well as much of the rock from this mine. Owing to the insufficiency of machinery, they are unable to progress with their shaft. The greatest depth yet reached is 100 feet, at that point they have a large lead of excellent ore. Rock from the Wet Gulch mine is being crushed, which bids fair. Lewis Bros. & Co. are delivering ore at the mill. A strong force of prospectors are hunting for new lodes. Some meet with success.

KERN COUNTY:

A Los Angeles telegram of 15th says: A new mine has been found on lower Kern river, near Bakersfield, by a Mexican sheep herder, which, it is claimed, shows a better developed ledge than any of the once famous ledges of Kern county, and is said to be as rich as any yet opened in the lower country. The ledge is traced 380 feet, and specimens are exceedingly rich in free gold. The discovery causes some excitement in that vicinity.

NEVADA COUNTY.

Good.—Grass Valley *Union*, June 15th: Perrine mill has just cleaned up after crushing 160 loads of rock. The result was $6,445.

Items.—Same of 16th: The Badger mine is being pumped out rapidly. The water in the shaft has been decreased eighty feet. By the last of the week the mine will be ready for taking out rock.... The Bowery mine is being worked with every prospect of success. It will be remembered that the Bowery has paid $83 per ton from the surface down....The Seven-Thirty mine has started up....The Town Talk gravel mine has made a clean-up. A twelve days' run gives $1,200 with an expense of $600. The cement is crushed by an eight-stamp mill, run by water. The company will soon add eight stamps.... Ben McCauley's mill has been crushing float rock from Alta slide with good results. Eighteen tons gave $200....The Greenhorn is taking out splendid rock.

Green Mountain.—Same of 19th: This company own claims on Greenhorn ledge. The claim is on a ledge three-quarters of a mile south of the Empire mill, on Houston mill. The Co. consists of Truan, Sims and others, and they own now by purchase of Rush & Laton. A recent crushing of 28 loads at the Gold Hill mill gave $3,394. The Co. have on the dump 60 tons of rock, and in sight 500 tons.

Kate Hayes Flat.—*Transcript*, June 15th: A gentleman from French Corral informs us that the cement mills are all paying handsomely. On Friday a blast of two hundred kegs of powder was set off in the claims of the Kansas Co., which did splendid execution.

Star.—Same of 15th: The company are taking out the wooden stems and the battery, and replacing with iron stems and a new battery. These improvements will be completed in two or three weeks. There is now four hundred tons of rock at the mill.

Manzanita.—Same of 19th: These claims, owned by Marselus & Maltman, are in better condition for working than at any former period, and the ground is improving in richness. They employ thirty men.

Meadow Lake.—In a couple of months a hundred men will be employed in opening mines. Meadow Lake has been regarded as played out, but those who have been there the longest know that there are rich ledges.

Washing at Washington.—*Gazette*, 14th: The claims of Grissel, Eagge & Co. are being opened in the deep channel on the bar, opposite Washington....Ershhack & Co. are driving ahead in their claims by the bridge, and have prospects for a good clean-up.....S. Potis is prospecting for gravel mines near the old Tecumseh mill, six miles above Washington, on the Yuba. ....White & Co. are developing their new quartz mine near the mouth of Big Cañon creek, and taking out some splendid ore.

New Diggings.—Same of 18th: Henefauth & Co. are opening new gravel claims north of Henefauth's. They have been taking out five dollars a day to the hand by sluicing, and will soon have their ground ready for hydraulicing.

Columbia Hill.—Mining for this season is partially suspended for want of water, but the diggings will last fifty years with 3,000 inches of water to work them day and night. We are informed there is one mile square of gravel, from fifty to two hundred feet in depth, that will pay for working.

Eureka Mine.—Grass Valley *Union*, June 21st: The mill had a run of eleven and one-half days, up to Saturday night. The result was a little over $25,000.

PLACER COUNTY.

Ophir.—Cor. of *Stars and Stripes*, 16th: Shinley & Co. had 12 tons of rock crushed at the Empire mill, which returned 10¾ ounces. Oliver & Co. milled nine tons, which averaged $8 per ton. William Goldsberry had 12 tons crushed, from which he received 17¼ ounces. Staple & Choate worked 21 tons from the Hathaway ledge, which realized 35 ounces of amalgam. The St. Patrick is still yielding handsomely. J. McLaughlin, the discoverer of the St. Patrick, is reopening the Doeg ledge. Bryan & Co. have purchased the Little Doeg ledge.

Rattlesnake.—Cor. of same: Jack Duncan, last week, from the proceeds of one day's work, procured enough clothing to last him ten years. While at Newcastle, a day or two since, a Chinaman offered for sale a piece of gold worth $200. I am satisfied that it came from the vicinity of Auburn.

SAN DIEGO COUNTY.

Julian City.—Cor. of *Union*, 16th: A more hopeful feeling exists. The miners are confident that they will checkmate the land-grabbers, and the Cuyamaca scare is subsiding. Gregory Yale, in a speech on Friday, gave a general history of land grants in California, and told the miners not to stop work on account of this one. Mr. Bickers has sold his interest in the Washington to J. T. Gower for $5,000. The Gilman ledge grows wider and the rock richer. They are down 41 feet. The Owens ledge shows three feet in width and very rich ore. The Good Hope is pushing down fast and shows fine ore. In fact, all the mines look well. The McMechan quartz mill—two stamps—will start up in a few days.

SISKIYOU COUNTY.

The Norfolk.—Yreka *Union*, June 17th: Quartz of marvelous richness is being taken out. The ledge is two feet thick. Two men get out three tons a day. The Cottonwood quartz mill will be ready to commence on Norfolk rock on Monday next.

Good Pay.—The Sam Richardson and Bill Smith claim at Cottonwood, has been hydrauliced off, and is now being washed up. For three days' washing last week, they got 28 ounces. There is enough ground sluiced off to keep them washing all summer.

A Good Pan.—Brady & Smith, who have been at work a year on a drain race, got in on Tuesday. They dug up a single pan of dirt, taken from the very spot where they left off work a year ago, and on washing it out had $57.75.

SIERRA COUNTY.

Sold.—*Messenger*, 18th: A controlling interest in the Reis quartz mine, at Sierra Buttes, has been sold to an English Co. at at a price based on $750,000 as the aggregate value of the property.

TUOLUMNE COUNTY.

Chinese Camp.—Sonora *Democrat*, 18th: McFarland, a veteran miner, is about working off dirt on Chinese Hill. The dirt is to be let down in cars and washed on the Salvada Camp side.

Confidence.—The mine in eight days turns out $7,200

YUBA COUNTY.

Sucker Flat.—Marysville telegram, 15th: Mining at Sucker Flat is being vigorously prosecuted, and work is abundant. The suit of W. H. Kender and W. W. Huey *vs* The Poctaluo Gold Mining and Water Co. and James O'Brien, was compromised to-day by entry of judgment, by agreement, awarding plaintiffs the east two-fifths and defendants the west two-fifths of the mine.

Brown's Valley.—*Appeal*, 21st: The Dexter Mining Co. having leased the Donnebroge mill, have about finished the crushing of 200 tons of rock, and the prospects are favorable.

Arizona.

Big Bug.—Prescott *Miner*, June 4th: The news continues good. Tuesday last, a clean-up was made at the mill, after a run of eight days, with ten stamps, and the amount of gold exceeded twelve hundred dollars. The mine is in good condition, and there is rock enough out to keep the mill running several months.

Walnut Grove.—C. G. Genung recently assisted Fred Henry to work two tons of ore, in Mr. Cullumber's arastra: They got $190, and think they lost enough gold to bring the yield per ton up to $100.

Walker's.—The men in the Accidental tunnel have struck rich ore. Shelton is working one from the Vernon. He expects to clean-up soon. The Eureka mill is idle. The parties who have been running it have, as yet, been unable to buy or lease it.

Martinez.—The new district near camp Date Creek, midway between Prescott and the Colorado river, bids fair to eclipse all other districts in the Territory. Yesterday, Sheriff Taylor presented us with a piece of ore from the Mayflower. This weighs several pounds, and shows upon its surface more than 500 particles of gold. The piece was taken from the mine at a depth of 15 feet. Robert Barton and Mr. Stanton, mining experts, had visited the Martinez mines, and started for San Francisco, to procure a mill.

Wickenburg.—Vulture Co's mill is running. Thos. Graves worked a pound of ore from the White Picacho mine, and got two dollars.

British Columbia.

The Victoria correspondent of the *Bulletin* gives mining news, which may be condensed thus: Peace River is worthless. Things at William creek are gloomy. Lightning creek is good. That is to say, as to the last item, one company, which has bottomed the deep channel, gets dividends at the rate of $1,300 per week.

Colorado.

Items.—Central City *Herald*, June 15th: The Gunnell Central Co. start up to-morrow....The Montana Mill, rejuvenated, starts up next week....A. Cameron employs 35 hands in gulch mining, two miles below Black Hawk....This morning we saw a mass of gold weighing 47 ounces 4 dwt., which came from the Lexington mill. It was the product of nine cords of Roderic Dhu ore. The crevice in the Roderic Dhu is four to five feet wide, and the whole pays.

South Boulder.—Rollins' large mill started up this morning. Ore plenty to keep it going all summer....Hollister's (Eagle Co.) mill, 50 stamps, starts this week....In Wide Awake, a stamp mill will be started Monday, on ore from Dr. Brook's lode.

Seaton Lode.—Thirty-seven miners are at work on five different claims, and from most of the shafts a respectable quantity of rich ore is being obtained. That belonging to Capt. Dean, and what is known as the old Womach & Seaton claims, are yielding the principal part. Capt. Dean's shaft is 60 feet deep. On the Womach & Seaton, Mr. Topping is drifting at a depth of 160 feet on a fine vein. Specimens of the ore assayed 300 ounces per ton.

Georgetown Items.—The Brown Co. at their last run, took out a button valued at $5,400 from 18 tons of ore....The Caledonia lode has been sunk 100 feet and has a fine vein of first-class ore....The Clark Co., on the east end of the Terrible, have stopped work, awaiting the return of their agent from England. The west end of the lode is being worked by the English Co.....The Caskill lode, eastern extension of the Terrible, is showing a body of ore a foot in width, which will assay $200 per ton....Stewart has nearly completed work on his new mill.....The Baltimore tunnel has crossed a large lode upon which they propose drifting....Snyder's mill, on the creek below the Snow Drift, is framed and raised....Work is resumed on the Equator.

Items.—*Register*: Bobtail keeps 40 stamps busy....Charles Foreman, on the Smith lode, in Chase Gulch, is raising six-ounce ore....Stevens & Valentine are working the Stub Tail on Gunnell Hill, with good results. Two men are raising from a quarter to half a cord of seven-ounce mill ore per day....The Irish Flag lode in Nevada is producing mill ore, that yields nine to thirteen ounces per cord....The old French lode is waking up....Daniel McGonigal & Co., on the Jones lode, are stoping in No. 3 west and taking out fine mill ore. Two and one-fourth cords yielded thirty-five ounces of gold....The Rochdale mill is busy day and night.... Moss, Morris & Lodford, below Walker's mill, have their shaft sunk to bed-rock, and they took out $90 from the bottom....All the old stamp mills in Nevada are being fitted up anew. Lewis & Tabor are running on California ore. The New Bedford is thoroughly re-built. The Briggs is arranged with a double issue.

Items.—Georgetown *Miner*, 9th: The gulch miners at Idaho are doing finely. They have plenty of water....The Syracuse mill is doing well....On the Edgar lode, the vein shows two feet of $400 ore ....The Whale mill will start about 4th of July....Blazing Star has abundance of rich ore....Chloride lode, Spanish Bar district, is being worked by John Baker. Three feet of the five-foot crevice is pay ore which will average $100 per ton.... Two bars silver from Terrible ore, each over 1,000 ounces, have been shipped since last report....Machinery of 30 tons capacity is now on the way from New York for the St. Lawrence Co.

Idaho.

Snake River Mines.—Corinne *Reporter*, June 17th: Matt Taylor brought in a lot of dust from the Snake River diggings yesterday. There are, perhaps, a thousand men now mining along that river, 150 miles from here. At a point eight miles beyond the Boise stage station, four men took out of an elbow in the bank 50 feet above the water, with two rockers, $600 in five days—at the rate of two ounces a day to the man. Men who have gone from here with nothing but pick and pan are coming back occasionally with the dust to purchase rockers, tools, provisions, etc.

Golden Chariot.—*Avalanche*, 18th: Rock of very rich character is being taken from the fifth level. In the fourth level, for 30 feet south of the shaft, there is a good paying vein from four to five feet in width. A substantial tramway for running out the waste rock has just been completed. It is 150 feet in length, affording a dump of over 100 feet. There are 60 men at work.

Good Move.—The Upper Sinker mill will be moved to a point near the Oro Fino, Ida Elmore, Golden Chariot, Peck & Porter, Mahogany and other mines, and ten stamps added.

Peck & Porter.—Work has commenced. A contract has been let to sink the main shaft 80 feet deeper for $25 per foot. A splendid set of steam hoisting works have been ordered from San Francisco.

Nevada.

COPE DISTRICT.

Ore.—Elko *Independent*, 18th: About 10,000 pounds of ore from Cope arrived yesterday for shipment to San Francisco.

Gold Dust.—P. M. Eder & Co. bought eighty ounces of gold from Chinamen on Monday. The Celestials mined in Independence Valley, forty-five miles north of this city, and brought in from $180 to $277 each.

Toano.—Cor. of Elko *Chronicle*, 19th: From Bald Eagle claim, Lucine district, within eight feet of the surface, they are taking out almost pure copper. The district generally is looking well, is well located, having abundance of wood and water. Teams are arriving daily with quartz from Southeast Nevada, some of which, I am told, are worth $1,400 per ton in San Francisco.

Bruno City.—Cor. of same: The Bruno ledge, Cross & Co., is promising. The Miner's Delight is one of the leading ledges, owned by Savage, McMillan & Co. The Miner's Rest and Mountain King are base metal ledges, bearing first-class smelting ore. The Mountain King is bonded to Oppenheimer & Co. until the 15th of July, at $10 per foot. The Big Giant, Laweou & Co., is a well-defined fissure vein, and shows native silver. The Primrose shows one of the best prospects in camp. Work is prosecuted by Wright & Hafey. The Enterprise, Steele & Co., is being prospected. The Mina d'Alta, Moulder & Co., is bonded. The Mountain Queen shows favorable indications.

The placer mines are of considerable extent. If properly worked, fifteen or twenty dollars per day to the hand could be realized.

HUMBOLDT.

Items.—*Register*, 18th: Mr. Sanborn has made a new discovery north of the Alpha. The ledge crops out bodily, ore rich with native and horn silver. The Alpha works day and night, raising and shipping ore. At Humboldt City a ledge was discovered a few days ago right in the street, which, from appearances, is as rich as any in the district. The boys are still at work in Florida cañon. Omega looks well, shaft down 25 feet. Hon. George A. Carmony, in Butte cañon, Echo district, has struck a three-foot ledge of solid ore, 160 feet below the surface.

Galena.—Robt. McBeth recently struck a large and very rich body of ore on the Butte ledge, and with the Butte Co. is sinking a joint shaft. The Buona Vista Co. shipped twenty tons of assorted ore to the Reno mills for reduction. Bruce & Co's smelting furnace is completed.

Central.—There have been many locations, but little work done on any, except the Arnold and Railroad. The Arnold, in which a shaft has been sunk 100 feet, is a large well-defined vein, and the ore yields $75 to $100 per ton. Muller & Arnold have erected a small mill, which is making the mine pay the expense of developing, and a handsome profit beside. The Railroad, owned by Frank Clark, is a larger ledge, but the ore is lower—$40 to $60.

Battle Mountain.—At a miners' meeton the 6th inst., the laws of the district were revised, making the yearly removal of 10 cubic feet of solid rock, or 50 of earth or loose rock, necessary for the holding of each claim of 200 feet.

Rich Discovery.—Elko *Independent*, 15th: A ledge has been struck this week in Railroad district, which is said to surpass all previous discoveries. Assays of the rock reach $5,000 per ton. The ledge is near Padelford's, at Pine mountain, four miles from the present settlement.

REESE RIVER.

Mineral Hill.—Elko *Chronicle*, 19th: Joe Woodworth informs us the foundation for Huber & Co's mill is down, and the timbers for the frame are being made ready. They are also burning brick and lime for the Stedefeldt furnace, which will be in operation in a short time.

WASHOE.

Sacramento & Meredith.—Gold Hill *News*, June 18th: Owing to difficulty in obtaining water, the new mill has not been able to run up to its full capacity. The first clean-up was made yesterday. It was only from one battery, but was satisfactory.

Hale & Norcross.—Daily yield, 250 tons, principally from the seventh level. The ore breasts at the car-track floor and two floors above look splendidly. The cross-cut, 150 feet north, shows nearly fifty feet width of ore. Receipts for May, $164,830.

Yellow Jacket.—Daily yield, 400 tons. About 150 tons of this is low-grade from the upper workings.

Chollar-Potosi.—Daily yield, 180 tons, assaying $52 on the average. The Belvidere section shows a large amount of good ore in raising toward the surface.

Ophir.—Owing to the breakage of the pump the water has risen 200 feet in the new shaft. Repairs will be completed by the middle of next week.

Imperial-Empire.—Nothing new except that the winze from the 1,100-foot level shows little or no ore at the bottom. It will intersect with the drift at the 1,200 foot level shortly.

Daney.—The first ore produced this season has milled on the average $15 per ton. The mine is looking favorable, and considerable ore is being produced daily.

Sierra Nevada.—Both mill and mine running at the same steady rate. The east surface deposit still constitutes the main ore resource.

Crown Point.—Daily yield, 50 tons, low-grade ore, from the upper levels.

Belcher.—The ore seam, 262-foot level, improves. Prospecting at the 730-foot level develops favorable indications. The daily yield of the mine is 50 tons.

Hope.—Both mills are running, the yield of the mine being from 30 to 35 tons of $20 ore daily. About 16 tons per day of $12 ore are also being extracted, supplying the Atlantic mill.

Kentuck.—Yielding daily 30 tons of fair ore, supplying the Pioneer mill. This comes principally from above the 400-foot level.

Cole.—Within the last week or two considerable surface ore has been taken out, which pays well for milling.

Gould & Curry.—Daily yield, 80 tons, f o n the old mine, average assays being $51.

Overman.—Upper levels yielding ore of improved quality. Receipts for May, $51,000.

Caledonia.—Daily yield, 40 tons, from the 200-foot level. The mine is looking well, with plenty of ore in sight.

Virginia Consolidated.—*Enterprise*, 19th: This mine is being worked with some show of profit to the company through the old Sides tunnel. A body of ore three to four feet in width, of good quality, has been struck at various points above the level of the tunnel.

WHITE PINE.

Review.—*News:* A large number of prospecting shafts are being sunk on the west side of Treasure City. As the base range commences on this ground, and many of the most valuable mines of mixed ores in the district are here, the labor will doubtless be amply repaid. The explorations are conducted principally by poor miners, who hire out occasionally to pay expenses. There is an unstamped deed in the Recorder's office transferring certain mines to an Eastern company. The amount stated in the deed is $500,000. The shipment of silver bars, from Wells, Fargo & Co. for the week ending 13th, amounted to an aggregate of $43,340.84—$21,901.86 to San Francisco, and $21,438.98 to New York.

Items.—Original Hidden Treasure never looked better. The decline in quotations is a "bearing" movement. The ore mills its usual average....Anchor Consolidated consists of the James Emma, Anchor and Treasure City, comprising in all 2,000 feet. The location is about the center of Treasure Hill. In driving the tunnel they ran through 110 feet of solid quartz assaying from $10 up to $150 per ton. In the center of this immense body of ore is a shaft of 30 feet in depth, carrying ore all the way, of the same quality as that in the tunnel....Stanford mill is steadily running on ore from the South Aurora....Six men are at work on the Pennsylvania. Body of ore six feet wide....Silver Vault tunnel now in 180 feet; the last 10 feet through vein matter....Elko vein (base) averages five feet in width. Nine tons daily of rich ore coming out....Silver Wave have struck good ore in their new shaft....Walsh furnace had an eight hours' run, when the foundation gave way, owing to have been laid on frozen ground. It will be repaired as soon as possible. Twenty-one bars were moulded during the run....The Big Smoky mill is running night and day....The Weiland furnace is running on ores from the Elko mine....The Rathburn furnace will fire up in a few days....A rich strike of chloride in the Conover mine, on Babylon hill. Fifty pounds assayed $3,000 to $4,000 to the ton. ....Fifty tons Bromide Tunnel ore worked $40 per ton at Moyle's mill.

Outside Districts.—Some three weeks since, Judge Goodwin, who is running the Wilson furnace at Eureka, on ore from the Jackson mine, bonded the mine for $5,000, and in less than 20 days' run paid the purchase price from the bullion extracted from the ore. The Germania, gold-bearing mine, at Pinto, has five tons of selected ore on the dump. Assays have gone from $1,500 to $12,000. Assays from the Champion run from $400 to $769.80. The poorest ore from the Mountain Chief, on Silverado hill, assays $138.21. James McNevin has a mine in Piuto called the Maryland. The ledge is 30 feet wide, and a sample of a 2-foot stratum assays $1,360.60 to the ton. Miners' meeting in Pinto, on June 1st, made two days' work necessary to hold each 200 feet for one year.

Montana.

Radersburg.—Helena *Gazette*, June 13th: Matters are looking well. A great number of companies on the placer mines are doing well. The quartz is promising. Sample's 12-stamp mill commenced to crush on rock from the Robert E. Lee; Keating's 15-stamp mill will start up this week. The Sample will make a test run on the "Ironclad." There are seven companies working on the Ironclad lode. Nave's arrastra cleaned up $184 from five tons of rock on the Leviathan lode.

Gold Shipments.—Gold dust is coming in freely. S. H. Bohm shipped, on Monday, a gold brick weighing 723 ounces. Yesterday he shipped one, of the coin value of $7,000, and to-day he casts another. All the buyers get more than last year at this time.

Basin Gulch.—Cor. of same: Jim. Halford owns two claims, or bars, a quarter of a mile apart, and is working thirty men on three eight-hour shifts; has plenty of water, and is moving earth and gravel through his two long flumes at a great rate. Mr. Halford is of opinion that Basin Creek will produce $1,000,000 this season.

French Gulch.—*New North-West*, June 10th: A Mexican company are working six men; their last clean-up, after a five days' run, was 59 ounces. Noonan & Co. are working four men, and their last clean-up of a week's run was $980. Claims average from $17 to $18 per day to the hand. The prospects are good for an abundance of water the whole season.

German Gulch.—Most of the companies expect to clean up next week. There is 700 inches of water in the gulch, and all the claims are working ground-sluices. The last snow storm retarded work ten days. Dr. Beel, Gardner and Moore, and McCleery Bros., are each running two hydraulic pipes. There are fourteen companies working night and day. The California Co. is the largest in the gulch, and is working two shifts of five men each. Wages are $5 per day. There are good prospects of water for the entire season.

Silver Bow.—Burton & Herman cleaned up $4,800 from twelve days. Bernard's and all other ditches are full. There are few idle men, but would not advise any more to come, as pilgrims are coming in, and many returning from Cedar. Moran & Russel's claims are paying from $12 to $25. Rocker is as lively as Silver Bow. The diggings here are not coming quite up to expectations. The majority are paying but $7 to $9—others not that, but the average is good.

Pike's Peak.—Cor. of same: The yield on Pilgrim Bar has surpassed all expectations. There are ten claims, yielding from $1,000 to $2,800 each per week. I estimate 3 at $2,800 each; 1 at $2,500; 2 at $2,000 per week—total, $17,600 per week. Six more claims are being opened. Water sells at 25 cents per inch for 24 hours. Wages are $5, $5.50 and $6 per day.

Cedar.—Cor. of same: Everything dull on account of high water. Will be best camps in Montana by middle of August.

Blackfoot.—The Chinese have made purchases of mining ground on the bar below town. It is said they have bought two-thirds of the bar, paying from $500 to $3,800 per claim. Some thirty-five white men have been thrown out of employment by the purchases already made. The Chinese have also offered the full value for the two ditches there. They are of a band just in from the railroad, have their interpreter with them and check on San Francisco.

New Mexico.

Aztec.—*Press and Telegraph*, June 11th: This mine reports thus for the 100 days from January 21st to April 30th: Receipts, 3,788 ounces. Expense account, labor and subsistence, 700 ounces. Making the dividends amount to 3,088 ounces; the average yield per ton, $75.76; the cost of mining and milling per ton, $14, and the net profit per ton, $61.76.

Chester.—The tramway is completed, and the Co. are expecting the wire rope and iron rolling stock on the 15th. Their 25-stamp mill will be ready to run about the 22d inst.

Arroya Honde.—From a three days' run the selected quartz averaged $25 to the ton. The company seems to be at loggerheads, and the mill has stopped for the present.

Humbug.—Now at work in this gulch,—South Park Co., working six men; Faulkner & Colman, eight men; Biddle & Lesperauce, six men; Peters and Jones, three men; California Co., eight men; E. H. Bergmann, nine men; the Denver Co. also talk of going to work.

Items.—A company of four are working Oreleans Flat with a limited supply of water. They average an ounce of gold to the hour's run....Two men are working Last Chance diggings, with small water and big pay....The companies on Willow Gulch are generally making good wages. Wherever water is to be had, miners are doing well.

Wyoming.

Telegram, Cheyenne, June 14th: Late information has been received from the Big Horn expedition, that the party is moving rapidly to its destination. All are in good health and spirits. They have had no trouble with Indians as yet.

African Gold Mines.—A telegram from Berlin says that Herr Hübner, sent by the Prussian Government to inspect the gold mines in the southern part of Africa, reports that they are worthless. M. H. started, we believe, in the fall of 1868, but we were not aware that he was sent by the Prussian Government.

The *Alta California* has reduced its price to 25 cents per week for the six-day edition, or 30 cents per week with the Sunday issue.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
American, G. H., June 13, $3	July 18	Aug. 6
Aurora Cons., W. P., May 7, $4	June 14	July 7
Belcher, G. H., June 8, $1	July 11	July 30
Cosala, Mexico, June 2, $1	July 7	July 27
Confidence, G. H., May 14, $10	June 17	July 8
Cordillera, Mexico, June 8, 50c	July 9	Aug. 1*
Cherokee Flat, B. G., June 17, $5	July 19	Aug. 9
Evening Star, No. 1, W. P., June 4, 5c	July 2	July 25*
Featherstone, W. P., June 14, 20c	July 20	Aug. 11
Gold Hill Quartz, G. H., May 16, $20	June 20	July 11
Hope Gravel, May 25, $1	June 27	July 18
Hall & Van Dyke Cons., June 7, 50c	July 23	Aug. 20
Imperial, G. H., May 7, $5	June 10	July 2
Julia, Storey co., May 13, 75c	June 15	July 1
Jennie A. Cons., W. P., June 20, 10c	July 25	Aug. 15*
Lalawaua, W. P, June 2, 15c	July 14	Aug. 6*
Mammoth, W. P., May 26, 20c	July 1	July 22
Mineral City, May 12, $1	June 15	July 2
Mountain City, Elko co., April 8, 50c	May 23	July 11*
Noonday, W. P., May 10, 30c	June 15	July 7
Nevada L. & M., Elko co., May 3, 3c	June 7	June 28*
N. Bloomfield Gravel, June 20, $5	July 23	Aug. 9
Ophir, Storey co., May 6, $5	June 9	June 30
Pogonip Flat, W P., June 15, 3c	July 23	Aug. 3*
Placer G. & C., Placer co., June 11, $2	July 26	Aug. 16*
Segregated Belcher, G. H., May 30, $3	July 1	July 22
Savage, Storey co., May 3, $7.50	June 6	June 25
Silver Vault W. P., May 3, 5c	June 9	June 29*
Siempre Viva, Mexico, April 25, 25c	June 2	June 29
Tallulah, Sierra dist., May 10, $2	June 25	July 18
Virginia, W. P., May 14, 50c	June 21	July 6

MEETINGS TO BE HELD.

Eclipse Cons	Annual Meeting July 23*
Imperial	Annual Meeting June 28
Mahogany	Annual Meeting June 28
Miser's Dream	Annual Meeting July 5
Overman	Meeting July 7
Silver Sprout	Annual Meeting June 28*
Washington	Annual Meeting June 27
Yellow Jacket	Annual Meeting July 18

LATEST DIVIDENDS—(Within Three Months).

Amador, div. $10 per share	Payable April 7, 1870
Chollar-Potosi, div., $1	Payable June 10, 1870
Eureka, div., $7.50	Payable May 7, 1870
Golden Rule, div., 50c	Payable March 26, 1870
Hale & Norcross, div., $6	Payable April 9, 1870
Ida Elmore, div, $1	Payable Dec. 14, 1869
Kentuck, div., $5	Payable Feb. 10, 1870
North Star, div.,	Payable May 5
San Marcial, div., 50c	Payable June 10, 1870
Union, div., $1	Payable May 10, 1870

——*Advertised in this journal.

The first through freight car from New York to this city arrived Saturday evening, and was unloaded to-day at the foot of Second street. It is the result of an experiment by Fisk, who intended, if it proved successful, to have a large supply of freight cars constructed on the plan of this one for the transit from ocean to ocean. The feature of the car now here is that it is mounted on axles on which the wheels can be moved to fit any desired gauge of track. In all devices heretofore used for changing gauge, grooves have been cut around the axle according to the number of changes to be made. It is claimed that these notches destroy the strength of the outside fibers of iron and weaken the axle. The device in this car obviates this difficulty, by inserting a stout feather key laterally on the axle, which secures the wheel at any point on the axle. It extends into the axle about five-eighths of an inch. The inventor of the patent is W. B. Snow, who came on the car. It was built by the Erie Railroad Company, and was freighted with boots and shoes, from Philadelphia, consigned to Hobart & Co., of this city. The trip was made without accident of any kind, and the experiment was pronounced successful. It is stated that the Erie Company will build 1,000 cars for this through trade. The trip was made in 14½ days from New York.—*Bulletin*, 20*th*.

The New City Hall.—The City Hall Commissioners are now prepared to receive designs and plans for the New City Hall, to be erected on Yerba Buena Park. Large premiums are offered for the first, second, third, fourth and fifth best designs, ranging from $500 up to $2,500 each. The competing plans must be handed in on or before the 1st of November next. Full instructions, suggestions, conditions, etc., have been prepared and published in pamphlet form, which will be furnished on application to the Commissioners at their office, southeast corner of Montgomery and Sacramento streets. See advertisement in another column.

A New Locher Steam Plow is in progress of construction at Oroville, which will soon be ready for trial. The Butte *Record* says that very many alterations are being made in the carriage portion of the machine, but the plows are operated upon the same principle as at first. The Messrs. Locher are building the machine entirely by their own labor. Their energy and perseverance are certainly deserving of success.

Scientific Press.—Saturday's number of Dewey & Co's. Scientific Press contains a fine engraving of the Bridal Vail Falls of the Yosemite, and a well written sketch of the same. It also contains a view of the suspension bridge now being erected to connect New York and Brooklyn. The Press is ably conducted and deserves a handsome patronage from the people of the Pacific coast.—*National Gazette, June 7th.*

Farming and Gardening.

Communications for this department are solicited from all parts of the Pacific States and Territories.

A New Grape-Vine Pest.

Mr. Isaac Richardson, of Santa Cruz, has sent us several insects which he found preying upon his grape-vines, growing about one mile from the sea shore, on the bank of the San Lorenzo river. Our correspondent also sent us several branches of the vine showing the manner in which the insect works. The land on which these vines grow is just above high-water mark, a sandy river deposit, and not very well calculated for the cultivation of the grape.

The insect belongs to what is popularly termed the beetle family, with hard or shelly-wing cases; is black and nearly half an inch in length. It commences its depredations after reaching its perfect state, and begins work in the crotch at the point where the young shoot is thrown out from the old vine, almost invariably working downwards, following the pith; sometimes moving across it, but seldom upwards. The vines soon become weakened by the excavations of this depredator, so that either the weight of the foliage or the winds breaks it down, thus causing great destruction. The specimens sent were in bloom.

Not being able to find the insect described among those injurious to the grape-vine, we handed the package over to Dr. Behr, of this city, an experienced entomologist, who reports it to be a *Polycaon Oviiollis;* adding that the genus *Polycaon* is restricted to America, and belongs to the family of *Psoides*. Only two species of the genus named have yet been discovered in California, neither of which are by any means common. Very little is known of the habits of this insect, and it would be interesting if our correspondent would watch the same, note the length of its life, its habits, etc.; and as this is the perfect form of the insect, learn, if possible, where it deposits its eggs; look closely for its *larva* in the spring, and note the time and manner of its progress to the perfect state.

So far as we are advised, this is the first time this insect has been found upon the grape vine. If any other party has observed it, we should be pleased to hear from them.

Our correspondent thinks that it is the same kind of insect as that which works upon the wild currant, which grows along the sea coast in that vicinity. We would suggest that he should examine more closely, and learn positively as to that matter. If the wild currant of the sea coast is its natural habitat, possibly it has in this instance attacked the grape vine, because found growing in an unsuitable locality, and consequently in an unhealthy state. Insects rarely attack perfectly healthy growth; at least they are more likely to be found upon that which is unhealthy.

Value of Overflowed Lands.—Some idea of the value of the land reclaimed from the Sacramento river may be formed from the following extract from the *Alta*, in reference to Sherman Island: "One field was lately rented at $5 per acre, the lessee to take possession after the present crop of barley is cut, and to surrender on the first of January. The rent for a year ranges from $15 to $20 per acre, or one-quarter the crop, if it is put in on shares, indicating that the total yield is estimated at $60 or $80 per acre, annually. After wheat is harvested, water is let into the ditches to moisten the soil, and the grain starts again from the roots, and from the scattered seed, and in 60 days three tons of hay can be cut from the acre, and then the same process is repeated, so that one crop of grain and two of hay are obtained in a year. Tilled land is sold at $75, and untilled land at $30.

A Kernel of Wheat—Tillering.

We last week endeavored to give some idea of the anatomy of a kernel of corn and of the bean; promising in the present issue to describe the component parts of a grain of wheat. In order that we may make the subject more fully understood, our engraver has prepared the accompanying Fig., 1, which represents a kernel of wheat, greatly magnified, and so dissected as to show, distinctly, its component parts. It will be observed that it has two skins, an outer and an inner one. The outer skin has been removed, in the engraving, from the two ends of the seed, and folded up about the center, at *b*. This may be easily done after a seed has been soaked a few minutes in warm water. The inner skin is then shown, *a*, *a*, which immediately covers the white or nutritive portion of the seed, composed principally of starch and albumen, and constitutes the chief bulk of the kernel; *c* is the little scale or cotyledon, through which the nutritive matter passes, after it has undergone a partial decomposition, evolving a small quantity of sugar, by which it is rendered more fit for the nourishment of the little plant, the germ of which is seen at *d*.

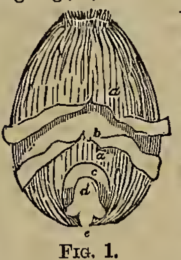


Fig. 1.

It will be observed that this germ exhibits three small projections or lobes at its base—a most important consideration, as will presently be shown; *e* is the point where the nutritive matter, the little scale and the rudimentary plant all unite. This point of union and the rudimentary plant or germ may be readily seen by a good eye, if a strong healthy seed is carefully split open. It will be much more distinctly seen if it is first soaked a little while in warm water. A small magnifying glass will be a great aid in such an examination. All these parts are essential to the growth of a seed.

It would be a useful exercise to those farmers who place but little importance upon the quality of their seed, if they would, in this manner, carefully study the lesson here presented, and note the marked difference between the appearance of the germ in a healthy and plump seed, and contrast it with that in a seed which presents a poor and shrivelled exterior.

The seeds of most kinds of plants possess such a structure that only one stem can be procured from them; but in some of the grasses, and especially in the cereal ones, the little protuberances, already alluded to, as seen at the base of the germ, in Fig. 1, render it possible for an indefinite number of stems to shoot upward, thus multiplying the capacity of the productive powers of the seed. It is certainly one of the wonders of plant growth that this principle should be so strongly developed in the cereals upon which man depends for so large a proportion of his food. Were it not for this, from eight to ten or twelve times the quantity of grain would be required to seed an acre, above that now needed, while the average *yield* would still be decreased.

This peculiarity in the wheat plant is still farther shown in Fig. 2, where the embryo in Fig. 1 is shown in a state of germination; one shoot, *a*, having left the sheath, another at *b* is seen just starting, while at *c* still another remains as yet undeveloped. In first-class California soil the number of stems so developed is so great as to quite stagger the belief of readers in other parts of the world.

Another peculiarity should also be observed in the manner in which the main roots of the plant are developed. Each upward projection of the germ has a corresponding development or projection below, from which descends a main root, which, as it grows, throws off laterals in search of food for its individual stem. Thus each stem is provided with its own particular roots through which it mainly derives its nutriment. If, in Fig. 2, Nature had provided for the development of only one stem, we should have seen but a single main root passing downwards.

This property of plants to multiply their stems is called *tillering* or *stooling*. The extent to which it may proceed depends mainly upon the character of the soil. Tillering implies a sort of instinctive faculty in a plant to take advantage of all the plant food within its reach. In carrying out this process Nature has also provided that the stronger and healthier, by this increase of stems, shall kill out the weak and worthless plants which can throw out but one or two stems—another argument in favor of carefully separating the poor from the good seed before planting; because the poor plant, which finally succumbs, during its brief and sickly existence, takes all its nourishment at the expense of the healthier.

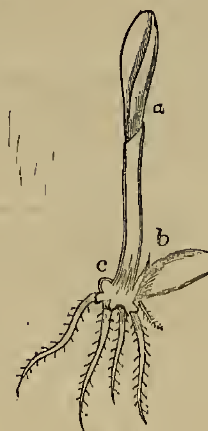


Fig. 2.

It is, moreover, observed that fully tillered grain produces larger straw, fuller and plumper ears and grain, than that which is but little tillered or growing in single, dual or treble stalks. This fact teaches another lesson, namely: that we should sow *thinly*, relying upon the superior quality of the seed for a large *tillerage*, rather than sow thickly with the view of producing a large number of single stalks or small stools.

In weak, undressed or exhausted soils, as has already been intimated, the tendency to tiller is much checked; the plants being apparently conscious of the inability of the soil to produce more than individual stems. Hence the practice to increase the quantity of seed in poor soils. Better decrease the seed and increase the dressing, and thus reap the advantages of tillering.

Although we have referred in these remarks more particularly to wheat, they apply equally to barley, oats and rye. In our next we propose to offer some hints on the preparation and proper condition of the ground for sowing grain, in which the *rationale* of the germination of seeds will also be incidentally shown.

Stock Raising in Nevada.

Our correspondent, "W. H. M.," who is now traveling through the eastern portion of the State of Nevada, writes very encouragingly of the agricultural capacities of that region—especially with regard to advantages which it presents for stock raising.

He writes that no portion of the world can produce fatter or better-fed beef cattle than are to be found raised upon the natural grasses in the vicinity of Elko, the great radiating point for travel from the Central Railroad to White Pine on the south and Idaho on the north.

During a recent trip from White Pine to Elko he noticed many ranches located in little valleys of the richest and most productive soil. On the west side of White Pine, the grass was very plentiful, affording an abundance of pasturage for sheep and cattle.

There were some five or six thousand sheep grazing upon the hill-sides near Elko, producing the most delicate mutton and the finest quality of wool. We copy, in this connection, the following paragraph from a late number of the Elko *Independent:*

> Nevada's resources as a stock-raising country cannot be excelled under any climate; in fact it is doubtful whether it can be equaled. In the summer season we have rich bunch grass, covering every hill-side with a luxurious growth, and in the winter, when our mountain ranges are buried deep in snow, the foot-hills and valleys are covered with the rich white sage, that can-not be surpassed by any of Nature's nourishing productions for the fattening of cattle.
>
> The impression of the majority of those who glide through the Great Basin by rail are antagonistic and highly unfavorable to our agricultural and stock-raising interests, owing to the fact that they see nothing of the pleasant little valleys that nestle beneath the snow-capped ranges that loom up and kiss the clouds on every hand. If shown the bunch grass and white sage and told that in it there is a juicy sweetness and nourishment that fattens our cattle and horses quicker and better than the blue-joint of Kentucky, they believe it not, until shown the gorgeous sights presented in the stalls of our markets by the display of fat beef and mutton.
>
> Of late several of the heaviest cattle men in California have discovered our resources and are extensively engaged in supplying the San Francisco market with beef, by rail, from along the Humboldt river and the adjacent valleys. Drovers are purchasing cattle in Texas, driving them to our State and fattening them for the markets of the Pacific coast, and in the speculation they are invariably successful in making a handsome profit.
>
> The wealth of our resources in this respect cannot long escape general attention, and it being simply an auxiliary to the great mining interests of the State, will lend an additional inducement for permanent settlement and the building up of good old-fashioned homes all along the great railway that binds together the Pacific and Atlantic oceans.

Fruit in Pajaro Valley.

Blackburn & Waters, of the Pajaro Valley Nurseries, inform us that they produced $500 worth of blackberries last season from a half acre of Lawton vines, three years old. The plants are now literally loaded with fruit and promise an abundant yield this season.

A lot of *Jocunda* strawberries that yielded some fruit last season, are barren this year, although in a favorable locality. They will be rooted out to give place to the *Longworth Prolific*, which is the best known variety for the coast country. Strawberries retail for twenty-five cents per quart in Watsonville and Santa Cruz this season. Messrs. B. & W. have a few Japanese and Spanish chestnut trees five years old that are in full bloom and will produce fruit this season.

There are several English walnut and black walnut trees in Santa Cruz nine years old that have borne three years. They are fine large trees. Some of the first fruit that these trees yielded was planted, and young trees ten feet high are now the result.

Messrs. B. & W. have a lot of cherry currants and *Fertile de Palueu* side by side. The cherry yields abundantly and is very fine, while the French sort is hardly worth caring for.

The apple crop will not be as abundant as last year; but there are enough on the trees to meet the demand, and they will be larger and finer, if less upon the limbs. The quality is likely to more than make up for the quantity.

Sheep are now being driven to the mountains in large numbers for pasturage, which is fast drying up in the valleys.

Grape Growing is becoming an important interest in Shasta county.

How to Treat Ground Bones—Superphosphates.

It is a fact well known to every intelligent farmer that no substance, however rich in fortilizing matter, can impart nutriment to plants while such fertilizing agent is in a dry state. Bones are naturally hard and dry, and when in that condition, either whole or ground, are no better than so much stone or sand as a fertilizer.

Before the plant can assimilate to itself any portion of bone nutriment, moisture must intervene to produce decomposition. If bones are placed in the soil whole, or in a crushed condition merely, the moisture can have access to only a very small surface; hence the process of decomposition must be slow. But if they are placed in the soil in the shape of a fine powder, the moisture will bring about such process much more rapidly. But a better way still is to start the decomposition before depositing the bones; as it will then go on more readily, and afford more prompt and satisfactory returns. This may be done to very good advantage in the manner described in our last issue, for treating broken or coarse ground bones, by mixing stable manure, ashes, etc.; or by the still better, but more expensive method of dissolving them in sulphuric acid. Bones in their natural condition, are known to the chemist as phosphate of lime, which is insoluble in water. When they are dissolved in sulphuric acid, we have a compound known as

Superphosphate of Lime,

Which is perfectly soluble in water, and immediately and entirely available as nourishment for plants. The preparation by the slower method produces but a slight change, leaving them still a phosphate of lime, in which the bones are only partially decomposed, and hence but slightly soluble in water, and to that extent only available for plant food. The balance of the decomposition, however, is then readily, though slowly, effected by the action of moisture, operating with the small amount of acids which naturally exist in the soil.

Manufacturing Superphosphates.

The production of superphosphates by the ordinary means of dissolving bone dust in sulphuric acid is quite expensive, and entirely unnecessary. Every 100 pounds of bones will require 40 pounds of acid, which should be diluted by four times that amount of water before applying it to the bones. If the bones are merely pounded into fine splinters, double the acid will be required. Equally good results, if not better, may, however, be obtained by pursuing the following course, by which every farmer who is not afraid of work may manufacture his own superphosphate from ordinary bone dust, or pounded bones:

Take a single horse cartload of dirt and pulverized peat or swamp muck, or, in the absence of such, the richest loam that can readily be obtained; spread it out into a dish-shaped form; spread upon the same a barrel of bone dust and a bushel of wood ashes, mixing the two; take a bushel of feculent matter from a dry privy vault, and add water enough to wet with it thoroughly the bones and ashes, then cover the mass with the muck, shoveling inward from the outside—building up the heap into a conical form. In 24 hours this mass will heat, and if not disturbed, or subjected to drenching rains, will continue hot for two or three months; but it will be fit for use in about three weeks—that is the decomposition of the bone will have progressed so far as to put it in a condition to furnish food immediately for plants. If allowed to remain six weeks, it would be better.

The addition of a little sulphuric acid would increase the action somewhat; but not at all in proportion to the added cost. Horse dung would answer the purpose of visit to the privy; but it would not be anything like as serviceable. In that case, however, the bones and ashes must be wet with liquid manure. In the absence of ashes, if pounded bones are used, the larger amount of wetting will be required, and double or treble the time. Much care must be exercised to prevent accident in handling the acid, and proper vessels must also be employed.

In the Application of Superphosphates

Much care and judgment should be used; else failure of any beneficial results will be sure to follow. It would be poor economy to apply superphosphates to soil already sufficiently charged with that agent; although it might be available in time, by successive croppings, but no immediate benefit would be shown. A lack of this knowledge—the presence of a sufficiency of phosphates—will no doubt account for most of the failures in the application of superphosphates. Again, if burnt lime (quick-lime) or burned oyster shells are applied to soil in connection with superphosphates, or if lime in that condition already exists in the soil, no good results can follow. Plain ground bone, or bone dust, which has been subjected to merely a partial decomposition in the compost heap is just as good, while it costs only about half as much.

The Chief Value of Bones

Arises from their furnishing mineral plant food in just that state in which it can be most easily appropriated by vegetable growth. The plant food contained in bones has already been subjected to a process of reorganization in the animal structure. Phosphate of lime is never found in nature, in any form, equal for fertilizing purposes, to that in which it is found in bones, while the ammonia, produced by the decomposition of the fleshy, gelatinous portion of bones, and absorbed by any proper substance, such as loam or swamp muck, is more valuable as plant food than when obtained from any other source. Phosphorus exists in bones as an *organic phosphate*, combined with *organic ammonia-yielding animal matter*, such as is found under no other condition.

When bones are subjected to great heat, as to the action of superheated steam or to calcination (roasting in a retort), this ammonia-yielding property, which constitutes an important percentage of their most valuable constituent, is lost.

Analysis of Raw Bones.

Raw bones, just as they come from the animal, contain

Moisture, about	12.00
Animal, or gelatinous matter (which yields about five per cent of ammonia)	35.00
Phosphate of lime,	50.00
Other matters,	3.00
Total,	100.00

In the process of slow decomposition in the compost heap, this animal matter throws off a large amount of ammonia, which is absorbed and held in mechanical suspension by the mass until it is applied to the soil and assimilated by the plant. In the production of superphosphates the heat given out by the combination of the water and sulphuric acid also tends to the production of ammonia, which, as far as produced, unites with the sulphuric acid, forming sulphate of ammonia, a condition in which ammonia is very available for plant food.

Curing Hay by Furnace Heat.—Alderman Mechi, a celebrated English agriculturist, writes to the London *Times* that he shall hereafter arrange to make his hay by furnace heat. The apparatus consists of a coke furnace and a fan, by which the heat is driven through a small chamber filled with grass. In fifteen minutes it is converted into hay, sweeter and greener than can be made by sun-drying; it works in all weathers, and dries grain, corn and roots as well.

Eighty bushels of Norwegian oats to the acre were raised on a ranch near Antioch, Contra Costa county, this year.

What I Know of Farming—No. 23.

About Tree-Planting.

I have had so little experience in tree-planting that I should have preferred to say no more about it; but letters that have reached me imply that the ignorance of others is even denser than mine. For the sake of those only who are conscious that they know nothing, yet are not unwilling to learn, I venture a few timid suggestions with regard to tree-planting.

I. Ten or twelve years ago, I bought a pound or more of locust seed rather late in the spring, scalded it by plunging at nightfall the little cotton bag which held it into a pot of boiling water, and letting the seed steep and steam in the bag till next morning, when the seed was planted in rows in a newly broken bit of poor old pasture land. This was a mistake; I should have given that seed the richest available spot in my garden, to say nothing of planting it as early as April 20th. My locusts came up slowly and grew feebly that year, not to speak of the many seeds that did not sprout at all. Still, many came up and survived, and my place is this day richer for them. It might have been still richer had I seasonably known more.

II. What I would now advise as to locust and most other trees is, that the best seed be procured in the fall, or so soon as it drops from the trees; that part of it be sown in drills, two feet apart, with two inches between seeds in the drills, and that the richest of dry, warm garden soil be devoted to this purpose. Fill a large box with rich loam, stir four ounces of seed into this, and set the box in a cool cellar where frost does not enter, and here let it remain till April; then take out the seed and earth together, and sow in drills as above. If some one who cuts locust during the winter or spring will allow you to trace the smaller surface roots from the new-made stumps and cut or dig them up, cut fifty or a hundred pieces of root the size of your finger each two feet long, and plant these, about May 1, in the places where you want locusts to come forward most rapidly. Some of them may not grow, but I think many will; and, from all these sources, I judge that you will obtain a good supply of young trees. Let those you start from the seed get two years' growth before you take them up, and set them where you want trees, whether in your present woods, in rugged, rocky pastures, on the sides of steep ravines, or around your buildings. You cannot fail to obtain *some* trees if you follow these directions.

III. Begin early this fall to gather chestnuts, hickory nuts, walnuts, white oak acorns, etc., to plant. Select the largest and finest nuts, giving the preference to those which ripen and fall earliest. Keep them in cool, damp earth in some barn cellar where rats and mice cannot reach them, and persist in collecting till December. Then plant a part in your garden or in any rich ground where they are not likely to be disturbed; letting the residue remain in the boxes of moist earth where you first placed them till early spring, then plant these, like the former, in rows two feet apart, with six inches between seed and seed in each row, and give the rows careful culture for two years; after which, set them where you wish them to grow.

I venture to suggest that he who has a rugged, stony hill or other lot which he wishes to surrender to forest should plow it, if it can be plowed, next September or October; if too rocky to be even imperfectly plowed, dig up the earth with pick and spade, and sow it thickly with hickory nuts, walnuts, chestnuts, locust and other tree-seeds, expecting that some will be dug up and carried off by squirrels, etc., and that some will fail to germinate. Go over it with hoes the ensuing June or July, killing all weeds and other infestations; and, nearly a year later, repeat the operation, taking up young trees from your garden or nursery, and filling them in wherever there is room. Plant thickly in order to force an upward rather than a scraggy growth; and so that you may begin to cut out the superfluous saplings for bean poles, hoop poles, etc., three or four years thereafter. Cut late in winter or early in spring, so that the stumps will each throw up two or more shoots or sprouts, which usually grow much faster than the original tree did. And the process of thinning may thus be continued indefinitely, while the choicer trees are allowed to attain their stateliest proportions. And thus a rocky, sterile hill-side or knoll may be made to yield a crop annually after the first two or three years from planting, while growing trees of decided value. I judge that almost any land within fifty miles of a great city and not more than two miles from a railroad depot or from navigable water may thus be made to earn a good interest on $100 per acre, after meeting all the cost of breaking up and planting. I confidently assert that many thousands of sterile, rocky acres, which now yield less than $10 per acre annually in pasture, would net at least double that sum to the owner if wisely devoted to forest trees.

I have a hearty love of forests. They proffer gentle companionship to the thoughtful and rest to the overworked, fevered brain. Our streams will be fuller and less capricious, when we shall have re-clothed our rugged slopes and rocky crests with trees. Timber grows yearly scarcer and dearer, when it ought to be becoming more plentiful and accessible, and *would* be if we devoted to trees all the land which we cultivate at a loss or fail to cultivate at all. Let our boys be incited to gather seeds and plant nurseries; let young trees be bought by the thousand where they now are by the dozen, and let us all coöperate in covering our unsightly rocks and making glad our waste places by a superabundance of choice, thrifty, healthy trees.—*Horace Greeley*.

Pajaro Valley.

This is one of the finest agricultural districts in the State. Situated at the head of the Bay of Monterey, it reaches from the water to the Santa Cruz Mountains, some twelve miles, spreading right and left among the hills and ravines. It is nearly level, and presents a scene of rare beauty from every side.

t is Watered

By several streams that revel amidst sycamores and cottonwoods. The mountains rise in well-defined grassy ridges or spurs, divided by cañons filled with dark evergreens, and form a background of massive beauty. Wonderful indeed is this whole coast country, whether viewed from the mountain heights, seen among rugged hills, enjoyed in the broad winding valleys, or lost in dark deep ravines. Everywhere, whether in a wild or a cultivated state, the soil is prolific of vegetation. A vital sense of beauty pervades the scene, a companionable grandeur and magnificence, greatly in contrast with the vast and profound desolation of the mountains and plains of Nevada and Arizona.

The contrast between the coast mountains and valleys, and the Sierra Nevada mountains and valleys, are also wonderful. Here is a denseness of growth and a luxuriance of vegetation that is incomparable. I am disappointed in

The Town of Watsonville;

Not as to its size, for it is large enough, but it has a slovenly and shabby appearance, not at all in harmony with its surroundings. Its streets and sidewalks are rough and half civilized. Fences that might do in a back pasture front the streets. Accumulated rubbish greets the eye at every turn. A little judicious repairing, paint and whitewash would be salutary. It is not expensive and magnificent structures that I desire to see in a country village like this, but a little neatness is certainly in good taste, and that is what is lacking.

Business is very fair in Watsonville; but the complaint of *hard times* is getting to be chronic everywhere. The crops are good—everything very promising.

A Railroad Needed.

Santa Cruz county needs a railroad to bring it into more direct communication with the world. Coasting vessels, steamers and stages now run to other parts; but such slow conveyance is insufficient. I don't mean to insinuate that this country should be taxed to build a railroad for the benefit of capitalists; but the people themselves should take stock in a joint company, so organized that no advantage can be taken to swell the grasping avarice of pretending benefactors. Railroads are needed; but no country should be despoiled to build them for greedy companies as a means for saping the very life out of industrial pursuits. Railroads should benefit, not ruin a country; assist, not impoverish it. But until some things change, not much hope remains.

S. H. Herring.

Immigrants.—Quite a large immigration is coming into the State *via* the Southern Overland Route. The San Bernardino *Guardian* says it appears to be made up of a better class of people than usual, and that large quantities of stock are being brought along for sale.

Scientific Press.

W. B. EWER........................Senior Editor.

DEWEY & CO., Publishers.

A. T. DEWEY. GEO. H. STRONG.
W. B. EWER. JNO. L. BOONE.

Office, No. 414 Clay street, below Sonsome.

Terms of Subscription:

One copy, per annum, in advance	$4 00
One copy, six months, in advance	2 50
Delivered by city carriers, per month	50

Rates of Advertising.

One square (ten lines agate), one week	$ 1 00
One square, one month	3 00
One column, one month	40 00
One column, one year	400 00

Legal notices and special advertising at favorable rates.

Mining Advertisements

Inserted at special rates, saving companies more than half the cost of daily publication. Blanks for notices, in legal form, furnished free, with all information desired of the law for collecting assessments.

San Francisco:

Saturday Morning, June 25, 1870.

Notices to Correspondents.

We have on hand several letters which are either without any signature or with initials merely. We are obliged to request the full name of correspondents before we can publish their letters. Any signature can be given for publication, but the editors must know the real name.

P. A., Mariposa.—The specimen you sent us is asbestus, of which several varieties are found in this State. It is of no value.

Horticultural Visitors.

Messrs. Wilder, Downing, Ellwanger and Clark, four of the most distinguished horticulturists of this, or any other country, arrived in this city on Tuesday evening last. Each of the gentlemen are accompanied with their wives, as all men should be when they travel for pleasure. They were met on the Summit by a delegation from this city and vicinity, consisting of Prof. Carr, of the University; A. S. Hallidie, Pres. Mechanics' Institute; S. W. Shaw, Esq., and others. It was about sunrise on the morning of Tuesday, and high up among the snow-clad summits of the Sierras where the California delegation met our Eastern friends, and bid them welcome to the Golden State. A most appropriate and bounteous feast of our native fruits and wines was spread for the company as soon as they got down into the foothills. The party are stopping at the Cosmopolitan. On Wednesday they visited several of the public institutions. On Thursday they were the guests of Mr. Ralston, at his palatial residence at Belmont. At the present time they are enjoying themselves in visits to some of our most extensive and beautiful suburban orchards, vineyards and gardens; which will be supplemented by more extensive tours into the great grain and fruit valleys of the State, and visits to the Geysers, Yosemite, Big Trees, Calistoga, etc.

◆

Microscopic Life.—The lecture before the Mechanics' Institute, last Saturday evening, was delivered by Dr. Henry Gibbons on *Microscopic Life.* The doctor handled his subject in an interesting manner, and at the same time took advantage of the opportunity to indulge in a few pleasantries. The lecture abounded in useful information condensed into the small space allowed for treating of so extensive a field. We are unable to devote as much space as we would like to the lecture, as our index this week deprives us of a large part of our room.

◆

Compressed Asphaltum Block Pavement.—A section of this pavement was laid this week on Montgomery street. It is made up of blocks, about six inches long and four inches deep, with grooves on each side for the admission of sand, gravel or other fine material. The blocks are laid somewhat after the fashion of the Nicolson Pavement. The blocks are manufactured at the Mission by Messrs. Bennet & Skinner.

The Alvarado Beet Sugar Factory.

We have several times taken occasion to refer briefly to the beet sugar manufactory now in process of erection at Alvarado, some twenty miles south of this city, on the east side of the Bay. It is a little singular, in view of the encouraging facts connected with the manufacture of beet sugar in Europe, and the great promise held out by the superiority of the climate of this State for the production of saccharine matter in the beet, that so little energy has hitherto been manifested with regard to establishing the business in California. Years have elapsed since the first factory was projected here; but as yet no practical results have been achieved. It is such a common-place thing to notice the organization of companies with large capital, for all manner of enterprises, that when we observed the announcement of the organization of the Alvarado Beet Sugar Company, with its quarter of a million capital, we paid but little heed thereto; but a visit to the Union Foundry, in this city, a few days since, has fully satisfied us that this company, at least, means business, and know well what they are about.

Passing through the various departments of the foundry—the moulding room, the machine shop, the boiler room, the yard, etc.—we everywhere noticed large amounts of heavy machinery, quite different in character from that ordinarily seen in our foundries, which, on inquiry, we learned was intended for the Beet Sugar Factory, now in process of erection, as above, at Alvarado. The building is already in a forward state of construction, some idea of the size of which may be formed from the fact that 78,000 feet of lumber is to be used in its construction. To fill this large structure the following machinery is now in process of construction at the Union Foundry, a part of which has already been forwarded to the site of the mill, and all of which is in a forward state of completion:

Four tubular boilers, each 54 inches diameter, 16 feet long, with steam and mud drums, all complete and embracing everything in the way of the latest improvements.

Two engines, 14x30, of first-class finish, and fitted with Scott & Eckart's automatic cut-off. One small engine, 6x12.

One vacuum pan and two air pumps, four saturation pans, five filters, two filter pumps, one beet grater, one beet breaking machine one beet washing machine, three mortejus, (tanks in which sugar and syrup is elevated from one floor to another), also, a number of large sheet-iron tanks for various purposes about the works.

In addition to the above is a multitude of shafting, pulleys, pipes, pumps, and various fittings incidental to a complete sugar manufacturing and refining establishment, capable of working up 50 tons of beets per day. All the machinery and fixtures are made at the Union Foundry, with the exception of the centrifugals, which will come from the East.

All the work connected with this machinery is being done in the most thorough manner. The reputation of the Messrs. Booth & Co. is always a guarantee that everything which goes out of their establishment shall be, not only first-class as a whole, but neat and well designed in all its parts. The engines, which were just being put together at the time of our visit, are most elaborately finished, and fitted up with the most complete arrangements known to mechanical experts, for oiling and adjusting. The regulating is done with the Scott & Eckart automatic cut-off, which fact is an assurance that it will be well done. Nothing has been omitted which would add to their utility or beauty. The factory will be ready to start about the first of September, or as soon as the beet crop comes in.

Mr. E. W. Dyer, whose name is largely connected with the enterprise, has entered extensively into the culture of the beet, for the supply of the factory. We believe, however, it is the intention of the company to depend chiefly for their stock of beets upon the neighboring farmers, who will receive a fair price per ton for the same, delivered at the factory. The operation of the works will be under the joint direction of Messrs. Otto, Klind and Bouestel, each men of large experience in the business, the two former of whom were long and, until quite recently, engaged in some of the most extensive beet sugar factories in Germany.

◆

University of California.

The Board of Regents met on Tuesday afternoon, for the especial object of electing a President of the University. For the purpose of getting as good an officer as possible, the Trustees had sent to various places for recommendations of especially good candidates. As the result of this action (we presume), the following gentlemen were nominated: Dr. John S. Hart, Principal of the State Normal School of New Jersey, and formerly of Girard College, of Philadelphia, recommended by Senator Stockton, Bishop Odenheimer, Governor Hoffman, and others; Gen John Gibbons, of the United States Army, at present stationed at Salt Lake, recommended by Gen. William T. Sherman, Gen. George B. McClellan, Gen. Franklin, and other distinguished army officers; Prof. D. C. Gilman, of the Sheffield Scientific School, Yale College, recommended by President White, of Cornell University, Prof. Silliman, of Yale College, Rev. Dr. Bellows, of New York, Prof. Brewer, of Yale, Dr. Thompkins, of New York, and others; Prof. Trowbridge, formerly of the Michigan State University, but latterly Superintendent of the Novelty Iron Works, of New York, a graduate of West Point, recommended by Gen McDowell and the entire Faculty at West Point; Dr. W. T. Lucky, of the California State Normal School, recommended by Prof. C. W. Prichett, of the State University of Missouri, John B. Clark, of Missouri, and others; Prof. Joseph Le Conte, of the California State University, recommended by several of the Regents, who had had an opportunity of witnessing his efforts in the University. Gen. Benj. Alvord and Mr. S. F. Butterworth were also nominated, but declined. The ballot was taken, and resulted as follows: Dr. Hart, 1; Prof. Le Conte. 3; Prof. Gilman, 8. The election of Prof. D. C. Gilman was then made unanimous, and the President was instructed to notify him of his election, and ask him, in case he accepts, to name the day when he will enter upon the discharge of his duty.

Mr. Louis Sachs was unanimously re-elected Regent.

The Toland Medical College, of this city, sent in a communication, looking to an affiliation with the University. The matter was referred to the Executive Committee. A resolution was adopted, authorizing and requesting Dr. J. Le Conte and Dr. E. S. Carr, of the University, to deliver a lecture in the Toland Medical College during the approaching vacation of nine weeks.

Mr. J. T. Doyle introduced a resolution (which was unanimously adopted) providing for the delivery of lectures by the Professor of Agriculture, Agricultural Chemistry and Horticulture, in different localities throughout the State, upon subjects connected with agriculture, likely to be of most interest and value to the people. These lectures are to be free, and public notice is to be given in advance of the place and time. During the lecturing tour, the Professor is to collect statistics concerning the crops, flocks and herds of the State, with a view to publication; and the Board of Regents are to procure rare and valuable seeds for distribution throughout the State.

Mr. Doyle likewise introduced resolutions for the establishment of a branch of the Mechanic Arts College in this city; two lectures weekly to be given by the University Professors and other eminent gentlemen, and proper arrangements for this purpose to be made with the S. F. Mechanics' Institute.

A resolution was offered by Mr. Butterworth for the organization of a Law Department. Hon. S. J. Field, of the U. S. Supreme Court, was unanimously elected Professor of Law. The public commencement is to be held on July 20th. The Board then adjourned until July 19th.

The action of the Board of Regents will be welcomed on all hands. The resolution with regard to the agricultural lectures is especially important, and shows a most commendable determination to make the University an important element in the development of the State. We shall no longer have a dead institution, merely drawing funds from the public treasury, but a live power acting amidst the practical life of the land, directing and guiding those who will not, or cannot, devote themselves to a scholastic course of study. All success to our live University!

◆

Stetefeldt Furnaces.—Three of these furnaces have recently been constructed at the Union Foundry, in this city, one each for the following localities: Monte Christo, White Pine; Mineral Hill, near Elko, and a third for the Manhattan mill at Austin. The first of these improved furnaces, it will be recollected, was put in operation at Reno, where it has given the highest satisfaction, and has led to the subsequent orders, as above.

In addition to the furnace above mentioned as having been shipped to Mineral Hill, the Union Foundry has also recently forwarded to the same locality a quartz mill complete, with engine, stamps, etc.

◆

The Fox Copper Mine.—Mr. Thorpe, the owner of this mine, near Colfax, is still persevering in the work of development. He is now down something over 300 feet and is finding very good ore, but somewhat scattered in strings and benches. He is confident that the ore will soon come together in a mass, when he expects to have one of the finest mines in the world. The perseverance of Mr. T. is certainly deserving of success to the extent of his highest anticipations.

◆

The Standish Steam Plow, building by a party in South Boston, Mass., will soon be on its way to California. It has a number of improvements on the original machine built at Martinez, in this State, and is made stronger in some of its parts. The new plow is 19 feet in length and will plow from six to nine feet in width. It is the intentions of the proprietors to work the machine briefly at Chicago, and then bring it to California as originally proposed.

◆

The True Policy.—Mr. L. Combe, near San Diego, is feeding a large number of silk worms this season, and proposes to reel the silk himself. That is the true policy, and should be generally adopted by silk-growers throughout the State. The reeling for small cocooneries can be done by the women and children, at their leisure, and in all cases will contribute to that diversified system of labor on the farm which is so essential to successful husbandry anywhere.

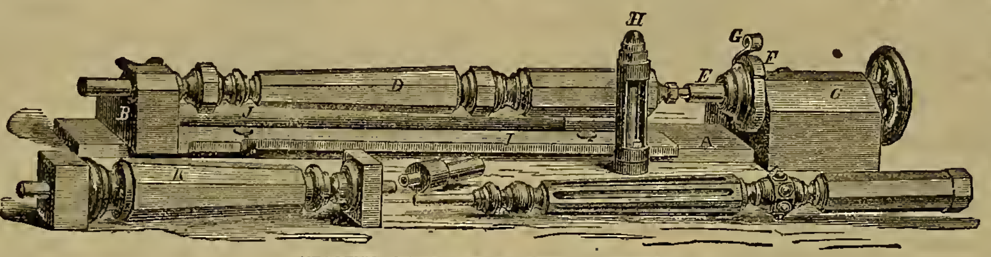
◆

The Century Plant in the fine grounds of Major Kirkham, on Oak street, near Seventh, Oakland, will probably bloom soon. It is about twenty-five feet high, and the stalk is from eight to ten inches in diameter at the lower part. The leaves rise seven feet from the ground, and the buds are now four or five inches in diameter.

Guide for Planing Machines.

This is an invention which will interest the many workers in wood on our coast. In dressing much work by hand there are many disadvantages to be encountered, and often recourse must be had to the drawing-knife, chisel or rasp. By this machine it is claimed that a great advance in this respect is made. It will dress the sides of stair balusters, chair, table and desk legs, etc., either parallel, tapering, concave, convex or waived, and will flute, groove or reed the same. Stuff which, when finished by hand, must be discarded on account of knots and curls (the handsomest, when smoothly finished), is dressed almost as readily as straight-grained wood, and it is claimed that the device will do the work of twenty men per day.

The main features of the device are the attachments for holding, adjusting and feeding the stuff past the rotary cutter. In the engraving, A is the bed upon which are placed the spindle or centering heads, B and C; B being adjustable vertically, and having a center-pin for holding the blank, or a quick cone-shaped hole for the turned end of the blank. The head, C, has an adjustable spindle, E, and is itself adjustable along the bed to receive different lengths of blanks. The spindle, E, carries a templet or dividing plate, F, with spacing notches, for either four, six, eight, ten, or twelve sides, as may be required, for different kinds of work. The notches of the dividing plate engage with a spring catch, G, which holds the plate in the desired position while the cutting is performed. H represents a rotary cutter rising through the table of an upright shaping machine upon which the device is used. A guide pattern, I, adjustably attached to the bed, A, serves to gauge the cutting. The operator takes hold of the hand-rail, J, pushing the machine from him, and at the same time bearing the guide-pattern, I, against the mandrel, H. The machine is then drawn back, and lifting the spring-catch, G, with the left hand, and turning the blank with the right, one space, another side is presented to the cutting tool, thereby dressing the sides alike, and making any number of pieces exactly similar. For fluting or reeding the work, the opposite edge of the guide pattern is swiveled out to correspond with the length of fluting desired, and bits, corresponding to the intended ornamental design, take the place of the straight ones—the guide pattern, as before, is brought to bear against the mandrel. The construction is simple and does not require a skilled hand to use it. It is said to be capable of dressing from 180 to 200 octagonal stair balusters daily. For further information, or for the purchase of State or Territorial rights, apply to the patentee, Franklin Keagey, Chambersburg, Pa.



KEAGEY'S GUIDE FOR PLANING MACHINES.

◆

The Overland Monthly.—With the July number (just received) commences the fifth volume of the *Overland Monthly*, which is now published by John H. Carmany & Co. This magazine is justly one of the boasts of California. Most excellently edited, and of fine typographical appearance, it has raised the literary reputation of the State to a high place, and given her a rank usually obtained only by much older countries. It has in the United States but one rival, the *Atlantic*, and in comparison with this it by no means suffers. Containing in each number some valuable article on our resources, and thereby making our capabilities better known; bringing to light the literary merit of our State, which otherwise, we fear, would remain concealed; always teaching and educating the tastes of our people;—it bears honestly on its title "devoted to the development of the country."

Laborers Wanted.

While here in the city there is still complaint among the laboring class that they can obtain no work, there likewise continues to be complaint in the interior that there is a scarcity of workmen.

San Francisco is a very good place, but it is not the only one on the coast, and we hold that it is much preferable to work hard and fare well in the country, than to have nothing to do but starve in the city. There is plenty of opportunity for the laborer at present, if he is willing to seek it. The harvest is commencing, and farm laborers are wanted. The mines are being worked and miners can find employment. But men will stick to the city when there is every reason for being somewhere else.

The working men generally of this city voted against the Southern Pacific Railroad subsidy, although probably not one in ten would have been willing to have left here, and to have gone to work on the road. And now they refuse to go to the country where they can have good fare and plenty of work. Their complaints are therefore apparently fictitious to a great extent. Very sensible advice is given in the following to a young man taken from the Marysville *Appeal:* "He had better go into the foot-hills or on the plains back of the city, near what will eventually be a station of one of our railroads, get from fifteen to thirty acres of good land, then go to work, fence it, plow it up, put it in order, grow small fruits—currants, gooseberries, strawberries, grapes, blackberries, raspberries; get up a grand asparagus bed; raise chickens, pigs and turkeys, and stick to his business; have a cottage, and get a wife to help him—and he will come out all right, and make more money than some men with a thousand acres of land. Won't you, and others in like condition, think of this advice, and then put it into practice?"

◆

The Burleigh Rock Drill is being tested in England. At a trial at Deptford the following results were obtained, according to the London *Mining Journal*: Drill No. 1, blue Aberdeen granite, two feet two inches in four minutes. Drill broke. No. 2, same, two feet two inches in three minutes ten seconds. Drill broke. No. 3, same, two feet two inches in two minutes forty seconds. No. 4, same, two feet five inches, on the slant, in three minutes ten seconds. No. 5, Cornish granite, two feet four and a-half inches, in three minutes. Fracture occurred in the stone. No. 6, same, two feet five and a-half inches in three minutes twenty-four seconds. Fracture in stone. Nos. 3, 4, 5 and 6, with same drill, nine minutes five seconds.

The London *Engineer*, and also *Engineering*, speak very favorably of the working, and both state that hard rock could be bored, according to the trials, at the rate of one foot per minute. *Engineering* is particularly emphatic. "These working results" (obtained in America), it says, "in conjunction with the experiments which we recently witnessed, in our opinion establish the Burleigh drill as being, in every respect, the most perfect and practical drilling machine with which we are acquainted."

◆

Sewing Machine Manufactory in Grass Valley.—Messrs. Snowdon & Gray have started a sewing machine manufactory in Grass Valley, and will soon be able to turn out two machines each week. Such enterprises should be encouraged.

Patents and Inventions.

A Full List of Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending June 14th.

Snow Plows.—Thomas C. Churchman, Sacramento, Cal.

Separating and Refining Metals.—C. S. Eyster, Denver, Colorado.

Dove-tailing Machine.—Elander Heath, San Francisco.

Sheet-Metal Pipe Forming and Threading Machine.—M. K. Pierce, Callahan's Ranch, Cal.

Construction of Cane-Seat Chair.—C. M. Rohr, Portland, Oregon.

Wheel for Vehicles.—John D. Ross, Truckee, Cal.

Coloring Photographs.—Robert Winter, San Francisco.

Spring Hinge.—James Bidwell, San Francisco, assignor to himself and James McMeehan, same place.

Rein Holder.—Jacob Herkimer, San Francisco.

Furnace and Condenser for Reducing Cinnabar and Other Volatile Ores.—Richard F. Knox and Joseph Osborn, San Francisco.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise), at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Furnace and Condenser for Reducing Cinnabar and Other Volatile Ores.—R. F. Knox and J. Osborn, S. F.—The name of this furnace explains its purpose. It also aims at obtaining a condensed metal in a good condition, and without allowing the escape of deleterious vapors. The following brief description will give a general idea of the invention: At one side of the shaft or chamber of the furnace is placed the fire-place, and on the other side, a little higher up, is the discharge or draft opening. Both of these are guarded by a grating. The furnace is contracted gradually in width towards the bottom, and an incline conveys the refuse ore to the floor. The upper end is closed by a small door, where the ore is charged. The chamber is kept constantly filled with ore, which is constantly settling to the bottom, as it passes down being roasted, and the vapors being carried off through the draft opening and a pipe to the condensers. These last are iron vessels, connected together by curved pipes, so arranged that the vapors must pass as far as possible, and thus be exposed to the greatest cooling influence. These condensers are cooled by apparatus for holding water, and there is an arrangement for keeping the pipes clear. At the end of the series of condensers is a suction blower or other suitable device for obtaining a proper draft in the furnace. The mercury or other metal escapes from the bottom of the condensers. A correspondent of the S. F. *Bulletin*, writing from the Knoxville quicksilver mine, Lake county, where this furnace has been tried, says: "It runs all the time, till something gives out. The ore and fuel constantly go in, and the quicksilver and *debris* constantly come out, and there is not a noxious exhalation about the work. To this last fact I can testify from my own observation. The air is as sweet and as pure as there is in any spot in California. Mr. Knox is well satisfied with the workings of his plans, though he thinks he can build both furnace and condenser with some slight improvements on these."

Rein-Holder.—J. Herkimer, S. F.—To many who drive a good deal, this device for holding the reins will prove of value, as when on a straight stretch, and the horses can be left to themselves in a great measure, its use will relieve the hands, which otherwise become tired from the strain on them, and from keeping them a long time in a cramped position. It is especially useful, moreover, as a ready and safe means of disposing of the reins when the driver desires to leave the horses standing. On the dash-board or other part of the vehicle, is fastened the base plate of the device, on which is a vertical standard with a small shaft extending from it parallel with the plate. Placed eccentrically upon the shaft is a small cylinder or roller, which rotates so as to bind the reins against the plate, when they have been placed beneath it, and it has dropped by reason of its unequal balance. The roller either is covered with an elastic band, or is made entirely of india-rubber. Near the top of the standard, on the side away from the driver, is a lug or projection which limits the revolution of the roller, and prevents it from turning completely over, so that when it has been raised or partially turned by introducing the reins beneath it, it will fall back of its own weight and bind them. Another curved lug or ear on the plate prevents the reins from slipping beneath the roller.

Wheel for Vehicles.—J. D. Ross, Truckee, Cal.—This device for constructing wheels, which will be exceedingly light, and at the same time very strong, will attract considerable attention. There are now in this city, at Kimball's factory, four wheels which, with the tires, weigh only 24 pounds! The method of construction is simple, and consists in placing the spokes alternately on one side and the other of the center line of the hub, and in introducing, between the hub and the felly, a rim (or more, if necessary), so that all the spokes from one end of the hub rest against one side of the rim, and those from the other end against the other side, all being fastened to it by light clips. In this way the wheel is greatly strengthened, and the hub is relieved, so that if it is kept screwed up tight, the tire will not be loosened even if the spokes become loose in the hub, as this rim acts as a second hub, which always maintains its full size. In this way a very high wheel can be used, if desired. For rocking or trotting sulkies this construction is especially adapted, and promises to come quite extensively into use.

Double Reversible Door Butt.—J. Bidwell, S. F.—This invention relates to an improved butt for doors opening in both directions, either inside or outside, and which is called a double reversible butt. It consists in making the leaves of the butt, which are secured to the door and casing, of a sufficient width to extend entirely across the thickness of the door, and in constructing peculiar knuckles or joints at each side of the leaf, so that when the door is opened in either direction, the knuckles on the opposite side will separate, while the ones on the opening side will hold and turn. It also consists in casting upon the leaves of the butt a hollow tube or barrel, which enters the door and casing at right angles to the butt, through which a strong spiral or other spring extends, which serves as a spring to keep the door closed. Due regard to appearance is had in constructing this device.

Construction of Cane-Seat Chairs.—C. M. Rohr, Portland, Oregon.—The object of this invention is to insure increased durability in the seat of the common cane-seat chair. By rounding the inner edges of the frame of the seat, the cane cannot be cut, as is often the case where the usual sharp square edge is employed. Moreover, the holes in the frame, through which the cane-strips pass, are bored, not vertically, but at an angle with the vertical, one hole inclining outwards and the next inwards. These changes in construction seem very simple, but we are informed they make a great difference in the wear and tear of the chair, and increase its durability to a greater degree than one might think at first sight.

◆

Steps are being taken by some of the New York scientists to establish a World's Museum of Art, Science and Literature.

Professional Cards.

JOHN GORMAN,

NOTARY PUBLIC.

COMMISSIONER FOR

Nevada, New York, Etc.

No. 612 MERCHANT STREET. 5v20-3m

JAMES M. TAYLOR,

Attorney and Counsellor at Law,

Court Block, 636 Clay Street

SAN FRANCISCO.

JOHN ROACH, Optician,

Has removed from 522 Montgomery street to

540 Washington street,

East of Montgomery.

Surveying Instruments made, repaired and adjusted

22v17-3m

GILES H. GRAY. JAMES M. HAVEN.

GRAY & HAVEN,

ATTORNEYS AND COUNSELORS AT LAW,

In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,

27v16 SAN FRANCISCO.

REMOVAL.

DR. BEERS, Dentist,

Has removed from Tucker's Building to No. 109 Montgomery street, three doors north, opposite the Occidental. 2v20-3m

---

Dr. J. H. PAINE, Dentist,

Wadsworth House, No. 225 Bush street, between Cosmopolitan and Occidental Hotels, San Francisco.

Business Cards.

A. H. JORDAN,

Architect, Designer and Draughtsman,

No. 430 Montgomery Street,

SAN FRANCISCO. 16v19-qy

Farmers and Mechanics BANK OF SAVINGS,

No. 235 Sansome Street.

Interest paid on Deposits. Money Loaned on Real Estate.

H. DUTTON, President.

GEO. M. CONDEE Cashier. 19v16-3m

NATHANIEL GRAY. H. M. GRAY.

N. GRAY & CO.,

UNDERTAKERS,

641 Sacramento St., cor. Webb, San Francisco.

☞Sole Agents for Barstow's Metallic Burial Cases and Caskets.

25v14tf

J. HOOVER,

PUBLISHER,

And Wholesale Dealer in

Fine Chromos and Lithographs.

The Largest Assortment in Philadelphia.

WHOLESALE DEPOT:

No. 804 Market Street, Philadelphia, Penn.

9v20-6m

C. B. FETY,

SEAL ENGRAVER

AND LETTER CUTTER.

Seals, Brass Stamps, Steel Punches, etc. Orders by express promptly attended to. No. 622 CLAY STREET, bet. Kearny and Montgomery, San Francisco. 23v20-3m

---

PIERRE A. FORTIER,

Practical Optician

105½ Montgomery Street, up stairs.

The only manufacturer in the United States who can make Glasses adapted to any imperfection of sight Prices very moderate. 24v20-3m

Trades and Manufactures.

WM. BARTLING. HENRY KIMBALL.

BARTLING & KIMBALL,

BOOKBINDERS,

Paper Rulers and Blank Book Manufacturers.

505 Clay street. (southwest cor. Sansome),

16v12-3m SAN FRANCISCO.

J. F. PAGES,

SEAL ENGRAVER,

AND LETTER CUTTER,

Brass and Steel Stamps and Dies, **608** Sacramento street, San Francisco. Orders by express promptly attended to.

California File Manuf'g Co.

437 BRANNAN STREET, bet. Third and Fourth.

W. WUSTHOFF, L. KRAMER, M. HARRIS, J BURKE.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

At a saving of 50 per cent. New Files of every description on hand and made to order. Old Files re-cut, and warranted equal to new. Orders from the country promptly attended to. 9v19-qy

---

SAN FRANCISCO MILL.

HOBBS, GILMORE & CO.,

Manufacturers of Boxes,

Market Street, bet. Beale and Main.

For sale—Mahogany, Spanish Cedar, and other Woods.

J. M. STOCKMAN,

Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry,

S. E. Corner of Mission and Fremont sts.,

6v14tf SAN FRANCISCO.

L. SCHUMANN,

PIONEER

Meerschaum Pipe Manufacturer,

No. 341 KEARNY STREET,

Between Bush and Pine streets, San Francisco.

The first and only Manufactory on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

D. DOYLE. JOHN BENN. M. BURKE.

AMERICAN MILLS,

Nos. 30 and 32 California Street.

Job work of all kinds in the Drug and Spice Line promptly attended to.

SECOND DEPARTMENT.—Feed Ground, Corn Meal, Oat Meal, Graham Flour, etc., constantly on hand. 7v20-6m

---

SAN FRANCISCO

CORDAGE COMPANY.

Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Mining Ropes of any size and length manufactured to order.

TUBBS & CO., Agents,

26 611 and 613 Front street.

F. SCHOENER,

METAL SPINNER

All kinds of Metal spun to order. Give me a call at No. 10 STEVENSON STREET, fourth story Pioneer Mills. 14v20-3m

---

NOTICE.

HYDRAULIC HOSE MANUFACTORY.

Hose made to stand any pressure—from 100 to 300 foot fall. Miners are invited to call and examine my work. Tents, Awnings, Specie and Ore Bags made to order, and cheaper than any other factory. A share of patronage is solicited from my friends. [16v20-3m] S. HOWARD, 424 Davis st.

A. J. HAIGHT,

Gold Pen Manufacturer,

315 Montgomery Street.

Room No. 16, up stairs, San Francisco.

GOLD PENS REPAIRED. Watches, Clocks and Jewelry repaired and warranted. 8v20-6m

---

SAN FRANCISCO

PIONEER SCREEN WORKS,

JOHN W. QUICK,

No. 203 Fremont Street, near Howard.

Screen Punching of all kinds and qualities for Quartz, Cement, Flour and Rice Mills, at Eastern prices. 10v20

THE GIANT POWDER COMPANY.

BANDMANN, NIELSEN & CO.,

General Agents,

No. 210 Front Street, San Francisco. 25v19

M. M. COOK. H. N. COOK.

M. M. COOK & SON,

MANUFACTURERS OF

LEATHER HOSE,

Belting, and Horse Collars,

801 Battery street, Corner Broadway,

SAN FRANCISCO.

☞ Belt Leather for sale. 26v19-3m

THEODORE KALLENBERG,

Machinist, and Maker of Models for Inventors.

All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears cut. Repairing done on very reasonable terms, and in the best manner. ☞ No. 10 STEVENSON STREET, near First, Pioneer Mills. 26v19-3m

---

OSCAR LEWIS. J. H. CULVER.

LEWIS & CULVER,

Pattern and Model Makers

20 Fremont street, over Phœnix Iron Works.

Manufacturers of Models for the Patent Office, in wood or metals, and all kinds of Experimental Machinery. 1v20-3m

---

"ENTERPRISE"

SAWING AND PLANING MILL.

D. A. MACDONALD, J. H. MACDONALD,
JOSEPH MCGILL, H. CHAPMAN.

D. A. MACDONALD & CO.,

Manufacturers of DOORS, SASHES, BLINDS AND MOULDINGS, 217 to 225 Spear street, and 218 to 226 Steuart street, between Howard and Folsom, San Francisco. ☞Finishing Work for buildings constantly on hand and got up to order. 20v20-3m

---

The Merchants' Exchange Bank

OF SAN FRANCISCO.

Capital, One Million Dollars.

A. N. COLEMAN........................President.
G. H. WHEELER........................Cashier.

BANKING HOUSE,

No. 418 CALIFORNIA STREET.

25v20-qy

FARM MILLS.

A superior article for farm use. Operated either by hand or power. Price very low. Send for circular. Manufactured by

22v20-1m LANE BROTHERS, Washington, N. Y.

Metallurgy and Ores.

MINING SCHOOL.

Mosheimer's Practical Mining School

Will be reopened by the FIRST OF JUNE, and practical instruction given in all branches of Assaying, Crushing, Amalgamating Concentrating, Smelting and Refining Ores; also Erecting Furnaces and Reduction Works of every kind. To give all miners a chance to learn Assaying of Ores (what everyone ought to) I have reduced my former charge for

Assaying Ores	$ 50.00
To work Gold and Silver Ores	100.00
Smelting and Refining, including Assaying	150.00

Many gentlemen who have been taught in my establishment will hear testimony that in a few days they learned more than they expected to learn in a month. Before going into mining, every man ought to know how to test ores, and then he will go to work with prudence and never fail to be successful. Apply to

J. MOSHEIMER.

Office, 328 Montgomery street; Works, 2,005 Powell street, San Francisco. 22v23-3m

---

T. GREEN,

COMMISSION MERCHANT,

No. 3 Front Street. San Francisco.

Agent for SAMPLING, CRUSHING, ASSAYING and SELLING OF ORES. Shipments received from miners, and the entire business transacted with promptness and accuracy. MERCHANDISE of all descriptions purchased and shipped on Commission for Country Merchants. Consignments of PROVISIONS received and sold at the highest market prices.

Refers, by permission, to Jas. Linforth, of Linforth, Kellogg & Co.; Jona. Hunt, Prest. Pacific Insurance Co.; A. J. Ralston, Sec. Pacific Insurance Co.; Jos. A. Donohoe, of Donohoe, Kelly & Co.; Falkner, Bell & Co.; Badger & Lindenberger; Taaffe & Co., and J. B. Roberts, Esq. 23v20-3m

---

MORRIS & WHITE,

Practical Assayers and Metallurgists,

No. 30 and 36 Fremont Street,

SAN FRANCISCO.

Ore of all kinds worked by Pan Amalgamation, Chlorination, or Smelting—guaranteeing to work as close to the Fire-assay as any persons on the Pacific Coast.

☞Gold and Silver Ores and Sulphurets bought.

12v20-qy

CALIFORNIA ASSAY OFFICE,

(Successors to Geo. E. Rogers)

No. 512 CALIFORNIA STREET,

One door west of Montgomery.

H. H. LAWRENCE........................Manager.
J. A. MARS........................Assayer.

Analysis of Ores, Minerals, Waters, etc. 10v20

G. W. STRONG. W. L. STRONG.

G. W. STRONG & CO.,

Metallurgical Works,

No. 10 Stevenson Street, near First.

Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin, and other Metals.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

W. T. ATWOOD,

PURCHASER OF

COPPER ORES, BARS, MATT, Etc., Etc.,

505 Montgomery street, San Francisco.

The highest market price paid for ores assaying 10 per cent and upwards. 23v17qr

---

CRUCIBLES! CRUCIBLES!

EUGENE DE SABLA,

COMMISSION MERCHANT,

AND SOLE AGENT FOR

J. H. GAUTIER & CO'S CELEBRATED

American Blacklead Crucibles,

No. 310 DAVIS STREET,

SAN FRANCISCO. 20v20-3m

HAYWARD & COLEMAN

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS,

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS, NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

Spirits of Turpentine and Alcohol.

Lamps and Lamp Stock!

An elegant and complete assortment.

SOLE IMPORTERS OF

Devoe's Illuminating Oil,

PATENT CANS.

5v17-tf **414 Front street, San Francisco**

Railroads and Steamers.

SHORT ROUTE.

The following time will take effect

Sunday........................April 24, 1870.

GOING NORTH—DAILY (SUNDAYS EXCEPTED).

New World Leaves S. Francisco.	Trains Arrive at Calistoga.	Trains Arrive at Sacramento.	Trains Arrive at Marysville.
7:00 A. M.	11:45 A. M	11:20 A. M.	1:00 P. M.
4:00 P. M.	7:45 P. M.	8:20 P. M.	9:30 P. M.
ON SUNDAYS.			
8:30 A. M.	12:20 P. M.	12:45 P. M.	5:00 P. M

GOING SOUTH—DAILY (SUNDAYS EXCEPTED).

Trains Leave Marysville.	Trains Leave Calistoga.	Trains Leave Sacramento.	New World Arrives at S. Francisco
5:00 A. M.	6:45 A. M	6:15 A. M.	10:30 A. M.
1:15 P. M.	2:15 P. M.	3:15 P. M.	7:30 P. M
ON SUNDAYS.			
10:15 A. M.	3:00 P. M	2:30 P. M.	6:45 P. M.

TICKETS for sale at 313 Montgomery street, or on board steamer New World R. S. MATTISON, Superintendent.

L. C. FOWLER, General Freight and Passenger Agent.

N. B.—Branch Office of Western Union Telegraph Company, Front and Vallejo street wharf.

Vallejo, April 24, 1870. 13v20-1y

Pacific Mail Steamship Company.—For

NEW YORK, VIA PANAMA. PRICES GREATLY REDUCED. Leave wharf corner of First and Brannan streets punctually at 11 o'clock A. M. on the **3d** and **18th** of each month (except when either date falls on Sunday, then on Saturday preceding), for PANAMA, connecting, via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

June 17........................MONTANA,

Connecting with Henry Chauncey.

All steamers touch at Acapulco; the steamer of the 2d is expected to touch at San Jose de Guatemala; steamer of the 18th touches at Manzanillo.

For Japan and China.—Steamers leave on the **1st** of every month, punctually at noon, for YOKOHAMA and HONGKONG, connecting at Yokohama with the Company's Branch Line for SHANGHAE, via Hiogo and Nagasaki.

July 1—Steamer GREAT REPUBLIC, Capt. Warsaw.

Apply at the Pacific Mail Steamship Company's office, corner Sacramento and Leidesdorff streets.

13v20 ELDRIDGE & IRWIN, Agents.

California Steam Navigation COMPANY,

Steamer CAPITAL........................CAPT. E. A. POOLE
" CHRYSOPOLIS........................CAPT. A. FOSTER.
" YOSEMITE........................ — —
" CORNELIA........................CAPT. W. BROMLEY
" JULIA........................CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF at **4** o'clock P. M. EVERY DAY (Sundays excepted), one for Sacramento and one for Stockton, those for Sacramento connecting with light-draft steamers for Marysville Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and Jackson streets.

R. M. HARTSHORNE,
President.

13v12

REDUCTION IN FARE

FROM

San Francisco to New York

— AND —

BOSTON,

— VIA —

THE CHICAGO, BURLINGTON AND MISSOURI RIVER RAILROAD.

NEW YORK	**$138 00**
BOSTON	**130 25**

Ticket Office, No. 208 Montgomery Street.

24v20 SAM. A. LEWIS, Agent.

WONDERFUL

Scientific Discovery.

THE GREATEST EVER MADE,

Having Baffled the Ingenuity of Chemists and Physiologists for Ages Past.

DR. CROWLY'S EMERALD HAIR BALM.

NO EXAGGERATION, but a stern reality, verified by the undersigned:

Dear Doctor: I feel much pleasure to inform you that your "Emerald Hair Balm" has caused the growth of hair on my head—having only used one of your bottles, although I had been bald for twenty-five years. You are quite at liberty to use this intimation as you please. Yours truly, JOHN STAPLETON,
California street, San Francisco.

To W. J. Crowly, M. D., No. 20 Montgomery street, San Francisco. 19v20-2m

---

Pacific Bank.

PETER H. BURNETT........................President.
FORD H. ROGERS........................Cashier.

REMOVED

To its new Banking House, northwest corner of Sansome and Pine streets.

O. P. SUTTON, Secretary.

San Francisco, March 30, 1870. 15v20-3m

N W. SPAULDING,
Saw Smithing and Repairing
ESTABLISHMENT.

Nos. 17 and 19 Fremont St., near Market,
MANUFACTURER OF
SPAULDING'S
Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE,
At the lowest Market Prices.

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
Lady's Friend	
Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,
News Dealer
AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

Eastern Perodicals,

BY THE

Year, Month, or Number.

BARTON & RUTTER,
Importers and Dealers in

Guns, Pistols, Fishing Tackle

Pocket Cutlery, Etc.

SPORTING APPARATUS OF EVERY DERCRIPTION.

609 Clay Street, near Montgomery.

— SOLE AGENTS FOR —

Alexander's Celebrated Pocket Cutlery

For the State of California.

JNO. C. BARTON. R. A. RUTTER.
16v20-3m16p

PACIFIC
Rolling Mill Company,
SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

— AND —

Every Variety of Shafting,

Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

— ALSO —

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron 9v143m9p

TREES,
FRUIT AND ORNAMENTAL.
1870.

THE LARGEST AND MOST COMPLETE STOCK

— IN THE —

UNITED STATES.

Orders for large or small quantities promptly filled. Packing performed in the most skillful and thorough manner. SMALL PARCELS forwarded by Mail when desired. Nurserymen and Dealers supplied on liberal terms. Descriptive and Illustrated priced Catalogues sent prepaid on receipt of stamps, as follows:

No. 1—Fruits	10 cents.
No 2—Ornamental Trees	10 cents,
No. 3—Greenhouse	5 cents.
No. 4—Wholesale	Free.

Address ELLWANGER & BARRY,
25v20-6m ROCHESTER, N. Y.

ICE. ICE.

On and after April 1st the price of ICE will be TWO (2) CENTS PER POUND DELIVERED.

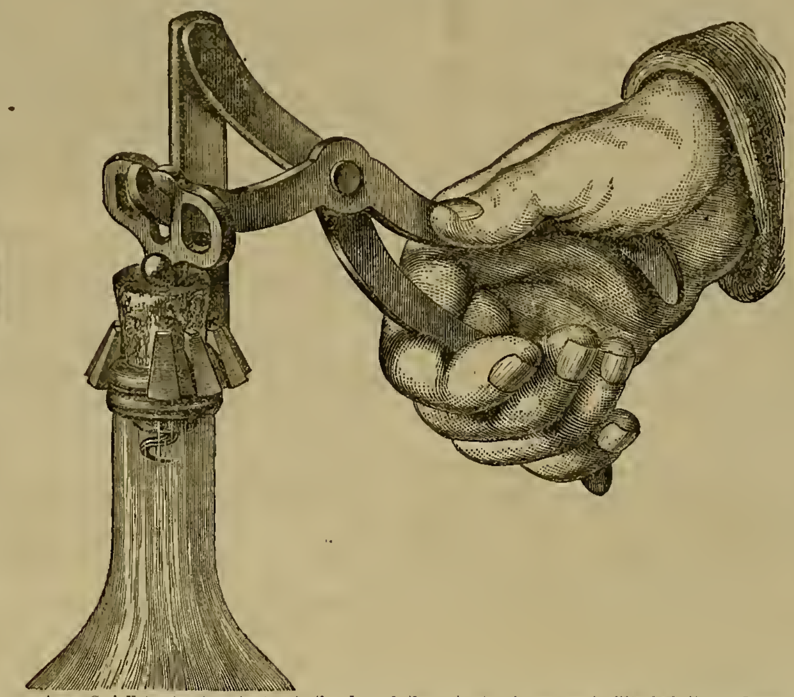
AMERICAN RUSSIAN COMMERCIAL CO.
D. E. MARTIN, Superintendent,
16v20-qy 714 and 716 Battery street.

WIESTER & CO.,
PATENT BROKERS,
No. 314 Bush Street, San Francisco.

PATENTS BOUGHT AND SOLD ON COMMISSION.

For the benefit of those who live at a distance from the city, we give below a brief description of a few of the valuable Patents which we have in our office. It may be well to state here that no Patent is received by us for negotiation until it is first endorsed by reliable experts, to whom each is subjected for acceptance or rejection. We treat all patents alike, recommending only where true merit is found in the invention.

MORTON'S CORK EXTRACTOR.



A new Cork Extractor, in order to take the place of other extractors in use, must either be better or cheaper than they. It is not claimed that the one represented above is cheaper than the Clamp Extractor with its toothed jaws, or the Needle Extractor with its self-adjusting cross bar, yet it is claimed that for power, durability, convenience, general application and practical utility, it is superior to either of them, or any other cork extractor yet invented.

With this contrivance the tighest cork can be drawn with a mere nominal outlay of strength, and without any risk of cutting or bruising the hands. The manner of using, and the advantages gained, can be fully understood by examining the above cut. The cork can be drawn without disturbing the contents of the bottle or spattering them over the hands or clothing of the operator. They are manufactured out of the best material, and will be furnished plain or silver-plated, at manufacturing cost, to parties purchasing Rights. The Patent is placed in our hands for sale, and we are allowed to dispose of the States and Territories west of the Rocky Mountains at a very low price. Call and examine the Extractor, or write for full particulars.

WIESTER & CO.,
314 Bush Street, San Francisco.

MEDICAL DEPARTMENT
— OF THE —
University of the Pacific.

The EIGHTH COURSE OF LECTURES will commence on TUESDAY, JULY 5TH, and continue five months, with an intermediate vacation of two weeks.

Medical Faculty.

A. J. Bowie, M. D., Emeritus Professor of Surgery, and President of the Faculty.
J. F. Morse, M D., Emeritus Professor of the Principles and Practice of Medicine.
J. P. Whitney, M. D., Emeritus Professor of Physiology.
Henry Gibbons, M. D., Professor of the Principles and Practice of Medicine and Clinical Medicine.
L. O. Lane, M. D., Professor of Surgery and Surgical Anatomy and Clinical Surgery.
Edward Bentley, M. D., Professor of Descriptive and Microscopic Anatomy and Pathology.
R. Beverly Cole, M. D., Professor of Obstetrics and Diseases of Women and Children.
Isaac Rowell, M. D., Professor of Diseases of the Genito Urinary Organs and Orthopedic Surgery.
Wm. F. McNutt, M. D., Professor of Physiology.
Wm. F. Smith, M. D., Professor of Ophthalmology and Otology.
Thomas Price, M D., Professor of Chemistry and Toxicology.
Henry Gibbons, Jr., M. D., Professor of Materia Medics and Therapeutics.

Fees for the Full Course	$130 00
Matriculation Fee (paid but once)	5 00
Graduation Fee	40 00
Demonstrator's Ticket	10 00

The Lectures will be given in the Chapel of the City College, Stockton street, south of Geary,

HENRY GIBBONS, Jr., M. D.,
24v20-1m Dean of the Faculty.

FROM The WEED Sewing Machines—the WHOLE WORLD being judges—as they are the LAST, so also are BEST! Why? Because the WEED

$65 **WEED** TO $500

Machines work easier, simpler, faster and with more VARIETY. Buy the LATEST always. Call and see S. E. Hoar, 329 Kearny St. S. F., Agt.

M. & B., through agencies in New York and Liverpool, import direct from Manufacturers, and will always have a desirable assortment. ☞ Can compete in prices with any other dealer. 24v20-3m

---

Important to Assayers.
Crucibles.
The Patent Plumbago Crucible Co.
Manufacturers of all kinds of

Melting Pots, Portable Furnaces,

CRUCIBLES, and other fire-standing Goods,

Battersea Works, London.

THE MORGAN PATENT CRUCIBLES have uniform quality, never crack, withstand the greatest heat without danger; heats more rapidly than any other; change of temperature has no effect on them; stand on the average forty to fifty pourings.

CERTIFICATES:

United States Branch Mint, San Francisco, Cal., March 12, 1869—Messrs. A. S. Hallidie & Co., Agents Morgan Crucible:—I have carefully tested the Morgan Patent Plumbago Crucibles purchased from you for the U. S. B. Mint, and cheerfully certify to their superiority and economy over all other Crucibles used by and under me. They are fully what you represent them, and I shall continue to use them in preference to any other. J. M. ECKFELDT, Melter and Refiner, U. S. B. Mint.

Eagle Brass Foundry, 206 Fremont street, San Francisco 12th March, 1869—Messrs. A. S Hallidie & Co., 519 Front street—Gentlemen:—We have used and tested the Morgan Patent Plumbago Crucible, for which you are agents, and pronounce them superior to and cheaper than any Crucible used by us heretofore. GREENBERG & MOORE.

Messrs. A. S. Hallidie & Co :—We have thoroughly and severely tested in every way the Morgan Patent Plumbago Crucible obtained by us from you, and find them superior to any we have yet tried, although we have used every pot obtainable in this market, we have none equal to the above, and concede your claims for them. We think they will average 45 pourings of brass. GALLAGHER, WEED & CO,, California Brass Works, 125 Front street, San Francisco.

Assay Office of H. Harris, Silver City, Nevada, April 24, 1869—Messrs. A. S Hallidie & Co.—Gents.:—I received from you three Crucibles of the Morgan make, which I have used since their arrival, and tested by constant use. Since 1847, when in the New Orleans Mint, I have always preferred the Crucible of Dixon's make over Adus, Gautier, and Taunton, Mass. Yours I find to be not alone of more finished make, but to stand double or treble the work of Dixon's Crucibles. The No. 12—the smallest sent—has stood so far 32 meltings, and is as good and sound as when received. Your Crucibles do not scale off like others; and as they are forty per cent. cheaper, I do not see why they should not be preferred by all assayers on account of durability and cheapness. Yours respectfully, H. HARRIS.

On hand and for sale by the Agents,

A. S. HALLIDIE & CO.,
18v18-9p **519** Front street. San Francisco

LAND! LAND! LAND!

YOUNG & PAXSON, No. 424 Montgomery street, offer for sale:

40,000 Acres in Fresno County;
7,000 Acres in Sonoma County;
3,680 Acres in Tulare County;
1,900 Acres in Contra Costa County;
1,800 Acres in Solano County;
8,000 Acres in Napa County;
1,280 Acres in Fresno County.

Also, many smaller tracts of Agricultural and Vineyard Lands. For full particulars of which, apply as above.

YOUNG & PAXSON,
16v20-3m 424 Montgomery street.

THE FIREMAN'S
FUND
INSURANCE COMPANY.
OFFICE,
S. W. Corner California and Sansome Streets
SAN FRANCISCO, CAL.

Fire and Marine Insurance.

CAPITAL	$500,000 00
SURPLUS	267,115 63
TOTAL ASSETS	$767,115 63

D. J. STAPLES, President.
G. T. LAWTON, Vice President.
13v20-3m CHAS. R. BOND, Secretary.

MERCANTILE LIBRARY
GIFT CONCERT.
$500,000 GIFTS.

Attention of mechanics is called to the

$500 PREMIUM OFFERED

— FOR THE —

BEST MODEL OF TWO WHEELS

— OF —

GLASS AND IRON,

Two motions, if possible, to carry NINE HUNDRED POUNDS WEIGHT, and to be as TRANSPARENT as possible. 24v20-3w

---

R. A. SWAIN & CO.,
IMPORTERS AND DEALERS IN

Earthenware, French Porcelain,

GLASSWARE,

Lamps, Lanterns,

CUTLERY,

— AND —

FANCY GOODS,

N. E. Corner Sansome and Pine Streets.
24v20-3m

OCCIDENTAL
Insurance Company
OF SAN FRANCISCO.

Cash Capital, - - - - - - - $300,000

GOLD COIN.

OFFICE, 436 CALIFORNIA STREET.

Fire and Marine Insurance.

All Losses paid in U. S. Gold Coin.

A. G. STILES, President.
B. ROTHSCHILD, Secretary. 20v17

DR. F. SCHULTZ,
NO. 114 KEARNY STREET,
SAN FRANCISCO.

OFFICE HOURS—From 8 to 11 A. M. and from 2 to 6 P. M.

PARTICULAR ATTENTION GIVEN TO

SORE EYES, NEURALGIA,

RUNNING SORES AND RHEUMATISM.
16v20-3m

LESSONS IN ASSAYING.

Determination of Minerals and the use of the Blow-Pipe, to those wishing to gain a knowledge of these branches. Any person may learn to make the ordinary assays in a few lessons. Address me at the Pacific Chemical Works, 215 First street, or Box 1180, Post Office. (25-v20) HENRY G. HANKS.

Reading for the Hour.

To Yosemite on Foot.

Some three weeks since six young gentlemen, members of the San Francisco High School, decided to spend their vacation on a visit to Yosemite, the Big Trees, etc. Health, as well as recreation and instruction being in part their object, they resolved to copy after the good old German custom, and make the trip on foot. They have just returned from the trip, highly delighted, and greatly improved in health. They studiously avoided all hotels, stages, etc., save the trip from this city to Stockton by steamboat. Each one carried his own blankets and provisions strapped into a knapsack; they camped out, and cooked for themselves all the way. The names of these young gentlemen are as follows: Dwight Huntly, John Stillman, Samuel Hall, Wendell Jackson, William Robinson and Robert Hayne. The example of these young students might be advantageously followed by others. Such a tramp and camping out, is worth for the health of a young man confined all the year to his studies, a dozen trips by stage accompanied with hotel living, especially under the mild skies and dewless nights of a California summer in the mountains.

We regret to learn that another party which started in the same manner and about the same time, from McClure's Military Academy in Oakland, met with a serious mishap in the loss of one of their number,—Master John M. Bennett, of Oakland,—who was drowned in attempting to ford the Mokelumne river. The fording of mountain streams of any considerable volume is always dangerous, especially for young men not accustomed to such wild and swift running water, and should always be avoided on such tramps. The other members of this party, viz.: Frank Tubbs. Chesley Bonestel, Douald Camphell and S. O. McClure, returned safely to their homes.

CHINESE geese are a great curiosity. Farmer Treadway used to own a pair of them. He didn't keep them very long. He swapped them to Boh Sharp for some ducks. These geese have horns on their heads and live to a great age. Treadway swears that his were at least a hundred years old. Anyhow their eggs never would hatch. They have a very peculiar voice—a sort of cross between the sound of a gong and that of a Scotch bag-pipe. That is the reason he was willing to exchange them for Sharp's ducks. By the time Sharp had had them for forty-eight hours the novelty of their peculiar music began to wear off. Gradually he lost interest in them and began to quit inviting people up to see his geese. Then he got disgusted; and finally he sold them to Capt. Winnie. Report says they have driven everything off from Winnie's ranch. If they haven't they will; for when they tune up you can hear them a mile against the wind. They must be the kind of geese that saved the Roman capital. Certainly, when they are in good voice, they can make a noise that is not only strong enough to wake a whole city, but to frighten away all its enemies.—*Carson Appeal.*

THE JEWEL IN TOADS.—Shakespeare and other poets locate this "precious jewel in his head," but they cultivated the flowers of poesy, and were poor observers in the garden. Watching these ugly animals among the squash and cucumber vines, we shall discover the jewel in the stomach, in the shape of a healthy appetite for bugs and worms. The quantity they will devour is enormous. "Their big bellies with fat black bugs lined," proclaim their virtues. Toads are among our best friends, and they should have the full freedom of the garden.

PAYING THEM BACK—CALIFORNIA HORSES FOR ARKANSAS.—The Butte *Record* says that E. H. Gould, Esq., of Moore's Station, in that county, has started a drove of 3,000 horses across the plains for Arkansas. He took them over the mountains by the way of Honey Lake valley. He has long been a heavy stock man, and entertains no doubt of the succes of his venture.

ADVANTAGES OF CRYING.—A French physician publishes a long dissertation on the advantages of groaning and crying in general, and especially during surgical operations. He contends that groaning and crying are two grand operations by which Nature allays anguish; that those patients who give way to their natural feelings more speedily recover from accidents and operations than those who suppose it unworthy a man to betray such symptons of cowardice as either to groan or cry. He tells of a man who reduced his pulse from one hundred and twenty-six to sixty in a few hours by giving full vent to his emotions. If people are at all unhappy about anything, let them go into their rooms and comfort themselves with a loud boo-hoo, and they will feel a hundred per cent. better afterward.

In accordance with the above, the crying of children should not be too greatly discouraged. If it is systematically repressed the result may be St. Vitus's dance, epileptic fits, or some other disease of the nervous system. What is natural is nearly always useful; and nothing can be more natural than the crying of children when anything occurs to give them either physical or mental pain. Probably most people have experienced the effect of tears in relieving great sorrow. It is even curious how the feelings are allayed by their free indulgence in groans and sighs. Then let parents and friends show more indulgence to noisy bursts of grief—on the part of children as well as of older persons—and regard the eyes and mouth as the safety valves through which Nature discharges her surplus steam.

MEAN OLD BOSTON.—Mean men—men of means, mean the same thing. Saving and hoarding codfish aristocracy! History tells us that the Yanks commenced being mean by saving so much out of the "catch" of each fishing-smack, away back in 1840, '50, '60, or somewhere along there, for the purpose of raising a fund for public education; and to this day these prying, meddling, interfering busy-bodies are looking out for the education of every child, regardless of nationality and color, and even go so far as to make it punishable by law for parents or guardians to keep children away from school to peddle, beg or steal. A great outrage on the parents! Boston has those mean English traits lingering in its crooked streets and narrow alleys. It shows too much honor to poets, painters, writers, musicians, scientific men, old Agassiz and such rubbish. Foreigners in the various professions of art speak with grateful memories of Boston, and that doesn't sound well in younger and smaller cities. Then, too, Boston supports the old-fogy institution, Harvard University, and is the rendezvous of Emerson, Longfellow, Holmes, Field, Whittier, Whipple, Motley, and used to be the home of Shaw, Storey, Channing, Everett, Starr King, and those selfish Lawrences, Lymans, Perkins, etc. Mean old Boston!—*S. F. News Letter.*

UTILIZING THE POLECAT.—The odor of the musk of the polecat or skunk is a powerful anti-spasmodic and is said by the N. Y. *Medical Gazette* to be a sure cure for asthma. The liquid, however, is not considered superior in fragrance to cologne. It colors a knife green, when dipped in it. The Indians eat the flesh of the animal as a remedy for coughs and consumption. It makes a savory dish—is tender and delicious. When the animal is designed for the table, the sack containing the musk must be at once removed.

THE Mount Cenis Tunnel will be finished the present year. Since work was commenced upon it, however, such improvements have been made in the machinery for railway traffic over steep grades that it is more than probable that it will prove equally as economical and quite as safe to run cars *over* the mountain as *through* it—especially when the great cost of the tunnel is taken into account.

INDIANS are very skillful in building fires, both in their huts and in the open air. They select dry wood and sticks, and place one end in the fire, while the other ends point in all directions like the spokes of a wheel lying horizontally; they thus keep a moderate but steady fire during the night with an amount of wood that a white man would burn up in an hour. Speaking of the white man they say: "Him big fool—make heep fire and smoke, stand far off, look at him burn, while freeze."

NOW IN PRESS.—Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. By G. Kustel, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction," and "Concentration of all Kinds of Ore." Illustrated by numerous engravings. Published and sold by Dewey & Co., proprietors SCIENTIFIC PRESS, San Francisco.

HEARTH AND HOME for June 25th contains the first of a series of sketches entitled *Jethro Throop's Night Thoughts*, by John Thomas, who is no other than Petroleum V. Nasby. The great humorist will take an honest country boy to the city, conduct him through the usual experience, and restore him to his home a sadder and wiser boy, satisfied that the peaceful, honest, and temperate life of the farmer is the best and safest life that can be lived. This is a lesson greatly needed at this time, and Nasby is the man to teach it.

☞MARAVILLA COCOA.—*For Breakfast.*—The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success has been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma they have produced an article which supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœpaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers Original Homœopathic Cocoa and Soluble Chocolate. Steam Mills - Brick Lane, London. 5v20-1y

TO MINERS, MILLMEN AND METALLURGISTS. Kustel's new work on the Concentration of all kinds of Ores, and the Chlorination Process, for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, is the best and most complete work issued. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. Price, $7.50, postage paid. Published by Dewey & Co., publishers of the Scientific Press, San Francisco.

IT is a great thing for elderly persons to have their fading eyesight restored to its youthful perfection. This can be done by Muller, who is recognized as the optician of the Pacific coast. His Brazilian spectacles, properly fitted and adjusted, are superseding all others in use. *

ATTENTION TO MINING COMPANIES OF COPPER AND GALENA ORES.—A mining engineer and assayer thoroughly acquainted with practical smelting of lead and copper ores, and competent to put up all kinds of furnaces, wishes employment. References given Please address C. T. MOHRIG, care of Schultz, Fischer & Mohrig, No. 10 Stevenson street, near First. San Francisco. 23v20-1m

DR. HARTMANN, Physician, Oculist and Medical Electrician, cures all diseases of the eye, such as Granulated Eye Lids, Inflammation of the Eye. Opacities of the cornea cured permanently. Also, Paralysis, Rheumatism and all Nervous and Chronic Diseases, and all Female Complaints. 314 Bush street. 25-520.

WE call attention to the new portable gas burner—the only one that can be regulated to any size, flame, and burn without smoke or smell. Equal to any gas at one-fourth the cost. P. J. Philips & Co., 650 Market street, have county rights for sale for this valuable invention; also lamps for sale. No one should be without them who wants a good, cheap and safe light. 21v20-4w

TREATMENT OF REBELLIOUS SILVER ORES, by Charles H. Aaron—a pamphlet of eight pages of concise reading, of practical value to parties interested in the subject. Printed and sold by Dewey & Co., at this office, for 25 cents, post paid.

BUSINESS FORTUNES are often made easily, quickly and legitimately by Patent Rights. We advise both sellers and purchasers to patronize reliable agents only. Weister & Co., patent brokers, No. 314 Bush street, San Francisco, are one of the most honest, reliable firms in the United States. *

LOOK AT THE RUINS.—Aye, look at the ruins of what once were magnificent sets of teeth, to be seen everywhere in society. Look at them, and ask yourself if it is not marvelous that such destruction is permitted, when, by simply using Sozodont, any teeth, however fragile, may be preserved from decay or blemish as long as life lasts?

"SPALDING'S GLUE" useful in every house.

TO FARMERS.—Stevens & Bro's Egg Boxes, holding 30 dozen, supplied free of charge, by John Gray & Co., No. 210 Clay street, San Francisco, to all customers. The eggs are kept cool and free from moisture and mould, are in no danger of being broken, and require no re-counting. 20v20-3m

PHOTOGRAPHY.—For CABINET PHOTOGRAPHS, or Enameled Cards, of the very best quality, you must go to the NEW YORK GALLERY, Nos. 25 and 27 Third street, San Francisco. Every picture warranted to give satisfaction.
10v18 6m R. F. HOWLAND.

MASON'S BREAD OF LIFE, for Dyspeptics, Coughs, Colds, Asthma, Catarrh, Hoarseness, Bronchitis and Sore Throat. Price, 25 cents per box. These lozenges are free from all dangerous properties. Compounded and put up by Dr. J. H. Mason, 750 Howard st. 16v20-3m

THOMAS O'NEIL Ornamental Glass Cutter, No. 10 Stevenson street, up stairs. Stained, Ground and Ornamental Cut Glass to order on reasonable terms. 14v20

MICROSCOPES for Scientific Investigation and Educational Purposes. Price list sent free. T. H. MCALLISTER, Optician, 49 Nassau street, New York. 15v20-3m

DRS. MARTINACHE & SMITH, Oculists and Aurists, 313 Bush street, between Montgomery and Kearny. Hours for consultation, 12 to 3. 16v20-3m

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

New Mining Notices.

Office of Eclipse Consolidated Mining Company, 210 Battery street, San Francisco, June 20th.

The Annual Meeting of the stockholders of this Company will be held on Saturday, July 23d. 1870, at twelve o'clock, M., for the election of Trustees for the ensuing year and the transaction of any other business that may be presented.

ju25-4w SOLON PATTEE, Secretary.

Jennie A. Consolidated Mining Company, White Pine District, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of June, 1870, an assessment of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, Room 37 New Merchants' Exchange, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, Room 37 New Merchants' Exchange, California street, San Francisco. ju25

Pogonip Flat Silver Mining Company.—Location of Works: White Pine, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of June, 1870, an assessment of three (3) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. J. OWENS, Secretary.

Office, No. 1 Express Building, northeast corner Montgomery and California streets, San Francisco. ju25

Mining Notices--Continued.

Cordillera Gold and Silver Mining Company, Chihuahua, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of June, 1870, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 321 Washington street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the ninth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the first day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.

Office, 321 Washington street, San Francisco. jul1

Evening Star No. 1 Silver Mining Company.—Location of Works: White Pine County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the first day of June, 1870, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Saturday, the second day of July, 1870, shall be deemed delinquent. and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-fifth day of July, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. ju4

Land Purchasers' Association.—At a meeting of the Board of Trustees of the Land Purchasers' Association, held June 7th, 1870, the following resolution was adopted by unanimous vote:

Resolved, That an assessment of ten dollars per share, gold coin, be, and the same is hereby levied, upon each and every share of the capital stock of the Land Purchasers' Association now held by subscribers thereto; being for the monthly installment falling due and payable June 1st, 1870. Said assessment is payable on or before the thirtieth day of June, A. D. 1870, to JAMES F. CROSETT, Secretary, at the office of the Association, No. 304 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of June, A. D. 1870, shall be deemed delinquent, and will be advertised for sale at public auction, and unless payment shall be made before will be sold on the thirtieth day of July, A. D. 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.

Office, 304 Montgomery street, San Francisco. ju18

Office of the Placer Gold Mining and Canal Company.—Location of Works: Township No. Six (6), County of Placer, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the eleventh day of June, 1870, an assessment (No. 2) of two dollars ($2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 204 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday, the twenty-sixth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the sixteenth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

C. S. HALEY, Secretary.

Office of Company, No. 204 Montgomery street, San Francisco, California. jul8

Office of Silver Sprout Mining Company, 408 California street, San Francisco, June 2d, 1870. NOTICE.—The annual meeting of the stockholders of the Silver Sprout Mining Company, will be held at the office of the company, No. 408 California street, San Francisco, on Tuesday, the twenty-eighth day of June, 1870, at 12 o'clock M., for the election of Trustees to serve for the ensuing year, and for the transaction of such other business as may properly come before the meeting. [ju1-1m] T. B. WINGARD, Secretary,

Land Purchasers' Association—Office, No. 304 Montgomery street, San Francisco.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the third day of May, 1870, for the monthly installment due May first, 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Thomas R Hayes	1, 2, 3, 4, 5	5	$150 00
John Bays	28	1	30 00
L. C. King	37	1	40 00
Philo Doud	87	1	20 00
H. H. Mayhew	91	1	20 00
M. L. Haas	97, 98	2	60 00
E. Ehrenforte	99	1	20 00
F. Backe	105	1	20 00
Mrs. Nellie McCarty	113	1	30 00
S. S. Sprague	114, 119	2	40 00
H. Keller	127, 128, 129, 130 131, 132, 133, 134 135, 136	10	200 00
H. G. Robinson	150	1	10 00
Otis Jackson	173, 174	2	40 00

And in accordance with law and an order of the Board of Trustees, made on the third day of May, 1870, so many shares of each parcel of said stock as may be necessary will be sold at the office of the Secretary, No. 304 Montgomery street, San Francisco, on Tuesday, the twenty-eighth day of June, 1870, at 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. F. CROSETT, Secretary.

Office, 304 Montgomery street, San Francisco. jo 4

Nevada Land and Mining Company.—Location of Works: Steptoe, Johnson & Latham, Antelope and Clifton Districts, Elko County, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the third day of May, 1870, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
H C Kibbe	unissued	2000	$60 00
R P Johnson	unissued	2000	60 00

And in accordance with law, and an order of the Board of Trustees, made on the third day of May, 1870, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, room 5, No. 302 Montgomery street, San Francisco, Cal., on Tuesday, the twenty-eighth day of June, 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, California. ul1

Silver Vault Tunnel and Mining Company.

Location of Works: White Pine Mining District, White Pine County, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the third day of May, A. D. 1870, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bartlett, Pliny	11	100	$5 00
Benedict, Newton	47	5	25
Bivins, B F	247	5	25
Bivins, B F	249	5	25
Bivins, B F	250	5	25
Bivins, B F	251	5	25
Cherry, J W	306	100	5 00
Dore, Benjamin	85	5	25
Dore, Benjamin	86	5	25
Dore, Benjamin	87	5	25
Dore, Benjamin	88	5	25
Dore, Benjamin	91	5	25
Dore, Benjamin	95	10	50
Dore, Benjamin	96	10	50
Dore, Benjamin	97	10	50
Dore, Benjamin	98	10	50
Dore, Benjamin	103	10	50
Dore, Benjamin	104	10	50
Dore, Benjamin	171	50	2 50
Dore, Benjamin	172	50	2 50
Dore, Benjamin	173	50	2 50
Dore, Benjamin	211	100	5 00
Dore, Benjamin	213	100	5 00
Dore, Benjamin	259	100	5 00
Dore, Benjamin	292	80	4 00
Dore, Benjamin	316	500	25 00
Dore, Benjamin	317	1000	50 00
Dore, Benjamin	325	1000	50 00
Dore, Benjamin	327	500	25 00
Dore, Benjamin	328	100	5 00
Dore, Benjamin	330	200	10 00
Dore, Benjamin	331	320	16 0
Davis, H J	150	50	2 50
Davis, H J	151	50	2 50
Davis, H J	152	50	2 50
Davis, H J	153	50	2 50
Ecker, George	206	1000	50 00
Fox, H	201	10	50
Haskell, J M	186	20	1 00
Haskell, J M	190	50	2 50
Herrin, E W	221	50	2 50
Herrin, E W	222	50	2 50
Herrin, E W	301	100	5 00
Hunter, James	123	200	10 00
Hunter, James	124	200	10 00
Hunter, James	125	200	10 00
Hyde, George	154	50	2 50
Hyde, George	155	50	2 5
Hyde, George	156	50	2 5
Hyde, George	157	50	2 5
Haskell, J M, Trustee	340	400	20 00
Jordan, George	121	50	2 50
Jordan, George	122	50	2 50
Kimball, G H	243	5	2
Leavitt, C	147	50	2 50
Leavitt, O	148	50	2 50
L dd, O J	204	100	5 00
Mesick, Mrs M A	81	100	5 00
Mesick, Mrs M A	82	100	5 00
Mesick, Mrs M A	83	100	5 00
Mesick, Mrs M A	84	100	5 00
Pesinger, John H	200	100	5 00
Root, N T	318	25	1 25
Root, N T	319	25	1 5
Shaeffer, J W	332	900	45 00
Turner, F D	338	100	5 00
Taylor, J F	320	1000	50 00

And in accordance with law and an order of the Board of Trustees, made on the third day of May, A. D. 1870, so many shares of each parcel of said stock as may be necessary, will be sold at the office of the Company, room No. 23, Hayward's Building, No. 419 California street, San Francisco, California, on Wednesday, the twenty-ninth (29th) day of June, A. D. 1870, at the hour of one o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOSEPH L. KING, Secretary.

Office, Room No. 23, Hayward's Building, No. 419 California street, San Francisco, California. ju11

A VALUABLE BOOK FOR INVENTORS AND ARTISANS.—Dewey & Co., publishers of the SCIENTIFIC PRESS and Patent Agents, have just issued a neat little volume of over five hundred well executed cuts of the principal mechanical movements known. These useful representations of the various appliances of power are printed side by side with explanatory notes, which makes the subject clear to every reader. Such a book should be in the hands of every mechanic, and form part of every public school library. It is a handy book, and cheap enough for every farm, shop and factory. Sent to any address from the SCIENTIFIC PRESS office, postpaid, for $1.—*New Age.*

Latawana Mining Company—Near Hamilton City, White Pine, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of June, 1870, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 614 Merchant street, Room 26, San Francisco, California

Any stock upon which said assessment shall remain unpaid on the fourteenth day of July, 1870, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the sixth day of August, 1870, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. MARTINON, Secretary.

Office, 614 Merchant street, Room 26, San Francisco, California. ju11

TARRANT'S
SELTZER
APERIENT.

DON'T FOLLOW BLIND GUIDES.—The sick never lack advisers. Every friend has some new remedy to propose. The result is that the stomach of many an invalid is converted into a sort of medicinal cess-pool, in which powerful drugs are continually seething and fermenting. The effect of this experimental treatment in dyspepsia and bilious complaints is frightful. The simpler the medicine the more readily it assimilates with the animal fluids, and of all preparations in use for indigestion and biliousness, Tarrant's Effervescent Seltzer Aperient, prepared after Nature's formula, and absolutely identical with the waters of the famous German Spa, is indisputably the best.

SOLD BY ALL DRUGGISTS.

W. T. GARRATT & CO.

CITY

Brass and Bell Founder,

Corner Mission and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal

CASTINGS,

Church and Steamboat Bells,

TAVERN AND HAND BELLS, GONGS,

FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

W. T. GARRATT, JAMES HILLMAN, W. T. LITTLE.

HUNTINGTON, HOPKINS & CO.,

—IMPORTERS OF—

HARDWARE,

BAR AND SHEET IRON,

Steel, Coal, Smiths' and Miners' Tools,

Boiler Tubes, Gas Pipe and Fittings, Belting, Hose, and

RAILWAY SUPPLIES.

—ALSO AGENTS FOR—

ORIENTAL POWDER CO., OF BOSTON,
SAN FRANCISCO CORDAGE COMPANY

54 K Street, Sacramento.

7v20-ng

The Pacific Insurance Company.

No. 422 CALIFORNIA STREET,

SAN FRANCISCO, CAL.

FIRE AND MARINE INSURANCE.

Capital Stock	$1,000,000 00
Amount in excess of Capital available to pay Losses and Dividends	696,854 80

ASSETS IN GOLD.

Loans on Real Estate and Collaterals worth $2,420,000	1,056,996 21
Cash in Banks	132,240 67
United States and other Stocks owned by the Company	210,400 00
Real Estate: Company's property, corner California and Leidesdorff streets	146,000 00
Other Assets	150,217 92
Total Assets in Gold	$1,696,854 80

Losses paid promptly in Gold on Adjustment.

J. HUNT, President.
A. J. RALSTON, Secretary.

☞Insurance effected on the most reasonable terms.☜

Office, 422 California Street.

WILCOX'S

PATENT STEAM

WATER LIFTER.

Requiring no Engine.

Send for circular containing full explanations, price list, testimonials and references.

M. & A. WILCOX,
15v20-3m-nhxh 74 K street, Sacramento.

New Advertisements.

Thursday Evening.

Owing to the time necessary to mail the present large edition of the SCIENTIFIC PRESS, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

DESIGNS AND PLANS

— OF THE —

NEW CITY HALL

— OF —

SAN FRANCISCO.

Office Board of City Hall Commissioners, southeast corner of Sacramento and Montgomery streets, San Francisco, June 22, 1870.

The Board of City Hall Commissioners hereby give notice that they will be prepared to receive at their office, on or before the FIRST DAY OF NOVEMBER NEXT, designs and plans for the new City Hall of San Francisco.

The Commissioners, in order to obtain the very best design and plan, invite the fullest competition among architects, and to this end have resolved to offer the following premiums:

First—For the design and plan selected and adopted	$2,500
Second—For the second best design and plan	2,000
Third—For the third best design and plan	1,500
Fourth—For the fourth best design and plan	1,000
Fifth—For the fifth best design and plan	500

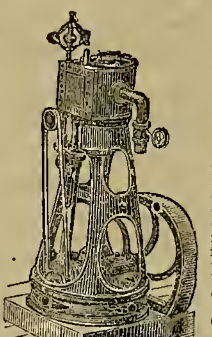
The premiums payable in City Hall warrants.

As a guide to architects in the preparation of the designs and plans, the Commissioners have prepared a pamphlet containing full instructions and suggestions, as well as the terms and conditions upon which the premiums will be awarded.

Pamphlets can be had on application at the office of the Commissioners.

Any design or plan in which the requirements of the Board, as set forth in the printed instructions, have not been reasonably complied with, will be rejected from the competition.

P. H. CANAVAN, Chairman,
JOS. G. EASTLAND,
CHAS E. McLANE,
26v20-4m City Hall Commissioners.



RIDER'S

Automatic Cut-off

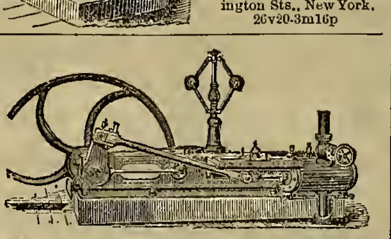
Vertical Engines

Manufactured by the

Albany St. Iron Works,

NEW YORK.

These Engines are simple, compact and durable, and in point of economy of fuel and space are excelled by none, and are cheaper than any other first-class cut-off Engines in the market. Descriptive pamphlets and price lists mailed free on application to the proprietors, HANDREN & RIPLEY, Corner Albany and Washington Sts., New York. 26v20-3m16p



RIDER'S GOVERNOR CUT-OFF ENGINE,

Manufactured by the DELAMATER IRON WORKS, WEST THIRTEENTH ST., NEW YORK. The prominent features of this engine are: Economy equal to any; perfect regulation of speed by cut-off; entire absence of delicate or complicated mechanism; simplicity of design and non-liability of derangement; requiring no more care than common engines. NOTE.—This improvement can be applied in many cases to existing engines. Pamphlets sent on application. 26v20-3m16p

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in differe special ties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY, and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, $125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus accessible to students, are varied and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. v16-1y16p

SEVERANCE, HOLT & CO.,

MANUFACTURERS OF

Diamond-Pointed Drills

AND DRILLING MACHINERY,

For Mining, Quarrying, Shafting, Tunneling, Prospecting, Draining, Grading and Submarine Blasting. Special attention given to Deep Boring for testing the value of Mines. Also to Boring Artesian Wells. Office, 318 CALIFORNIA STREET, San Francisco. 25v20-3m

Oil Cake Meal.

THE BEST FEED KNOWN
FOR LIVE STOCK.

We desire to call attention to Oil Cake Meal, which we are now manufacturing. No description of feed so greatly promotes the health of animals as Oil Cake Meal, and we urgently request all engaged in the dairy business, raising and fattening stock, or wool growing, to give it a trial, feeling confident that they will find it of very great value. By those who have used it thoroughly, ONE pound is pronounced to be equal to two pounds of Corn Meal, and in the United States Government Report of the Department of Agriculture for 1865, it stands in the following relation to other feeds as to the percentage of flesh produced from a hundred pounds of feed, viz: Indian Corn Meal, 11 per cent.; Barley Meal, 13 per cent.; Oat Meal, 18 per cent.; Oil Cake Meal, 22 2-100 per cent. For life-sustaining properties to all stock exposed to sudden changes of weather or overdriving, it has no equal.

For MILCH COWS it is particularly valuable, increasing the quantity of milk and improving its quality to a far greater extent than any feed known. A suitable quantity for them at the commencement is one quart in the morning and one quart at night, either alone or mixed with any other food; generally mixed with the mash of bran, slops, roots, or cut feed of any kind. It improves it to soak it for six or eight hours, the effect being to increase its bulk two or three times. The quantity can be increased gradually, according to the effect produced—ordinarily not exceeding three or four quarts per day.

FOR BEEF CATTLE it has fattening properties which cannot be found in any other feed—the beef always being more tender and juicy, and of a much finer quality than when fattened on any other feed, and no feed known will so quickly prepare animals for market as Oil Cake Meal.

FOR HORSES a small quantity given daily promotes their health, and is especially valuable for them when chilled or injured from over-driving. It is one of the best remedies known for Horses subject to the Heaves or Rheumatism, and greatly increases the cleanliness and evenness and glossiness of the hair.

FOR SHEEP there is no article of food known that produces such fine mutton or so promotes the growth of wool. A small quantity given to chilled Cattle or Sheep will keep them alive and greatly increase their warmth and vitality.

At present price ($25 per ton) it is the cheapest feed in market. It is now selling in New York at $42 per ton gold; at $50 per ton in England, where it has been proven for a long time to be in every respect the most profitable feed known for stock of all kinds—one ton being fully equal to three tons of bran.

The increasing demand for this meal from those on this coast by whom it has been thoroughly tested, has induced us to increase our facilities for its manufacture, and we are now fully prepared to furnish it in quantities as may be desired. For sale by the Grain and Feed Dealers, and at the manufactory, King street, near Third. All orders will receive prompt attention. Address—

Pacific Oil and Lead Works,
Nos. 3 and 5 Front St., San Francisco.
26v20-1am2m

Commencement of the Fifth Volume.

The Overland Monthly for July

IS NOW READY.

For Sale by all Newsdealers.

The present number of this popular magazine contains a string of literary pearls equal, if not superior, to its predecessors. Following is the table of contents: My First Visit to Brook Farm; Jos of Lahaina; An Evening and a Morning in Colima; Sail Ho; A Dark Night on Picket; The Donner Party; Through the Lower Coast Counties; Lumbering in Washington Territory; If Only; The Spectre Bull of Salinas; The Farmsley House; Sacramento Etchings; Yosemite on Foot; Dickens in Camp; Mr. Thompson's Prodigal; Etc; Current Literature.

☞ The OVERLAND from July, 1868, to June, 1870, comprising four volumes of 600 pages each, in fine cloth binding, can be had of the undersigned for $3 per volume. For variety of interesting and instructive topics, this magazine is unsurpassed.

JOHN H. CARMANY & CO.,
Publishers and Proprietors,
409 Washington Street, San Francisco.

PAIN KILLER
PROP.s
PERRY DAVIS & SON
PROVIDENCE, R. I.
1840 1870

Time Tests the Merits of all things.—For Thirty Years PERRY DAVIS' PAIN KILLER has been tested in every variety of climate, and by almost every nation known to Americans. It is the almost constant companion and inestimable friend of the missionary and the traveler, on sea and land, and no one should travel on our Lakes or Rivers without it.

It is a speedy and safe remedy for burns, scalds, cuts, bruises, wounds and various other injuries, as well as for dysentery, diarrhea, and bowel complaints generally, and is admirably suited for every race of men on the face of the globe.

Be sure you call for and get the genuine Pain Killer, as many worthless nostrums are attempted to be sold on the great reputation of this valuable medicine.

☞ Directions accompany each bottle.
Price 25 cents, 50 cents, and $1 per bottle.
Sold by all medicine dealers. 26v20-1m

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.,
For all Laboratory and Manufacturing Purposes.
H. M. RAYNOR,
57 Bond street, New York.
Platinum Scrap and Ore purchased. 15v20-1y16p

H. ROYER,

Manufacturer of LEATHER BELTING AND LACING, MADE OF FULLED RAWHIDE, Factory, South Park Mills, Brannan street, bet. Third and Fourth, San Francisco.

☞ **Pacific Saw Manufacturing Co. are Sole Agents for H. Royer's Lacing Leathers.** ns

Agents! Read This!

We will pay Agents a salary of $30 per week and expenses, or allow a commission, to sell our new and wonderful inventions. Address M. WAGNER & CO., Marshall, Mich. 21v20-2m

BLOCK TIN AND SOLDER WIRE, broom wire, piano covering wire, etc., manufactured by Joshua Gray, 437 Brannan street. 24v19-3m

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, June 23, 1870.

IRON.—Duty: Pig, $9 per ton; Railroad, 60c ₩ 100 lbs.; Bar, 1@1½c ₩ lb; Sheet, polished, 3c ₩ lb; common, 1½@1¾c ₩ lb; Plate, 1½c ₩ lb; Pipe, 1½c ₩ lb; Galvanized, 2½c ₩ lb.		
Scotch and Eng. Pig Iron, ₩ ton	$31 00	@$32 00
White Pig, ₩ ton	28 00	@ 30 00
Refined Bar, bad assortment, ₩ lb	— 03	@ — —
Refined Bar, good assortment, ₩ lb	— 04	@ — —
Boiler, No. 1 to 4	— 04¾	@ — —
Plate, No. 5 to 9	— —	@ — 04½
Sheet, No. 10 to 13	— 04½	@ — 05
Sheet, No. 14 to 20	— 05	@ — 05½
Sheet, No. 24 to 27	— 05	@ — 06½
COPPER.—Duty: Sheathing, 3½c ₩ lb; Pig and Bar, 2½c ₩ lb.		
Sheathing, ₩ lb	— —	@ — 26
Sheathing, Yellow	— 20	@ — 21
Sheathing, Old Yellow	— 10	@ — 11
Composition Nails	— 21	@ — 22
Composition Bolts	— 21	@ — 22
TIN PLATES.—Duty: 25 ₩ cent. ad valorem.		
Plates, Charcoal, IX, ₩ box	12 00	@ — —
Plates, I C Charcoal	10 00	@ 10 50
Roofing Plates	10 00	@ 10 50
Banca Tin, Slabs, ₩ lb	— —	@ — 42
STEEL.—English Cast Steel, ₩ lb	— —	@ — 15
QUICKSILVER.—₩ lb	— —	@ — 65
LEAD.—Pig, ₩ lb	— 7½	@ — 8
Sheet	— 10	@ — —
Pipe	— 11	@ — —
Bar	— 9	@ — 9
ZINC.—Sheets, ₩ lb	— 10½	@ — 11
BORAX	— 35	@ — 38

Machinists and Foundries.

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON

Iron and Locomotive Works.

INCORPORATED..........APRIL 30, 1868.
CAPITAL..........$1,000,000.

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Steam Engine Builders, Boiler Makers, Machinists, Foundrymen, and Manufacturers of Car Wheels equal to the best imported, and guaranteed equal to Eastern Wheels.

Directors:

S. F. Butterworth, Lloyd Tevis, Wm. Alvord,
Wm. Norris, Joseph Moore, Chas. E. McLane,
John N. Risdon.

JOHN N. RISDON..........President.
JOSEPH MOORE......Vice President and Superintendent.
LEWIS R. MEAD..........Secretary.
24v17-qy

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR,

WILCOX'S PATENT WATER LIFTERS,

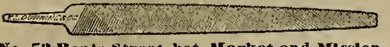
Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

14v1 SACRAMENTO CITY

PACIFIC FILE WORKS,



No. 53 Beale Street, bet. Market and Mission,

SAN FRANCISCO.

J. C. THWING & CO.,

SUCCESSORS TO T. G. DURNING & Co.

Files Re-cut and warranted as good as new, with a saving of fifty per cent. REAPER AND MOWER SECTIONS MADE TO ORDER. The only establishment on the Coast. Orders from the country promptly attended to. ☞ First Premium awarded at the State Fair, 1867. 2v17

WM. W. CANTY, JNO. BUSH, F. PRETORIOUS, JNO. CONNER.

MINERS' CO-OPERATIVE BOILER SHOP.

228 FREMONT STREET,

Between Howard and Folsom, San Francisco.

— ALL KINDS OF —

High and Low Pressure Boilers Built.

SHEET IRON WORK, ETC., ETC.

☞ Repairing promptly attended to.
17v20-6m WM. W. CANTY, Manager.

THOMPSON BROTHERS,

EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS, of every description, manufactured 24v15qr

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO.

IRA P. RANKIN, A. P. BRAYTON,

GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS,

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular **Boilers,** with plain circular or spiral courses. Upright Flue or Tubular Boilers, Locomotive and and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, hight of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

To Boiler Makers and Machinists in the Interior.—The firm is prepared to furnish estimates of Boilers, supply new Heads, drilled and punched, and attend to the selection and forwarding of Iron for Boilers, Pipes and other purposes.

Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care

To Inventors.—The firm is prepared to assist in developing the plans of those who have the ideas but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 1v16tf

MACHINERY

— AT —

GREATLY REDUCED RATES.

Miners' Foundry & Machine Works,

235 TO 245 FIRST STREET,

SAN FRANCISCO.

This Establishment is now working upon the

CO-OPERATIVE PLAN,

And are thereby enabled to manufacture

MACHINERY, CASTINGS & BOILERS

AT EASTERN PRICES,

And better adapted to the wants of the Pacific States. Ascertain our prices before purchasing. 8v20q

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and **15** Fremont street, near Market, San Francisco.
10v14qr

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

☞ PRICES MODERATE. ☜

P. GALLAGHER. J. H. WEED V. KINGWELL

CITY IRON WORKS COMPANY,

CLERC & CO.,

IRON FOUNDERS,

Steam Engine Builders and Makers of all kinds of Machinery.

15v16q No. 28 Fremont street, San Francisco.

SAN FRANCISCO

STARCH WORKS.

LAVERY'S SNOW-FLAKE

YEAST POWDER.

Corner Eighth and Brannan Streets.

Office, 302 California street, up stairs,

22v20-3m W. J. LAVERY & CO.

ECONOMY AND CLEANLINESS

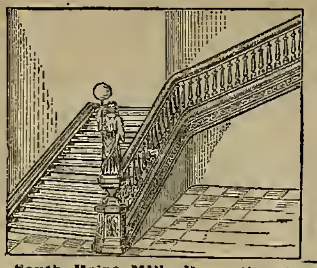
Are to be found in the use of the

PATENT SPRING BED.

They are the cheapest and best in the market. Manufactory on Twelfth street, bet. C and D, SACRAMENTO. Caveat filed Aug. 9, 1869. [15v20] G. B. DEAN.

HIBBERD, SANBORN & CO.,

STAIR BUILDERS.



South Point Mills, Berry Street,

Between Third and Fourth, San Francisco. Orders from the country promptly attended to. All kinds of Stair Material furnished to order. Wood and Ivory Turners. Billiard Balls and Ten Pins. Fancy Newels and Balusters.

Greatest Discovery Ever Made.

MR. J. W. MAC, while a resident in New Zealand, was so afflicted with the RHEUMATISM, that for years he was completely crippled and unable to attend to business. The symptoms were of the worst type—knees painful and swollen, with sinews contracted; shoulder, arm and hand rendered useless, and accompanied with continued excruciating pain. While in this state of suffering, he got acquainted with a native of the country, who applied to the parts affected a composition spread on coarse canvas, the properties of which were so wonderful that in a short time all the pain left him, the swelling disappeared, his sinews relieved, and he was able to resume his usual avocations. So effectual has been the remedy, that to this day he has enjoyed perfect health, without the slightest return of his former complaint. Knowing the great blessing such a remedy would be to those afflicted with this painful disease, he with great difficulty and expense obtained the secret of preparing the Plaster; and during the many years MR. MAC has applied these Plasters in New Zealand, Tasmania, New South Wales, and this city, their effect has been marvelous, giving to the most painful and long-standing cases sure and certain relief. The most incredulous will be convinced by referring to these persons: B. W. Owens, 405 Front street; F. B. Alderson, Traveling Agent for Dewey & Co., 414 Clay street; James Flynn, 519 Mission street: Michael Gorman, No. 6 Front street; Mrs. W. S Wright—late of Gilmore House—518 Folsom street, now agent at Virginia City; E. Shenley, corner Montgomery and Filbert streets; W. M. McLeod, Depository merican Tract Society, 557 Market street, and a host of others, who all bear testimony to the unparalleled healing powers of J. W. MAC'S (rightly termed Magic) Plasters, for the cure of Rheumatism, Gout, Weak Loins, Tender Feet and Neuralgia. J. W. MAC may be consulted at his office, rooms Nos. 34, 35 and 36, 128 Kearny street, San Francisco, between the hours of 9 to 12 A. M., 2 to 4 P. M. and 7 to 9 P. M.

18v20-3m

The Latest, Cheapest, and Most Durable.

CRANDALL'S

PATENT SPRING BED.

This invaluable Spiral Spring Bed combines all the good without any of the bad features of the common spring mattrass. It consists of a framework of springs resting on a bed of stronger springs, thus giving it nearly double the elasticity of any other bed. The springs are self-supporting, each pair being independent of the others, and consequently the tendency to sag or incline toward the middle is avoided. Unlike other spring beds, they require no upholstering, and, of course, afford no harbor for fleas or dust. The medical faculty have pronounced it the best Bed in use. It commends itself to those who have examined and used it. They invariably pronounce Crandall's Patent the best Spring Bed ever offered to the public.

These Beds are on exhibition and for sale at the Cabinet Warerooms of

JOHNSON & BEST,

No. 413 PINE STREET, RUSS BLOCK,

Between Montgomery and Kearny. Also at

639 Market Street, near New Montgomery.

Beds guaranteed to give satisfaction

Or the money will be refunded.

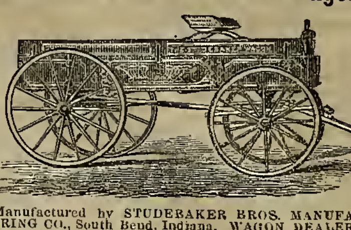
Refer, by permission, to the following, among the many using our Beds, who are willing to testify to their superiority:

SAN FRANCISCO AND VICINITY—J. B. Pierce, Esq., residence Sixteenth and Capp streets, office 315 California street; J. H. Rogers, Esq., residence Oakland Point, office 16, 17 and 18 California Market; W. Zelhcer, Esq., residence 613 Geary street; James Dexter, Esq., office 430 Sansome street; John A. Roth, Esq., residence 106 Silver street. James Connor, Esq., Alameda.

N. B.—Responsible persons can have one on trial.

S. B. SNEDAKER & CO.,
21v20-6w Agents for San Francisco.

The Celebrated Studebaker Wagon,



Manufactured by STUDEBAKER BROS. MANUFACTURING CO., South Bend, Indiana. WAGON DEALERS, there are nine reasons why you should buy the above Wagon:

FIRST.—They are made of the best selected INDIANA TIMBER, thoroughly seasoned under cover.

SECOND.—They are made by experienced mechanics.

THIRD.—The lightest running and most durable Wagon in the market.

FOURTH.—Their Thimble Skeins never break, while all others do.

FIFTH.—Most uniform and best proportioned Wagon in the market; any part of one will fit another, while other makes will not

SIXTH.—The only Wagon in which the SLOPE SHOULDER SPOKE is used; hence they have the best Wheel, which is actually the foundation of the Wagon, and should be carefully examined by persons buying.

SEVENTH.—They are sold only by responsible parties, and every Wagon is warranted to give entire satisfaction,

EIGHTH.—Because Teamsters will tell you they are the best Wagons, for all purposes, on the road.

NINTH.—Last, but not least. Studebaker Brothers are practical men, attend to their business personally, and do not entrust it entirely to foremen, as is generally the case in large factories; hence the superiority of their work over all others. Sold by

COPELAND & DEFREES,
K street, bet. Seventh and Eighth,
SACRAMENTO, CAL.

☞ PIONEER AGENTS FOR THE PACIFIC COAST. 15v20-3m

AMES & WOOLVERTON,

General Agents for the Pacific Coast

FOR THE CELEBRATED

STUDEBAKER

Farm and Team Wagons,

Manufactured at South Bend, Indiana.

OFFICE AND GENERAL DEPOT

— WITH —

THE KIMBALL MANUFACTURING CO.,

SAN FRANCISCO, CAL.

☞ Orders and correspondence solicited. 15v20-3m

E. A. ARCHIBALD,

MANUFACTURER OF

Cast Iron Hubbed Wheels,

BY HIS PATENT PRESS PROCESS.

— ALSO —

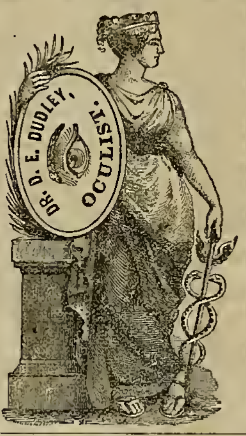
Axles and Team Wagons of every Description.

METHUEN, MASS.

Particular attention given to Wheels for Portable and Fire Engines.

All my Wheels have my name cast on the hub, and are made by my Patent Press Process. By this new method the wheel is so compressed in every part that shrinkage or yielding of the part with all its attendant evils is wholly obviated, even in the driest climate. Any one understanding my process will be convinced of this. ☞ Send for illustrated circular.

20v20 E. A. ARCHIBALD.


DR. D. E. DUDLEY, OCULIST.

DR. DUDLEY, having had long professional experience in South America, combined with a recent tour of three years devoted to visiting the most celebrated Oculists of Europe, and other countries, is prepared and very especially provided with every new and improved means for minutely diagnosticating and treating all diseases, irregularities or deformities of the Eyes and their appendages, according to the most scientific and approved modern opthalmic practice. Rooms: No. 12 Montgomery street, opp Lick House. Hours from 10 to 3. ☞ Se habla Español. On parle Français.

Hold Your Horses.

The subscriber has the pleasure of announcing to the public a new, novel, cheap, and useful invention, which every person owning a horse needs for every-day use. It is called a "HORSE-HITCHER." You need no longer have your shade trees and fences ruined by hitching to them, nor the street of the city blockaded by posts. With this arrangement any horse may be left in the street or field with perfect safety. TRY, and you will hold fast, because you will find him GOOD. Agents wanted everywhere. This invention is one which pays industrious Agents large profits. It is a new thing, never having been offered to the public before. No charge is made for boxing, and no order for less than one dozen is sent, at $10, prepaid or C. O. D., unless a sample, which will be sent on receipt of the retail price, $1.25. One agent sold in three weeks over 500. State, County and Town Rights for sale. Apply to ANTHONY JACKSON, LA CROSSE, WIS. P. O. Box 409. 25v20-1m

Wood Cutting & Splitting Machine.

This Machine is made of cast iron, constructed without saw, *only with* "STEEL KNIVES," and by removing half a dozen bolts, is easily taken apart or put together in a few minutes; will cut and split more than 40 cords of fire-wood per day, hard or soft wood, as using for stoves and railroad, and requiring but two men to tend it. Can be driven by steam or horse power. The patentee offers the largest inducements to foundrymen and dealers in patents, for the purchase of State and County Rights, and for the manufacture and sale of these Machines in all parts of the country. Secure the right soon. Apply to ANTHONY JACKSON, LA CROSSE, WIS, P. O. Box 409. 25v20-1m

New York Metal Market.

[CORRECTED WEEKLY FROM THE AMERICAN ARTISAN.]

NEW YORK CITY, Saturday, June 11, 1870.

IRON.

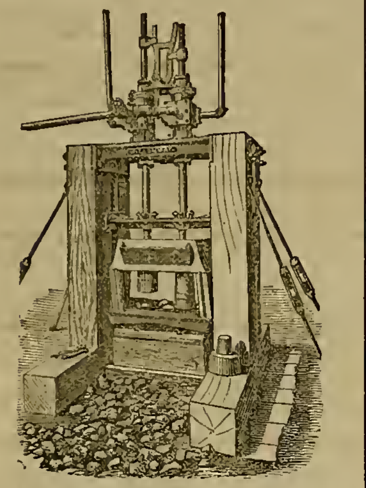
Pig, Scotch, No 1 (cash), per ton..	$37 50	@	$42 00
Pig, American, No. 1 (cash)........	42 00	@	— —
Pig, American, No 2................	38 00	@	39 00
Swedish, ordinary sizes............	140 00	@	155 00
Common.............................	87 50	@	92 50
Refined............................	95 00	@	— —
Rods...............................	100 00	@	155 00
Horse-shoe.........................	115 00	@	— —
Hoop...............................	125 00	@	180 00
Scroll.............................	110 00	@	145 00
Nail-rods, per lb..................	— 8½	@	— 9½
Spring.............................	— 0½	@	— —
Tire...............................	— 9½	@	— —

STEEL.

Bars, best cast, warranted, per lb...	— 23	@	— 23½
Sheet, best cast.....................	— 23	@	— —
Sheet, second quality................	— 20	@	— —
Sheet, third quality.................	— 18	@	— —
Saw-plates, circular.................	— 27	@	— —
Double-shear, warranted..............	— 23	@	— —
Single-shear.........................	— 19	@	— —
Moutague & Co. (cast bars)...........	— 18	@	— —
Machinery, round.....................	— 16	@	— —
German, best.........................	— 16	@	— —
German, goat.........................	— 13½	@	— —
German, eagle........................	— 12	@	— —
Blister, warranted...................	— 16	@	— —
Blister, common......................	— 15	@	— —
Jessop & Sons', common...............	— 17	@	— —
Double-refined.......................	— 26½	@	— —
Stone ax shapes......................	— 26½	@	— —

Machinery.

THE WILSON
Patent Steam Stamp Mill.



This extraordinary Mill, now so justly popular in the East, is now offered to the miners of the Pacific Coast. Having been in operation now for about eighteen months, the Company feel confident that the

WILSON STEAM STAMP MILL,

For Durability, Efficiency,

AND ECONOMY OF WORKING,

HAS NO EQUAL.

The Wilson Steam Stamp Mill is the only Steam Mill that has had the severe ordeal of practical working, and proved itself eminently successful. It is now in operation in several of the Eastern States and Territories, and gaining an envious popularity. The whole machine is so simple as to be readily understood by the most ordinary minds. In fact, its simplicity is its durability. The expense of crushing rock or cement with this Mill is less than one-half the expense of any other Stamp Mill, and less than one-half the cost. For further particulars inquire of

A. BICKNELE, Agent,
Novada City, California,

Or of THE WILSON STEAM STAMP MILL CO., 326 Walnut street, Philadelphia, Pa.

NOTICE.—All persons are hereby warned not to manufacture or use any Steam Stamp Mills that are an infringement on the Wilson Patents, as they will be prosecuted to the utmost rigor of the law.

F. R. WILSON,
20v19-tf Supt. W. P. S. S. M. Co., Philadelphia.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlors made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setlers for themselves, at the office, **229** Fremont street,
1vi San Francisco.

TO MILLMEN.

FOR SALE CHEAP.—A 10-stamp mill complete; engine about 35 horse-power; cylinder 12-inch bore and 30 inch stroke; boiler 16 feet long and 48 inch diameter; weight of stamps complete, 650 pounds. The whole is as good as new; has only been running four months. Will sell either engine or battery separate, and deliver it on the railroad at Auburn if required. For particulars apply to W NAGEL, 702 Bush street, San Francisco, or to MOUNTAIN CO., Forest Hill, Placer county. 16v20-3m

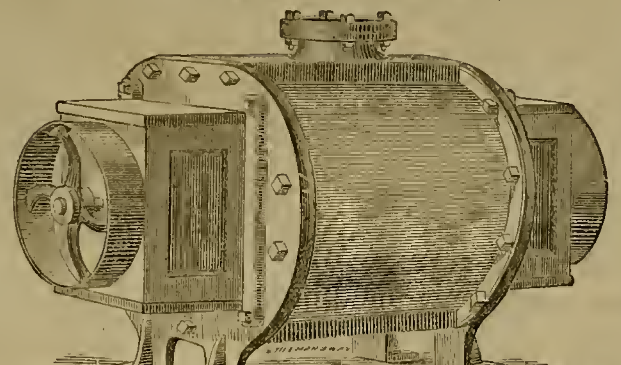
---

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED BY KEEP & BARGION,

At the Globe Iron Works, Stockton, California.

Awarded the First Premium at the Paris Exposition.



Patented Nov. 1st, 1864; July 24 1866; and Oct. 9, 1866.

ADAPTED

FOR

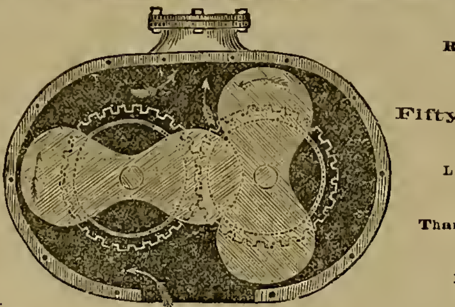
Smelting,

Foundry,

Mining

and

Steamships.



REQUIRES

Fifty Per Cent.

LESS POWER.

Than any Blower

Now in use.

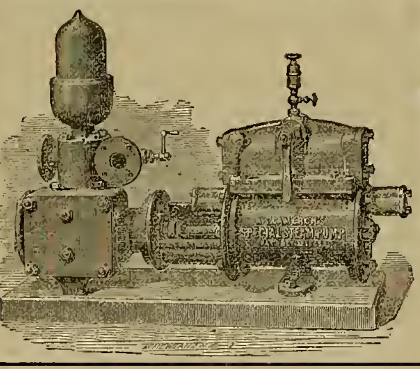
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver Mine; Gridley's Foundry, Gold Hill, Nevada; Ætna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers, High and Low Pressure Steam Engines, Steamboats and Propellers, made at short notice.

For circulars and further information, address

KEEP & BARGION,
4v16-3m **Globe Iron Works, Stockton, Cal.**



CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

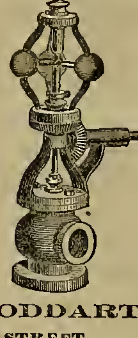
INJECTORS.

BARTOL'S

STEAM TRAP.

SURFACE

CONDENSERS.



DAVID STODDART,

114 BEALE STREET.

SILVER-PLATED AMALGAMATED PLATES

SAN FRANCISCO

Gold and Silver Plating Works.

QUARTZ MILL MEN,

Miners, Hotel-keepers and Others,

ATTENTION!

The SAN FRANCISCO PLATING WORKS are prepared to furnish and silver-plate Copper Amalgamating Plates of all sizes, and in any quantities, at the very lowest rates. FULL WEIGHT OF SILVER deposited, and satisfaction guaranteed in every respect. Particular attention given to plating goods for BUILDERS, PLUMBERS and GUNSMITHS. OLD GOODS of all kinds re-plated for hotels, restaurants, etc.

☞ The finest quality of Sheet Copper expressly for mining purposes furnished and cut to any size at the lowest rates. full assortment of Plated Goods and Cutlery for sale at low rates.

E. G. DENNISTON, Proprietor.

HAVILAND, HOOPER & CO., Agents, Crockery and Glassware Dealers, 335 Pine street, near Montgomery San Francisco.

☞ All work done at the lowest prices. 1v20-3m

Quartz Mill for Sale,

Within four miles of a station on the Central Pacific Railroad. A QUARTZ MILL, NEARLY NEW, consisting of

A superior 40-horse power Engine (Adams' make), with Boiler,
Heavy 5-stamp Battery,
Chili Mill,
Two 5-feet Wheeler & Randall Pans,
Two Settlers,
And one Hendy Concentrator,

Together with a large amount of Shafting, Pulleys, Pumps, etc., will be sold at HALF THE ACTUAL VALUE, if applied for soon. Inquire at this office.
24v20-1m

FOR SALE.

A Ten-Stamp Quartz Mill,

NEW AND COMPLETE.

Situated in YANKEE BLADE DISTRICT, Reese River, State of Novada.

Engine, 12x24;
Boiler, 45 inches by 16 feet;
Ten Stamps of 680 pounds each;
Three Wheeler Pans;
Two Separators, etc.

The above Mill Fixtures will be sold cheap to a cash customer. Inquire of

R. T. VAN NORDEN,
10v20 509 Clay street, San Francisco.

MARTIN'S
Patent Hydraulic Engines,

Compound Hydraulic Engines,

STEAM ENGINES,

FORCE PUMPS AND AIR PUMPS.

No. 13 Fremont Street, San Francisco.

16v20-3m H. B. MARTIN & CO.

CRANDALL'S PATENT SPRING BED.

COOLEY & GREEN, Proprietors.

Manufactory, corner Front and M streets, SACRAMENTO. These Spring Beds, wherever known, are universally acknowledged to be superior to any other in use. They are light, durable and elastic, and present no harborage for bugs or any other kind of vermin, thus being free from the objections so often urged against the ordinary spring beds. Orders receivd at our manufactory, or at our agencies, as follows.

S. B. SNEDAKER, 413 Pine street, S. F.
W. H. SARLES, San Jose.
MR. NICHOLS, Stockton.
IRWIN & GARNETT, Oakland.
MR. MURPHY, Vallejo.
22v20 E. A. TOMPKINS, Grass Valley.

E. T. STEEN.
Machinery Broker.

Engines and Boilers for Sale.

— AGENT —

Haskell's Water-lined Smelting Cupolas,

Chemical Ore Reduction Company,

"ROCKET" QUARTZ CRUSHER,

And Anti-Incrustation Powder, for Steam Boilers.

No. 433 CALIFORNIA STREET,

(14 MERCHANTS' EXCHANGE). 23v20

The California Powder Works

No. 314 CALIFORNIA STREET.

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

BULL'S HEAD STOCK MARKET,

JUNCTION OF

Hayes, Ninth and Market Streets.

SAN FRANCISCO.

H. B. PURDY & CO.,

— DEALERS IN —

CATTLE AND HORSES.

Work Oxen always on hand.

WAGONS AND HARNESS BOUGHT AND SOLD ON COMMISSION.

☞ Good Barns, Sheds, Corrals, and all other necessary accommodations. 21v60-3m

---

CHOICE POULTRY.

Light Brahma and White Leghorns.

We are now booking orders for a few trios of the above named fowls, bred from choice imported stock. Will commence delivering in July. All orders filled in rotation, as received.

☞ A few clutches of eggs for setting from the above named breeds.

NICHOLS & WILLARD,

Importers and Breeders of Choice Poultry, Fruit Vale Avenue, Brooklyn, Alameda county, California.
20v20-3m

GIANT CEMENT.
GIANT CEMENT.

A most extraordinary and universally needed article for mending Furniture, Crockery, Glassware, Marble, Meerschaum Pipes, Ornaments, etc.; also splicing Leather Belting and patching Boots and Shoes. This Cement possesses extraordinary merit, and is in every way a first-class article. Every can is its own testimonial. Also, MINERS' RUBBER CEMENT, for mending Rubber Boots, Shoes, Belting, Coats, and Hose without stitching! Easily applied, never failing, and perfectly waterproof. Both Cements are put up IN TIN CANS ONLY, with full directions. Take no other. GIANT CEMENT and MINERS' RUBBER CEMENT are kept by Druggists and Dealers throughout the country. Country Dealers can be supplied by ordering from any house here or in Sacramento with whom they deal, or by sending direct to us. Send for Agents' Circulars and Price List. to Giant Cement Manufacturing Co., 419 Washington street, San Francisco

MINERS' RUBBER CEMENT.
MINERS' RUBBER CEMENT.

INDEX
— TO —
VOLUME TWENTY
— OF THE —
Scientific Press.
From January 1st to July 1st, 1870.

A PAGE.
Academy of Sciences ... 276
Agricultural Department at Washington......... 118
Agricultural Steam Engines, Improvement in. 51
Agriculture for California 305
Agriculture in the Mountains........220, 240, 256 343
Alaska........ 92
*Alaska Dwellings........ 26
Alaska, Geology........ 179
Alumina Soap........ 194
Aluminum Alloys........ 3
Amalgamating Plates,—Silver Plated .65, 169, 182 217
Amalgamator, Stevenson. 209
Amorosine........ 147
America, Earliest Discoveries in........ 35
Ammonia Amalgam...... 211
Ammonium and Hydrogenium........ 371
Aniline Colors,........ 50
Animal Fat........ 255
*Animal Trap, Lord's..... 333
Ant, The White........ 315
Ants at Play........ 361
Arizona Explorations.... 35
Asphaltum Pipes......257 292
*Assaying Machine, Phillips'........ 376
Atmosphere Holds Organic Matter........ 163
Atoms, Size of........ 323
Auk, The Great........ 35
Austin Letter........ 338
Australian Gold Exports. 250
Australian Gum Tree...... 289
*Awning, Miller & McClellan's........ 308
B
*Balbach Buggy........ 393
Band Saws, Advantages. 195
*Band Saw, Fay's........ 249
Band Saws, Richards, T, & Co's........ 337
Band Saws for Cutting Metal........ 298
*Barber's Device, Steaming Rovings........ 379
Barrel and Keg Factory, The Pacific........ 25
Battery, A New........ 99
Battle Mt. District..... 394
Beer House in Africa..... 124
Beet Sugar Factory, The Alvarado........ 425
Beet Sugar in Cal....23, 33 416
Bell Casting........ 163
Belting, Manufacture of. 221
Belting, Paper........ 3
Belting........ 355
Belts, Increasing the Adhesion of........ 427
Blast Engines........ 35
Blast Furnaces, Best Capacity........ 19
Blasting by Electricity... 400
*Blossom Rock........272 281
Boiler, Allibon........ 67
Boiler Explosions.....250 323
Boiler Feeder, Another.. 427
Boiler Improvements..... 179
Boiler Incrustat'ns.119, 195 323
Boiler Patching........ 67
*Boiler-Tube Cleaner..... 65
Blood Corpuscles, Nature of........ 427
Bones........398 415
Bones, How to Treat Ground........ 431
*Boring Large Shafts..257 272
Boston, Mean Old........ 436
Breeding Animals, Selecting........ 118
*Bridal Veil Falls........ 371
*Building Construction, McPherson's........ 33
Bull Run District......177 370
Butter, Churning........ 414
Butter from Whey........ 134
C
Cabinet, Contributions to 432
California, Products...... 54
California Pitcher Plant.. 327
Candy Adulterations..... 109
Cannon, Breaking up Old 339
Cannon, Stuart's Breech-loading........ 147
Capital, Influx of English 1
Car Brake, Jennings..... 41
Car Tires, Steel........ 298
Cars Run by Compressed Air........ 42
Carbolic Acid........3 67
Carbon, Determination of 355
Carbon, Whence It Comes 147
Castings, Non-porous..... 3
Cast Iron, Strength of..... 395
Castor Oil Bean........150 166
Cattle from Texas........ 38
Cement, Magnesian........ 323
*Central Pacific Railroad 304
*Central Reflector Lamp. 265
Century Plants in Cal.... 307
Cerro Gordo Letter....323 410
*Chair Spring........ 12
Chicago Tunnel........ 204
Chicken Raising........118 199
Chickory—its Cultivation and Use........ 41
Children, Why do they Die........ 436
Chinese Small Feet....... 60
Chromium, Metallic 67
*Circulation in Nature... 332
Climate of California.... 178
*Clod Crusher........ 2[illegible]
Clothing, Proper, for the Coast........ 98
Coal Exports from England........ 60
Coal Fields of Southern Russia........ 25
Coal Genesis........ 83
Coal in China........42 226
Coal in Texas........ 2[illegible]
Coal Mines on Fire... 354
Coal Tar Notes........ 3
Coal Tar Preservatives... 1[illegible]
Coffee Tree........ 215
Colorado Mines, Paul's Letter..18, 34, 50, 66, 114 130 146, 178, 210, 234, 2[illegible]0
Comets, Theory of........ 3
Compounding Single Cylinder Beam Engines.... 32
Cope District........ 426
Copper in Nevada City... 101
Copper Process, Hunt's... 147 184, 218, 266
*Cork Extractor, Morton's 221
Corks, How Made........ 76
Corn Cultivation........ 287
Corona, Polarization of.. 51
*Corrugated Shingles, Metallic........ 353
Cotton Culture........ 22
Cows, Carding........ 134
*Crandall's Spring Bed,.. 409
Crane, A Sixty-ton........ 163
Crammer's Volley Gun... 41
Crops, Adaptation of..... 254
Crops in Alameda and Santa Clara........ 326
Crying, Advantages of.... 430
Cylindrical Cars........ 371
D
Dairy Farming, Monterey County........ 22

---

*Illustrated.

PAGE.
Darwin's Theory........3 411
Deep Sea Soundings.....2 19
*Denn's Gridiron & Cake Baker........ 417
Detroit River Tunnel..... 273
Diamond Cutting in Boston........ 371
*Diamond Drill, Leschot's 17 296, 303
Diamonds in Cal........162 194
Diamonds, Origin of...... 267
*Dickinson Adj Tool for Carbon Points........ 249
Dimorphism in Worms.... 283
Dinitronaphthylic Acid.. 211
Distilling Process, Johnston's........113 417
Ditching Machine, Robertson's........ 200
Drainage........ 215
Drill, The Burleigh....... 433
*Drill, Reamer and Tap, Combined........ 152
Dunlin........49 217
Dyeing Material, New.... 179
E
Earth, Formation of...... 267
Earthquake of Dec, 26... 8
Earthquakes in the Mississippi Valley........ 297
*East River Bridge, N. Y. 380
Eclipse O. M. Co........ 233
Educating Workmen in France........ 218
Egg Production of U. S... 39
El Dorado Co. Sketches.. 18 194, 322
Electric Spark Figures... 391
Electric Spark, Its Parts.. 35
Electro-heat'g Apparatus 179
Electro-Silver Copper Plates for Quartz Mills. 65 169, 182
Electrifying an Island... 411
Elevator, Steam Water.. 427
Elko and its Springs...... 426
Engine, A New Traction.. 67
*Engine, The Bider..... 433
*Enright's Cal. Steam Thresher........ 369
Expansion Gear for Winding Engines........ 283
Exports of Amer. Machine Products........ 3
F
*Farm Wagon, Studebaker........ 233
Farming, Diversified..... 254
Farming, Greeley on..102 119 134, 151, 167, 182, 255, 271 286 302, 327, 343, 359, 375, 399 415 431
Farming in Mining Dists. 374
Farming in the Foot-hills. 358
Fauna, The Abyssal...... 427
Fecundity of Fishes..... 359
*Fence, Davis' Improved. 220
Fence Law........104 265
Fermentation, What is It? 163
Fertilizers........ 193
Fire........ 44
*Fish, Artificial Propagation........307 328
Fish, Law for Preservation of........ 322
*Flooring Clamp, Nevins'. 217
Flour, Curiosities of...... 305
Flour Interest of S. F.... 105
*Flowers and Their Organs........358 399
Fluo-Titanic Process..... 267
Flux for Iron and Steel Welding........ 298
Flying Machine Exhibition, London, 1867 108
*Forenoon and Afternoon 162
Fossils of California...... 221
Fowls, Blooded........ 254
*Fowls, Crisp Feathered.. 302
Fruit Farm, A Model ..359 375
Fruit Growing in Alameda........87, 102 135
Fruit, Rocky Mountain .. 193
Fruits of America, Wild.. 399
Fruits in Cal., Tropical... 301
Fruit Trees, Cool Soil for. 238
*Furnaces, Roasting in Sonora........ 89
G
Gas, Air in........ 2
Gas Affected by Temperature........ 283
Gases, Diffusion of........ 293
Geese, Chinese........ 436
Geological Survey, The State........65, 182, 197 272
Geology of the Basin of the Great Lakes........ 411
Geology of Rocky Mts... 251
Girdled Trees........ 270
*Gibb's Mortising Mach's. 378
*Gladiolus, The........ 374
Glass Works, The Pacific. 57
Glaucopyrite........ 359
Glue........ 131
Goat, Angora........ 151
Goats, Cashmere........54 70
Gold Nuggets, California. 178
Gold Produce of U. S..... 281
*Golden City, Loss of..... 155
Grafting, New Way....193 327
*Grafting the Vine.....199 238
*Grain Lifters, Bonney's. 289
*Grand Hotel, S. F........ 345
Grape Mildew........ 327
Grapes near the Coast.... 287
Grapes on High Sierras... 99
Grape Vines, Mammoth.. 6
Grasshopper Pest........ 416
Gravel in a Strange Place 357
Grindstones, Nova Scotia 13
Guinea, Origin of........ 364
Gypsum as a Fertilizer... 238
H
Hamar's Anti-Carbonizer 267
Hara-Kiri........ 26
*Harrow and Seeder, Taveau's........ 326
Havilah Mines........ 266
Hercules Powder........ 273
Hog Cholera........ 375
*Hoist, Safety........ 37
Honey, Facts About...... 151
Hops, Preserving........ 342
Horse Breeding in Alameda........ 183
*Horse Diseases....193, 254 286
*Horse, Points of........167 182
Houses Ready Made...... 281
Humboldt Co. Mines..297 322
Hydrate of Chloral 355
Hydraulic Press, New.... 298
Hydraulic Punching and Riveting........ 3
Hydrogenium-Amalgam.. 298
Hydrogen Manufacture.. 395
I
Ice, Experiments on..... 276
Ice Making......92, 98, 168 182
*Icebergs........ 12
Idaho, Letter from...... 210
Iron, Cast Malleable...... 323
Iron for Specific Purposes 19
Iron in Maine, New Bed.. 288
Iron in Peru, New Bed... 283
Iron, Malleable and Wro't 115
Iron, Rusting of........ 400
Iron Sands of Canada.... 355
Irrigation........ 239
J
Japanese Chestnut Trees. 256
Jargonium........ 323

K PAGE.
*Kernel, The Wheat...... 330
Krupp's Iron Works...... 153
L
Laborers Wanted........ 433
Lake County Items....... 401
Lake Leman Water Analysis........ 211
Land for All........ 88
Lard Tiles........ 34
*Lightning's Autograph.. 60
Livingston, Dr........ 26
Locomotive, A Road...... 3
Loud-Cole Patent Case... 104 144, 200, 319
M
Magnetization, Mechanical Effects........ 395
Magnets and Plants....... 339
*Mailbags, Device for Delivering........ 1
Man, Primitive........ 146
Manometer for Furnace Gases........ 298
Manures........ 239
Marble in California..... 234
Market Rates, S. F. See 7th page weekly.
Martin Engine........ 272
Martin Process........ 411
Matches, How Made...... 92
Measuring a Millionth of an Inch........ 251
Meat Imports........ 276
Meat Preserving........ 172
Mechanics' Institute...... 393
Metal Market, N. Y. See 15th page weekly.
Metal Market, S. F. See 14th page weekly.
Micro-spectroscope and its Use........ 457
Milkweed, The Cal......22 25
Mill, The Little Giant..... 145
*Mill, The Wilson Steam Stamp........ 133
Millstones, Dressing with Sort........ 323
Mineral Lands, Sale of.82 89
Mines, Mexican........ 429
Mining and Agriculture.. 432
Mining as an Investment 219
Mining Incorporat'n Law 105
Mining Shareholders' Directory. See 5th page weekly.
Mining Stock Market. See 5th page weekly.
Mining Summary. See 4th and 5th pages w'kly
Mint, The S. F........297 420
Missouri Mines........ 53
Monterey........ 400
Mosasauroids........ 19
Muscular Oxidation...... 283
*Musical Festival, The Grand........129 136
N
Nickel-Plating........ 179
Nile........ 115
Nitrate of Silver........ 355
Nitric Acid, Anhydrous... 131
Nitrogen Protoxide....... 3
Nova Scotia Gold........ 373
Nova Scotia Limestones.. 371
Nut Trees........6 342
O
Oakland and Vicinity 71
Obsidian, Artificial....... 427
*Odd Fellows' Lodges in California........ 81
Ohio, Mounds of........ 323
Oil Meal for Calves....... 398
Oil Region of Penn....... 210
Opera, History of........ 76
Opium and Poppy Culture........102, 119, 183 214
Opthalmic Disease........ 328
*Ore Deposits........ 242
Ore Deposits, Theory of.. 172
*Ores, Dressing of, Freiberg Process....2, 66, 139 136
Ores, Sale of in S. F...121 152
Oregon Basalts........ 378
Oxalate of Silver........ 355
Oxygen Manufacture..... 51
Ozone........ 115
Paper 370
P
Pajaro Valley........ 430
Pajaro Valley, Fruit in... 431
*Paper Cutter, Brombacher's........ 177
Paper, Making of Wood... 339
Paper Parchment........ 283
Paper, Siamese........ 98
Patent Commiss'ner's Report, 1870... 153, 169, 204 218 244, 260, 265, 292
Patio Process........ 377
Peas........ 38
Pea Weevil........ 7
Peach Orchards in Cal... 6
Peach Trees, Iron for..... 270
Pearl Fishery of the Pacific Coast........ 341
Peoples G. & S. M. Co, Sierra Co........ 117
Peruvian Monuments.... 251
Pest, New Grape-vine.... 430
Petroleum, Arrangement for Burning........ 411
Petroleum in the Caucasus 210
Photographic Notes..3, 19 83 131, 235, 283, 298, 323
*Pipe Joint, Ward's....... 72
*Pitch Board, Drew's.... 49
Plains, Increase of Moisture on the........ 131
*Planing Machine, Guide for........ 433
Planting Trees on Roads. 214
Plants for Southern Cal.. 135
Platinizing Mirrors...... 211
Plow, Shoeing a........ 270
Plow, Standish Steam..50 270
Plowing, Deep or Shallow 23 102, 214, 301, 415
Pneumatic Burring Machine........ 211
*Pneumatic Gas Machine 321
*Pneumatic Tunnel, N. Y. 188
Poisonous Plants of Cal.. 239
Polecat, Utilizing the.... 436
Population, Density of in Europe........ 108
Posts........ 6
Potato, A Hybrid........ 214
Potatoes, Grafting........ 27
Poultry Business, Value of 302
Preservation of Apples... 103
Pressure in Chemistry.... 356
Propeller, The Loud-Finlayson........ 81
Propeller, The Averill.. 145
Prospecting in Siberia.... 354
*Pulley Block........ 219
*Pump, The Adams Single Acting........ 145
*Pump, The Hooker Double-Acting........ 145
*Pump, The Knowles..... 28
Pumping Engines........ 371
Pumping Money........ 71
R
Railroad Across N. Y. Harbor........ 201
Railroad Progress in Cal,. 21
*Railroad, St. Pierre and Goudal System........ 51
Railroads, Narrow Gauge 431
*Railroads of S. F........ 201
Railway, Cheseborough's Elevated........ 339
Railways Elevated...354 369
*Raising Buildings........ 241
Ramie........ 9
Ransome Stone, The...... 147
*Reaper, The Buckeye... 342
*Regulator for Gas Burners........ 265
Road Steamer........ 195
Rocky Mountain Heights. 17
Rolling Mill, New........ 411
S
Saline Solutions Heated by Steam........35 98
Salt, Formation of........ 99
*San Diego Gold Mines... 168 183, 200, 216
San Francisco Market Rates. See 7th page weekly.

PAGE.
Santa Clara Jottings..370 410
Santa Cruz Farmers' Club 414
*Screen Attachment for Windows........ 337
*Scroll Saw, Stebins'...17 233
Seeds, Manuring........ 22
*Seeds, Marvels of........ 414
Separation of Gold and Silver by Chlorine Gas. 273
Sewers........ 370
Sewing Machine, Spring Motors........ 35
*Shaw & Justice Hammer 409
Sheep for the Sierras, Herdwick........23 55
Sheep, Improved Breeds. 398
Sheep, Pyrenean........ 70
*Shoe for Thresher's, Laufenburg & Hoag's..... 113
Shoshone Falls........ 292
Siberia Gold Mines....354 394
Silk Business in Cal....369 414
Silk Manufacture, Neumann's........ 72
Silkworms, Raising....... 214
Silver in Limestone....... 288
*Smelting at White Pine.. 401
*Smith's Pat Egg Packing 306
Soaps, Metallic........ 426
Sour Lake, Texas........ 195
Southern Pacific Railroad Subsidy........410 417
*Spoked Wheel Manufacture........ 361
Spontaneous Combustion. 204
Sporting in California.... 156
Steam Donkey Pump..... 298
Steam Engine, Ward's.... 19
Steam Gauge........ 179
Steam Hammer, A Large. 51
Steam from Gas Fuel..... 351
Steam Plow in Louisiana. 377
Steel, Chromic........ 3
Steel Crucible........ 163
Steel Damasked, Imitat'n 51
Steel for Locomotives.... 163
Steel, Hardening & Tempering........131 163
Steel-Iron Process, Wheeler........ 195
Steel Statistics, Pittsburg. 42
Steel, The Fields 35 83
*Steven's Vice and Tool-Holder........ 400
Stock Market, S. F. See 5th page weekly.
Stock Quotations, Latest. See 5th page weekly.
Stock Raising in Nevada 430
Stockton and Copperopolis Railroad........ 344
Stockton Ship Canal...... 360
*Stow Foundation Pavement........ 161
*Strawberry, The Colfax. 54
Suez Canal........42 162
Sugar from Corn........ 395
Sulphur, Extraction from Waste........ 83
Sulphuric Acid, Concentrating........ 19
Sulphuric Acid, Effect of Sunlight on........ 83
Sunflower, The........ 313
Superphosphates........ 431
Surveying in China....... 26
Sutro Tunnel........289 344
Swamp Lands near S. F.. 281
T
Table Mount. Remains.... 391
Tehuktehi, The........ 44
Tea Culture in California 73 214, 283
Telegraphing, English and American........ 114
Telegraphing, Rapid 251
Telescope, Newall's...... 395
Temperature of the Deep Sea........ 339
Tem Piute Ores........ 241
Thermo-Electric Pile, New 147
Thomas, Maj.-Gen. G. H., 216
Threshing Machines...... 198
Tide Power, Utilizing..... 427
Tin at San Bernardino..24 409
Tin, To Free from Arsenic and Antimony........ 115
Tobacco Culture in Mass. 214
Tobacco Manufacture in France........ 76
Torpedo, Harvey........ 251
Towing Boats........ 211
*Tramway........ 416
Tramway, Single Rail..... 427
Trees and Temperature,.. 326
Trees, Growth Abroad of our Big........ 7
Trees, How to Feed....... 23
Tree Planting........ 431
*Trees, Transplanting..55 183
Tubercle........ 163
Tule Lands........ 134
Tungsten Blue........ 323
Turbines, Powerful..3, 51 195
Turbines, Small........ 147
U
Union Hill Quartz Mine, Sale of........ 5
University, California.... 432
Utah Central Railroad... 40
Utilizing Waste........ 223
V
Valve, A New........ 251
Vanadium........ 355
Vegetable Parasites...... 267
Victoria Gold Fields...120 130 234, 265, 289, 410
Victoria Mining Museum. 308
Victoria Stone........ 305
Visitors, Horticultural..... 432
Volcano Eruption in Iceland........ 238
W
*Wagon, Jackson Patent. 193
Water Meters........ 244
Water Pipes, Wooden..... 324
Water Supply for S. F..152 193
Water, Useful Properties. 12
Weevils, To Destroy...... 22
Wheat Crops........ 285
Wheat Experim'ts, Butte County........ 166
Wheat for Seed, Preparing........ 86
Wheat Production, Decline in........ 38
Wheat Smutted, Utilizing 39
Wheat, Smutty........ 114
White Pine, Letters from. 250 265, 394, 410
Whitworth Gun Metal.... 339
Window Catch, Sublett's. 153
Winds, Something About. 26
*Woodworth Planer...... 273
Wool-Growing in Cal..... 39
*World Reaper and Mower 377
Y
*Yosemite, Route to....... 379
Z
Zirconium, Preparing.... 323
Zodiacal Light........ 211

List of Patents

Issued to Inventors in the Pacific States and Territories.

Amalgamator, C. C. Stevenson........ 238
Amalgamator and Concentrator, J. Scott...... 376
Anchor, A. H. Law........ 361
Animal Trap, A. Brown.. 9
Animal Trap, J. H. Lord. 303
Apparatus for Blasting Logs, M. Cnoko........ 328
Artificial Flower Manufacture, C. E. Howard. 169
Baling Press, J Marsters 417
Ball and Socket Joint, R. R. & J. Craig........ 24
Bed, Extension, F. Menzer........ 256
Bedstead, F. Menzer..... 104
Blind Stile Boring Machine, A. M. Winn, J. Kindleberger & W. A. Arnold........ 24
Boat-Detaching Apparatus, J. Ross........ 153
PAGE.
Boiler Furnace, J. A. T. Overend........ 328
Bolster and Axle-Bed Plates, J. Henry..... 216
Brake for Carriages, B. F. Lect........ 24
Breech Load'g Ordnance, A. F. Potter........ 361
Buildings, J. Touaillon... 153
Camera Stand, W. W. Dames........ 288
Cane-seat Chair, C. M. Robr........ 433
Carbureting Air, B. Pilkerton........ 24
Carriage Axle, Geo. A. Lloyd........ 240
Carriage Wheel Hub, A. F. Cooper........ 328
Caster for Sewing Machines, J. M. Vessey.... 240
Carriage & Railroad Car Wheels, A. F. Cooper... 401
Coal Preparation for Smelting, W. J. Lind... 41
Coal, Using Colorado and Similar for Smelting, W. J Lind........ 41
Composition for Pipes, W. P. Kirkland........ 101
Coupling for Cars, A. S. Hart........ 9
Cultivator, A. B. C. Nusbaum........ 153
Curtain Fixture, J. & W. Turnbull,........ 168
Cut-off, Variable, M. C. Taylor........ 9
Dental Apparatus, J. A. Loomis and C. F. Moll. 288
Desulphurizing Ores, E. A. Burns........ 182
Distillation in Vacuo, F. Gutzkow........ 401
Dove-tailing Machine, E. Heath........ 433
Dredging Machine, W. D. Robertson........ 376
Dress Protector, F. Wittram........ 216
Drill, A. Blatchley........ 169
Driven Well, I. Trump... 104
Dynamometer, J. W. Sutton........ 9
Egg-Beater, F. Krandelt 153
Engine, Rotary Steam, G. H. Pond........ 41
Excavating Machine, A. W. Hansen........ 401
Extracting Copper from its Ores, N. Haskell..... 216
Fence, H. H. Murgeson.. 153
Foundation for Buildings, A. F. Cooper........ 169
Frame for Street Lamps, J. Radston........ 361
Furnace and Condenser for Reducing Volatile Ores, R. F. Knox & Jos. Jos. Osborn........ 433
Gas Manufacture, E. P. McCartney........ 361
Gate Latch, J. W. Still... 376
Gold Collecting Apparatus, A. F. W. Partz...... 41
Gold-Saving Apparatus, G. C. Schofield........ 345
Grain and Straw-Carrying Attachment for Separators, B. & B. J. Jackson........ 182
Grip Pulley, A. S. Hallidie........ 153
Hair Medicine, A. J. Fletcher........ 288
Harvester and Thresher, D. Hallowell........ 89
Harvester-Cutter, F. Wittram........ 24
Hinge, Spring, James Sidwell........ 433
Horse-shoe, G. Copeland. 328
Hydraulic Nozzle, A. Harris........ 24
Knob for Safe Doors, J. G. Kittredge........ 288
Lasting Machine, K. Grassau........ 256
Ledger-Index, C. A. Fitch and W. O. St. John...... 216
Lifting Jack, L. P. Oarein 256
Lounge and Bed, A. Hansen........ 41
Lubricating Sleeve, G. A. Lloyd........ 9
Mainspring Barrel Attachment for Watches, O. L. Eliason........ 328
Medical Compound, P. Lee and L. Matthews........ 240
Medicine for Nervous Diseases, J. F. Smith....... 57
Medicinal Beverage, L. F. Lastreto........ 216
Metals, Separating and Refining, C. H. Eysler.. 433
Mortising Machine, J. Cox 89
Needle, J. W. Donaldson and D. Sheets........ 303
Needle and Arm for Sewing Machine, M. P. Carpenter........ 89
Needle for Sewing Machine, H. G. Suplee..... 104
Needle for Sewing Machine, J. L. Boone...... 153
Needle for Sewing Machine, M. P. Carpenter. 401
Nut-Locking Washer, R. Rutter........ 401
Oar, W. J. Hough........ 73
Ore Disintegrating Apparatus, A. B. Paul........ 256
Ore Feeding Machine, C. Stetefeldt........ 169
Ore Separator, T. Bates.. 328
Packing for Stationary Joints, H. T. Lee........ 303
Paddle Wheel, A. Winga d 104
Padlock, G. K. Farrington 153
Pencil Holder, A. J. Hall. 256
Pencil Sharpener, H. Burgess........ 345
Percussion Fuse, W. Gardner........ 401
Photographs, Coloring, R. Winter........ 433
Piston and Piston Packing, O. Collier........ 24
Piston-Rod Packing, H. T. Lee........ 288
Platform Attachment for Grain Separators, J. Whitesido........ 67
Plow, Gang, E. E. Gore.. 24
Plow, Gang, J. & S. Cox.. 121
Plow, Gang, S. Welch..... 104
Plow, Gang, G. R. Duval. 169
Plow, Gang, J. Price..... 216
Plow, Gang, J. W. Sursa. 256
Plow, Gang, P. H. Flansburgh........ 345
Plows, Snow, Thomas C. Churchman........ 433
Pneumatic Gas Machine, D. Boyle........ 417
Preserving and Hardening Stone, etc., E. J. Salisbury........ 345
Printers' Type, T. M. Cash 57
Printing Press, A. H. Bangle........ 417
Propelling Apparatus, E. Averill........ 24
Propelling Wheel, A. C. Loud........ 328
Pruning Knife, H. Alter.. 104
Pruning Shears, E. L. Nichols & F. A. Edler....... 303
Pump, Piston, N Stedman 240
Reflector for Streets, A. K. Grim & A. O. Moore. 256
Rein Holder, Jacob Herkimer........ 433
Roasting Furnace C. Stetefeldt........ 89
Roasting Process, C. Stetefeldt........ 89
Roofing and Flooring, P. N. Mackay........ 153
Rotary Mechanical Movement, A. G Waterhouse 303
Saddle, E. Spedden..... 182
Salve, W. W Oglesby..... 24
Screen Attachment for Windows, G. Reed, W. C Hoagland and J. J. Newson........ 288
Self-Discharging Pulverizing Barrel, A. B. Paul. 345
Self-Tightening Buckle, M Marvin........ 256
Sheet Metal Seaming Machine, J. M. Veasey..... 216
Sheet-Metal Pipe Forming and Threading Machine, M. K Pierce....... 433
Slide Valve for Steam Engine, A. J. Stevens... 200
Sluice Box for Gold Mining, J. H. Whitney...... 200
Smoothing-Iron Handle, T. Van Tassell and R. S. Pollock........ 89
Spark-Arrester, E. Wand 104
Spring Bed, L. Derome... 73
Spring for Vehicles, J. Goller........ 121
Stave Jointing Machine, J. W. Alesworth........ 361
Steam Generator, J. C. Ludwig........ 203
Steam Pump Device, M. Wilcox........ 182
Steam Ram, T. Hill........ 417
Street Car Truck, J. Serry 376
Strike for Locks, W. Welsner........ 73
Sulky Plow, J. H. Cole.... 256
Swivel Shackle, W. Williams........ 104
Table Fork, J. Patterson 104
Tension Wheel for Sewing Machine, J. H. Mooney. 401
Thorough-Brace, J. E. Requa........ 153
Thorough-Brace Spring, J. Goller........ 361
Tire Upsetting Machine, A. S. Hart........ 9
Tongs for Rigging, Geo. Dohn........ 401
Tool for Checking Timber, A. W. Dorr........ 153
Tool for Lacing Belts, J. M. Stamp........ 182
Track-Laying Machine, J. R. Adams........ 200
Tube-Rolling Machine, C. Kewen........ 288
Wagon Brake, M. Howell........ 240
Wagon Standard, J. Henry........ 216
Water Closet Valve, C. T. Forrest........ 240
Water-proof Compound for Boots and Shoes, M H. Bottger........ 288
Water-wheel, H. W. Shipley........ 376
Wheelbarrow, H. Alter... 153
Wheel Carriage Seed-Sower, J. B. Cole....... 401
Wheel for Vehicles, J. D. Ross........ 433
Wind-Wheel, J. A. Vaughn 153
Wind-Wheel, C. Mahler.. 182

Incorporations

Accommodation & Express Stage Line........ 348
Alice Canada Canal Co... 318
Arizona & Sonora M. Co.. 348
Bay Spring Water Co.... 260
Butte County Canal & Gravel M. Co........ 101
California Co-operative Boot & Shoe Co........ 21
California Dairy & Farming Co........ 197
California Immigrant Association........ 404
California Pacific Steamboat Co........ 53
California Paving Co..... 53
California Silk Culture Association........ 53
California Southern Railroad Co........ 69
City Creek Turnpike Road Co........ 197
City Gas Co........ 260
Cocomongo Co........ 276
Colonization & Commercial Co........ 69
Confidence Co........ 404
Cons. Silver Wedge M. Co........ 276
Crescent G. M. Co........ 276
Deep Spring Valley M. Co........ 413
El Dorado Ditch & Water Co........ 237
Electro Magnetic Sewing Machine Co........ 237
Farmers' Wharf & Dock Co........ 21
Father Mathew Total Abstinence & Benevolent Society........ 53
Fifth Baptist Church...... 197
Geary Street & Ocean R. R. Co........ 53
General Lee S. M. Co..... 413
Golden State Iron Works Co-operative........ 237
Haley & O'Neill Tract Homestead Association. 133
Hartwell M. Co........ 21
Home Pile Tunnel Co..... 53
Jennie A. Consolidated M. Co........ 404
Joe Walker M. Co........ 21
Lake Bigler Water Co.. 133
Lloyd Patent Axle & Journal Co........ 285
Mahogany G. & S. M. Co........ 237
Marcela M. Co........ 69
Maricopa Canal Co........ 348
Masonic Hall Association. 413
Mauntauck S. M. Co..... 133
Merchants Exc'nge Bank 285
Mountain City M Co..... 260
National Tin M. Co...... 404
Nevada & Mountain Lake Ice Co........ 53
Nevada Land & M'ng Co. 101
New Idria Quicksilver M. Co........ 285
New Mexico M. Co........ 348
Noonday S. M. Co........ 285
Noyo River & Round Valley Railroad Co........ 404
Occidental Canal Co..... 21
O'Connell S. M. Co........ 348
Omega Water & M. Co.... 101
Pacific Submarine & Earthquake-Proof Co.. 348
Pacific Wire & Wire-Rope Manufacturing Co...... 404
Panuca M. Co........ 413
Pioneer Ship Building Co 101
Piute M. & M. Co........ 53
Protestant Episcopal Ch. Home Association...... 69
Rising Star S. M. Co..... 348
Robela Canal Co........ 348
Sacramento City Railroad Co........ 404
San Diego Bay Shore R. R. Co........ 53
San Diego Banking Co... 404
San Diego River Water Co 21
San Francisco & Northern Coast Railroad Co...... 133
San Francisco Real Estate Association........ 276
Santa Anna Canal Co..... 348
Santa Anna Water Co.... 69
Santa Barbara Gas Co.... 133
Santa Barbara Water Co. 133
Saucelito Water Co..... 237
Schuylkill M. Co........ 197
Sidney Brooks Tunnel & Lode Co........ 276
Southern Pacific Railroad Co........ 197
PAGE.
South Yuba Canal Co 101
Tem Flute M. Co........ 276
Vallejo Savings, Loan & Trust Co........ 101
Visalia & Owens River Toll Road Co........ 343
PAGE.
Von Humboldt M. Co..... 276
West Indian Benevolent Association 53
White Pine Smelting Co.. 285
Zeile M. Co........ 404

NEW VOLUME, JULY 1, 1870.

SUBSCRIBE FOR THE

Best Illustrated Newspaper

— FOR —

PACIFIC COAST READERS.

The Scientific Press,

[ESTABLISHED 1860.]

A large Illustrated, Practical Scientific Home Journal, devoted to

Mining, Farming, Mechanic Arts

AND INDUSTRIAL PROGRESS.

Each weekly issue contains 16 pages (size of Harper's Weekly), except our double sheet, published on the first week of each month, which comprises 24 pages. It is ably edited, and contains, in concise and desirable form, all the most important discoveries, inventions, improvements and developments in the various branches of Science, Mechanic Arts and Industrial Pursuits, interesting to all intelligent readers on this coast. We make a live paper for the times, using plain, comprehensive language, giving information which cannot be had from books, or so readily and cheaply obtained from any other source. Each number often furnishes profitable hints to the reader worth many times its annual subscription price. Please examine sample copies and subscribe at once, and you will not regret it.

Terms, for six months, $2.50; one year, $4—payable in advance. Sample copies of the PRESS and illustrated Patent circulars sent free on receipt of postage stamp.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street, San Francisco.

DEWEY & Co.

American and Foreign

Patent Agents.

Scientific Press Office, 414 Clay Street,
SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditiously.
Patent Reissues Taken Out.
Patents Secured in Foreign Lands.
Assignments Made and Recorded in Legal Form.
Copies of Patents and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assignments Recorded in Washington.
Examinations Ordered and Reported by TELEGRAPH.
Rejected Cases taken up and Patents Obtained.
Interferences Prosecuted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Every Legitimate Branch of Patent Agency Business promptly and thoroughly conducted.
ILLUSTRATED CIRCULARS FREE.

DEWEY & CO.,
Publishers and Patent Agents, No. 414 Clay street below Sansome, San Francisco.

One Per Cent. per Month

Allowed on Six Months' Deposits by the CALIFORNIA BUILDING, LOAN AND SAVINGS BANK, California street, one door from Sansome.
THOMAS MOONEY, President.
August 2, 1869. 6v19-1m

C. J. KING, T. B. KIMBALL, P. D. CODE.
P. D. CODE & CO.,
MANUFACTURERS OF
JELLIES, JAMS, PRESERVES, PICKLES,
KETCHUP, SAUCES,
Canned Fruits and Vegetables of superior quality.
621 and 623 Front Street,
Between Jackson and Pacific, San Francisco. [16p